Newark Town Hall

Building and construction

Newark Town Hall is a large Town hall that occupies a prominent position on the market square in Newark-on-Trent. The main town hall consists of four storeys, plus a basement, and adjoins the 'Butter market' shopping centre, which is owned by the District Council. The Town hall dates from 1774, but has various additions, including colonnades that were added in 1995. The main structure is a solid wall construction built from white sandstone and brick, with a slate roof. The Colonnades are constructed from glass and steel.

Image 1

Building use

The building houses the Parish Council offices as well as business tenants (currently 4) and hosts multiple public and private functions including weddings. The Town hall also houses a museum and art gallery devoted to the history of Newark-on-Trent.
The building generally has 15-20 permanent occupants (council staff and tenants) along with any number of public attendees in the museum or function rooms.

Constraints

Newark Town Hall is Grade 1 listed and situated in a conservation area. The whole building is legally protected as a cultural asset, and this includes attached and adjoining buildings. Any changes to the building need to be considered an 'improvement' and all changes must be considered on a case-by-case basis. In some cases, the potential 'heritage harm' of modifications can be offset against public benefit, but the listed status is likely a significant barrier to many of the more common decarbonisation interventions, notably when involving the fabric of the building.
In terms of finances, the council has an annual precept of £1.1m, and total annual income of £2.1m. It is currently repaying £700k for works to the ballroom and has financial reserves of around £2m.

Decarbonisation: Current situation and suggestions.

Context

The last election saw an increase in the numbers of Green Party councillors elected, and the Council itself has a carbon footprint which was calculated using 2021 data. There have been various climate and nature-friendly initiatives that have been implemented by the Council, including tree planting, replacing the grounds maintenance contract with climate-friendly procedures and switching to peat-free substrate for floral displays. Despite this, climate is still embryonic in terms of a long-term strategy. It is the Clerk who is ostensibly 'responsible' for the sustainable performance of the building, however the Council has a climate change working group who sign off climate-based decisions. The Council has sustainability requirements built into its procurement processes; however, this only applies at tender level.

Newark Town Hall is currently awaiting the results of a CCTV survey of the flue system, and there is a planned audit that will assess the whole building (using a RAG analysis method) to determine which parts can be adapted or upgraded. The condition of the building is generally sound but was last assessed 30 years ago and some renovations are overdue. Pressure from local community groups regarding decarbonisation has been low, and there is some concern regarding the use of public money. There is generally more focus on the use and protection of green spaces, rather than net-zero as an overarching idea.

Approximately ten years ago, Newark District Council was presented with challenges in terms of energy-efficient upgrades to their headquarters, a grade 1 listed mansion. Faced with potential upgrade costs of several million, the decision was taken to relocate to a purpose-built low-carbon building. Any suggested decarbonisation initiatives for Newark town hall need to be considered in this context: it may be more suitable to adapt the usage patterns of the building to suit the occupants (less permanent occupants to reduce the requirement for constant energy use)

Windows and apertures: Windows are original, timber framed and single glazed offering minimal insulation and little to no draft exclusion (Image 7).

Image 2

Mitigation: It is highly unlikely that the windows could be replaced given the heritage status of the building. It is possible that they could be restored and fitted with secondary glazing, however this would be an expensive intervention and would likely result in high payback times, likely to be measured in terms of decades when compared with potential energy savings

Insulation: Newark Town Hall has no wall cavity and no internal or external wall insulation. There is no insulation above the ballroom, and no further additions were noticed during the visit (although the roof void was not observed). It was noted that the temperature varied from room to room, and the anecdotal reports from the clerk suggested that the building feels hot in summer, and the ground floor is cold in winter. This is despite the thick stone walls of the building likely providing an element of seasonal temperature regulation.

Mitigation: The walls have no cavity, and internal and external wall insulation would be prohibited due to conservation status, as well as being high cost and relatively low impact. Based on the results of the upcoming survey, adding insulation to the roof cavity would be recommended.

Space heating and hot water: Heating is provided by a gas boiler (Image 8), installed in 1990 and reaching the end of its life. The boiler is likely to be replaced with a more efficient alternative, pending the results of the CCTV flue survey. It is likely that there is a hot water cylinder in the building although this was not observed during the visit. Radiators are relatively small and often positioned directly under the windows. No pipe lagging was seen. Currently there are no thermostatic or zonal heating controls on the building, however installation is planned alongside the heating system replacement.

Image 3

Mitigation: It is unlikely that air-source or ground-source heat pumps will be suitable for Newark Town Hall given the heritage status and levels of insulation, however the constant occupancy rates of the building would suit a low-grade constant heat output. Pending the results of the flue survey and building assessment, it is predicted the most suitable replacement at this time will be a more efficient natural gas boiler, although alternatives could be explored such as a boiler compatible with alternative fuels such as bio LPG. Additionally, there is air-handling for the ballroom, but no heat exchange unit, so potential to expand this system should be explored.

Given the low insulative properties of single glazed windows, it may be advisable to move radiators from directly beneath them and lag any hot water pipes situated in areas that would not benefit from the heat.
Any efficiency benefits from a replacement heating system would be hugely augmented by the installation of zonal heating controls, allowing for more accurate provision of heat-on-demand to suit the working and usage patterns of the building.

