

Energy Efficiency Report- Kimmel Bay Community Building

Building Condition

Issues Identified

- Some windows are still single glazed
 - Draughts around windows and doors
 - Some damaged panels and gaps around fire doors
 - Heating system is old and inefficient
 - Some areas of the clinic struggle to stay warm in winter
 - Portable heaters are being used in colder rooms
 - Heating controls are confusing and inefficient
 - Many lights are still older fluorescent fittings rather than LED
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Energy Use and Carbon Emissions

The building currently produces:

- **23.63 tonnes** of carbon emissions from gas heating
- **3.68 tonnes** from electricity use
- **Total: 27.31 tonnes CO₂e per year**

The report confirms that gas heating is responsible for most emissions (around 87%).

The building's energy certificate is out of date and should have been renewed in 2024. It's a landlord's responsibility to have an adequate ECP rating- fines of up to £5000 if there is not one in place. Under the MEES (Minimum Energy Efficiency Standards) by 2030 the ECP rating must be a C.

Recommendations

1. Repair and Improve the Building

The report recommends:

- Replacing remaining single glazed windows
- Improving insulation
- Repairing damaged doors and gaps
- Carrying out general maintenance to reduce heat loss and improve security

2. Replace the Heating System

The report recommends moving away from gas boilers and switching to electric heat pumps.

It is recommended that the clinic installs an Air to Water ASHP. This would feed a network of new, larger and more efficient radiators to heat this part of the building. Due to the longer service hours and 5 day a week use Air to Water is seen as an appropriate technology.

For the library and community centre, with their reduced opening hours then an Air-to-Air ASHP would be a better fit. Both units already have an element of blown air heating with both areas having fan assisted radiators. Providing heat from a heat pump rather than a gas-fired boiler is a much more efficient method of heating with ASHPs capable of providing 3kW of heat per 1 kW of energy consumed compared to gas' 0.9 kW of heat for every 1 kW of energy consumed.

Having three separate heating systems allows each entity within the building to be responsible for their own energy consumption and allows for a variety of technologies that suit the use of every unit.

Domestic hot water within the building would need to be provided by point-of-use electric water heaters in the parts of the building heated by Air-to-Air systems. It would be possible for the clinic to have hot water provided by the Air to Water ASHP but unless the hot water consumption is high then point-of-use heaters would probably be the best option here too

Suggested options:

- Separate heating systems for the clinic, library and community centre
- Air Source Heat Pumps (ASHPs)
- More efficient radiators and heating controls

Benefits include:

- Lower carbon emissions
- Better energy efficiency
- More control over energy use and bills
- Reduced reliance on fossil fuels

3. Solar Panels and Battery Storage

The building is considered suitable for solar panels due to the large south-facing roof.

Proposed System

- Solar panel system: approximately £25,000
- Battery storage: approximately £10,000

- Total estimated cost: £35,000

Estimated Benefits

- Could provide around 89% of the building's electricity demand
 - Estimated annual savings of around £3,900
 - Potential additional income from exporting excess electricity
 - Estimated payback period: approximately 9 years
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4. Upgrade Lighting

Replacing remaining fluorescent lights with LED lighting could:

- Reduce lighting electricity use by around 50%
 - Save approximately £400 per year
 - Cost around £1,800
 - Pay for itself in around 4.5 years
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5. Improve Energy Monitoring

The report recommends:

- Installing smart meters
- Better monitoring of energy use
- Separating utility bills for each part of the building

This could help reduce unnecessary energy use and improve fairness between tenants.

6. Consider EV Charging Points

The report suggests exploring electric vehicle charging points in the car park to:

- Support local residents
 - Encourage greener transport
 - Potentially generate income for the building
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Overall Conclusion

The report concludes that:

- The building has significant potential for energy improvements
- The current heating system is old and inefficient
- Investment would be needed to modernise the building
- Solar panels, insulation improvements, LED lighting and new heating systems could greatly reduce running costs and carbon emissions over time
- The building could become more energy efficient, environmentally friendly and cheaper to operate in the long term.