

Summary of recommendations on energy efficiency improvements to Corner Green houses

Background

When the corner greenies surveyed residents two years ago, the highest ranked item of interest was to share ideas for increasing the energy efficiency of our homes (along with protecting biodiversity).

The committee asked South East London Community Energy (SELCE), an independent and non-profit organization that works across Lewisham and Greenwich boroughs, to advise us on the best adaptations and options for our style of house.

SELCE brought three different groups of experts to survey our houses from the outside and visit no 1 and no 6 inside to make recommendations for improvements. The experts included a retrofit specialist from Waxwing Energy; energy performance assessors from SELCE and architects from the sustainability practice EnBee.

Each group produced their own report, and residents are very welcome to have direct access to these documents. For ease, we have summarized what we think to be the most useful elements of the three reports below.

We also welcome feedback and would like to hear from you about any solutions you already have in place so we can share what works across all residents.

Why look at the energy efficiency of our homes?

- Many residents find that Corner Green houses overheat upstairs in the summer and the downstairs can be too draughty in the winter. This may be exacerbated as weather patterns become more extreme and unpredictable. Increasing efficiency should help to keep the buildings at a more stable temperature.
- Improved energy efficiency also means lower energy bills and a reduced impact on the environment
- A good Energy Performance Certificate rating increases the market value of a home.
- The government has announced that by 2030 it will bring in a requirement that privately rented homes achieve an EPC Rating of C or above.

What is the current EPC rating of our houses?

Most Corner Green houses would get a D or E EPC rating. A 'C' rating is considered to be an acceptable standard, and more than 50% of UK houses achieve a C or above.

During this exercise, 1 Corner Green was given a D rating despite double glazing throughout and a well-insulated back extension. This implies that Corner Green houses perform below the national average even with modification and modernization.

Reducing overheating and heat loss

The reports make the point that the different orientations, changes in level and mid / end of terrace locations will have an impact on the way our houses are best 'thermally upgraded'. However, the points most relevant to all houses are summarized below:

Windows

The extensive glazing in our homes is the primary reason for overheating in the hotter months, and we lose a lot of heat out of them (28% of 1 Corner Green's heat loss is from windows (despite double glazing) in comparison to a typical home average of 10%).

The centre-hinged window design was brought up by all three reports as an issue that means our windows are hard to keep airtight and also make it tricky to have the window open and the curtains drawn in the hotter months. If residents are replacing windows, they could consider opting for a different design for better airtightness and functionality.

All reports recommended upgrading homes to high spec double or triple glazing, and there was reference to solar-reflective glass, which may be useful in particular on south-facing windows.

The architect's report suggested we could explore a uniform approach to external shading on the upstairs windows, like a 'brise soleil'.

Roof

Upgrading the roof to a more modern material and specification should have a noticeable impact on insulation. The architect emphasizes the need to use natural insulating materials on the roof which slow down heat transfer. Otherwise, there is a risk that a well-insulated roof could lead to further overheating upstairs. One report suggested green roofs could be an eco-friendly option to consider.

Modifying the roof light so it can open is important for ventilation and helps to keep the upstairs cool. We also want to investigate the measurable benefits of tree cover.

Porch

Two of the reports raise the porch as an area of heat loss. One recommends that it is triple glazed, another recommends instead focusing on making the inner porch door a strong heat barrier - ensuring it is double glazed and airtight/well sealed or has a draught excluder or curtain over it. If your porch gets a lot of condensation in the winter, this is a sign that heat is leaking out through the inner porch door.

Walls

All three experts recommended some form of internal wall insulation, especially in key areas of the upstairs – around the windows and roof joints and between the ceiling joists. This is intended to help with both retaining heat in the winter and reducing overheating in the summer.

Two of the experts recommended cavity wall insulation, but another suggested that our bricks are porous and so cavity wall insulation could lead to damp problems.

The architects proposed that residents keep/ reinstate the sliding door at the bottom of the stairs to retain more heat downstairs.

Floor

All reports remarked on the issue of needing to dig out the solid floors to add insulation underneath. The cost-benefit ratio of this work was not considered favourable.

Ventilation

The recommendation from all the experts is to both increase the airtightness of the houses in general, but then to install constant ventilation systems, either through automatic humidity extractors, or trickle vents in the windows. This feels counterintuitive, but especially for residents that have any condensation issues, or feel like the air is too dry or stagnant, this may be a useful and cost-effective investment.

Renewable energy sources

All reports raised air source heat pumps (ASHP) as an initial upgrade, with solar panels proposed as a phase two upgrade to result in a fully sustainably-powered house.

As it stands, our houses are too poorly insulated for an ASHP to provide adequate heating. ASHP systems would also require upgrading radiators in most cases. The limited size of our gardens, proximity to neighbours and the noise that ASHPs make were highlighted as issues to consider. The architect's report suggested we could consider a uniform system of storage cupboards for bins and ASHPs along the back lanes/ behind each house.

Two of the reports suggested we could look instead at a communal ground source heat pump on a loop to serve all houses.

General upgrades

The reports offer some generic recommendations for all homes, such as upgrading to a newer boiler, cleaning vents from any dust or debris, keeping gutters clean, and ideally avoiding drying washing on radiators in the winter. These reports looked specifically at retrofit, but of course there are also fabric options, including curtains and blinds and floor coverings.

Costs

The reports provide indicative costs for undertaking phased retrofit projects - which are high. However, the aim of this exercise was really to share some overall insights for residents to be more informed about how our homes are currently performing on energy efficiency, and the areas which have most impact.

Some residents may be eligible to apply for government and council grants to make improvements to houses that score a D and below. SELCE's primary area of work is to support borough residents with accessing public funding for retrofit, so they may be a good first port of call.

Possible communal projects for CGRS based on expert reports

- Coordinate resident retrofit projects to get lower quotations
- Consider looking into uniform design options e.g. roof lights that open for ventilation; external shading to windows that are most exposed to the sun; how and where to position air source heat pumps
- External insulation could be added behind the facias to reduce the thermal bridge above the upstairs windows (could be combined with replacing asbestos); and a thin layer of insulation could be added behind the wooded cladding boards next time they are being repaired and painted (no. 2 already has this in place and it is not noticeable to the naked eye)
- Ambitious: a communal renewable energy system could be put in place such as a loop heat pump on a district network to serve all properties.