Figure 4 Depicts Newark Town Councils current gas usage (blue) and an indicative usage line (orange) you might expect to see if Newark switch their current boiler system for a newer condensing boiler.

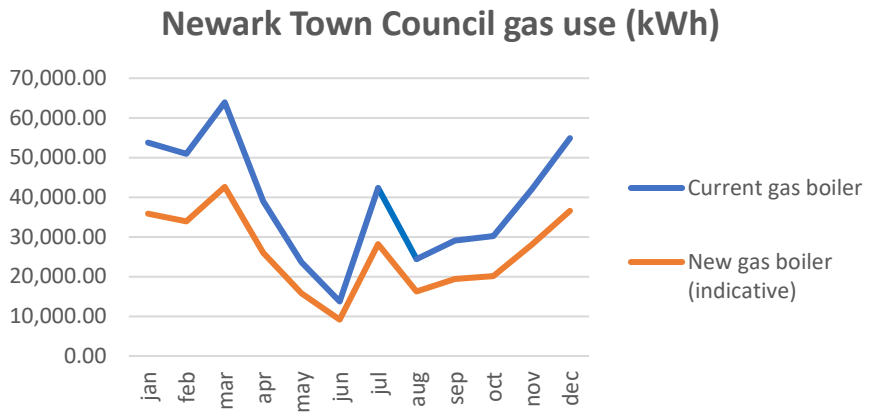

Figure 4

Condensing boilers have efficiency rating of roughly 90-95% compared to the expected 60% efficiency of a 25+ year old system. At the cost per kWh of gas at the time (3.125 pence), a new boiler could represent a 33% saving in kWh used and therefore a reduction in cost. This would result in an annual saving of £4874 (based on 2022 bills, doesn't consider additional standing and CCL charges).

Lighting: All lighting has been changed to LEDs where possible, including the external and market square lighting.

Solar PV: The roof of Newark Town Hall is pitched and orientated North-South (image 9) which would make it ideal for Solar PV, but this is unlikely to be possible under planning constraints. This is despite the roof not being visible from street level.

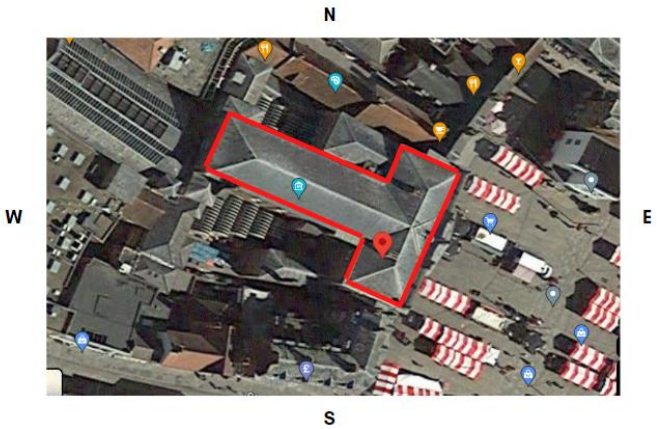

Image 4

Mitigation: Developments are being made in the field of solar film and transparent panels (which often do not require interference with the roof fabric) and these should be taken into account alongside any future changes to planning regulations.
It is possible that Solar PV could be installed on the roof of the butter market, or as part of the attached colonnades (image 9) , which are not subject to the same stringent planning regulations.


Image 5

The planning obstacles for buildings such as Newark Town Hall are representative of the fact that the requirements and goals of net zero are often fundamentally at odds with those of conservation and planning. Progressing net zero will require a relaxation of certain regulations to reduce energy usage and climate impact. The most impactful thing a council can do in a situation such as this, is to campaign for climate-friendly initiatives to be prioritised over heritage concerns where the outcome does not fundamentally alter the fabric or look of the building.

Other: Newark Town Hall contains a commercial kitchen space which is hired out to third-party caterers. The kitchen contains a large gas hob and oven, which can and should be replaced with an induction hob, offering high energy efficiency and reducing scope 1 emissions. Induction has the added benefit of lowering the amount of heat radiating into the room itself, and not exposing kitchen staff to direct combustion of fuels.


Image 6

Travel: There is no real business travel undertaken by council staff, although the Mayor has a hybrid car and driver. The town-centre location of the Town Hall means there are easy links to public transport, and the town has reliable bus and cycle-hire schemes. There is provision of public bike storage (although not secure) and no allocated parking or EV charge points, although there are many located throughout the town, including at the District Council offices.

Mitigation: If there is a suitable space, secure bike storage for staff should be considered, alongside the provision of shower facilities to encourage uptake of active travel.

Waste: All waste is segregated and recycled, and a commercial waste contractor is used for collections. Separate bins are provided for staff, although it was observed that some desks had their own wastepaper bins, which can reduce overall recycling rates over time.

Mitigation: The emissions associated with waste are largely linked to its fate, which can vary depending on the facilities offered in different regions. The ultimate waste profile of Newark Town Hall is unknown, but an audit is recommended, including creation of a policy based on waste avoidance, and engagement with the contractor to determine the ultimate fate of the waste.