



DECARBONISATION PILOT PATHFINDER PROGRAMME

MCA Architects

Role, Insights and
Takeaways informing
HSE's Infrastructure
Decarbonisation Roadmap

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4 Hanover Wharf
Asgard Road
Dublin D02 HX39

+353 (0)1 6760916



INTRODUCTION

MCA have been delivering outstanding and sustainable healthcare projects to the HSE and private clients for over thirty years. We have a specialist, highly skilled healthcare team in-house and our expertise spans the healthcare spectrum from acute care to primary care, community and residential care.



Based on this track record and our extensive health-care expertise, we were appointed as Technical Advisor lead by HSE to manage and guide their 'Deep Energy and Carbon Retrofit Programme' as part of the overall 'Infrastructure Decarbonisation Roadmap'. Our expertise on understanding the particular issues associated with healthcare properties was instrumental in ensuring that the required carbon and energy reduction proposals will be realised.

THE DEEP ENERGY AND CARBON RETROFIT PILOT PATHFINDER PROGRAMME

This programme is a substantial part of the HSE's response to the requirements of the Government's Climate Action Plan which states that all public sector buildings must achieve a BER of B or higher with 51% absolute carbon emission reduction and 50% improvement in energy efficiency, by 2030.

As the HSE has an extensive estate spanning all areas of the country with approximately 2,500 sites and 4,500 individual buildings, equating to almost 1.8 million sqm of floor area, this was always going to prove to be a major challenge. MCA's technical guidance, based on extensive prior experience and a deep understanding of both HSE's complex needs and building structures, was crucial in providing recommendations on how best to implement the measures.

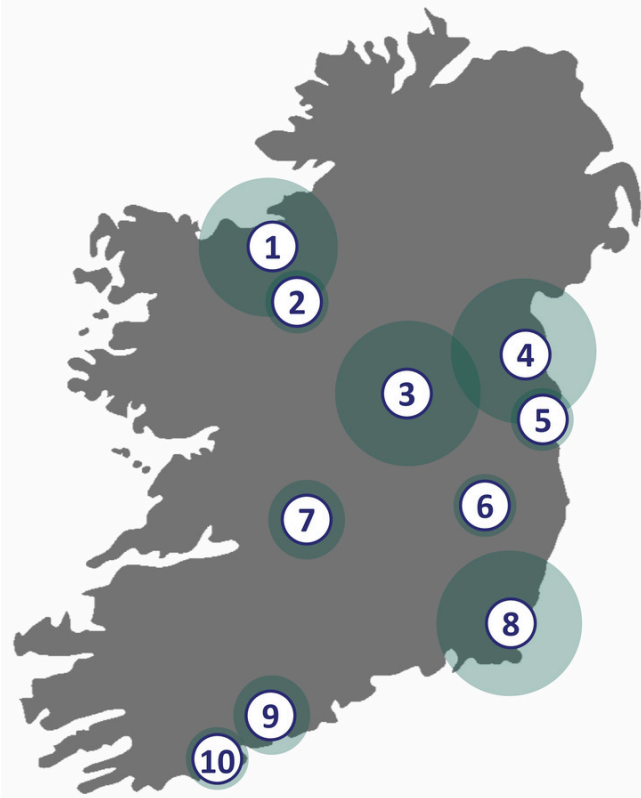


DETAILS OF THE PROGRAMME

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The HSE, in partnership with SEAI, developed the programme and identified 10 healthcare sites distributed throughout the country which were representative of their wide range of building types and sizes, ranging from single storey residential units on rural sites to acute hospital campuses on tight urban sites incorporating buildings of varying vintages, complexities, heights and construction.

MCA's role within the programme was to lead, guide and manage multiple Design Teams who had been engaged to progress designs within four regions and to advise on the retrofit works proposals to improve energy and emissions performance towards achieving the targets set. MCA also led the assessment and evaluation of viable technical solutions which would be suitable for use in healthcare environments.



1. Sligo University Hospital
2. Plunkett CNU
3. Mullingar Hospital
4. OLOL Drogheda
5. Lusk CNU
6. Baltinglass CUN
7. Nenagh HC
8. Wexford Hospital
9. Aras Sláinte Office
10. Clonakilty CNU

HEALTHCARE SPECIFIC ISSUES

Unlike other building types, healthcare facilities have unique issues which must be considered when retrofitting or upgrading. Some of the main healthcare specific issues, which MCA were able to provide guidance on comprised of:

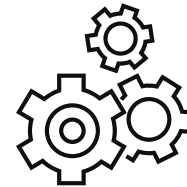
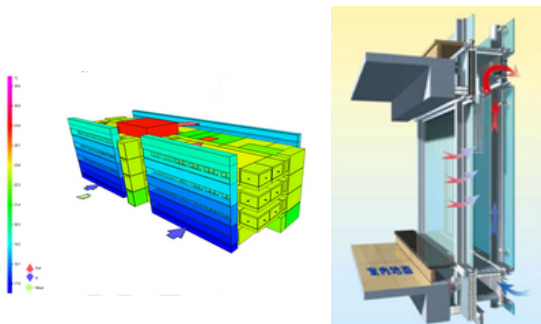
- The buildings providing acute and residential care are occupied 24/7 making internal refurbishments difficult to accommodate.
 - Campuses are often located in tight suburban and urban areas with limited room for future development or options for decanting existing buildings.
 - The sites generally include extensive temporary structures, particularly in acute settings, which can provide critical support facilities.
 - Large campuses comprise of different building types, ages and conditions
 - Given the history of numerous healthcare sites, they often include protected structures which can complicate retrofit and upgrade measures due to planning restrictions
 - Hospitals often include multiple heating systems of varying conditions, ages and fuel sources.
 - Infection control measures impose strict limitations when carrying out works within the buildings and this therefore generally favours external solutions where possible.
 - Acute healthcare campuses follow development control plans to ensure they are extended in a sustainable and considered manner. These plans will provide direction on where new build and retrofit solutions may be provided and where decanting solutions can be accommodated to vacate and upgrade the buildings.
 - Older buildings have structural and floor to floor height restrictions often unsuitable for future treatment, diagnostic or critical care purposes which must comply with current HTM and HBN standards, and therefore, may only be suitable for administration or similar support functions.
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SOLUTIONS IDENTIFIED



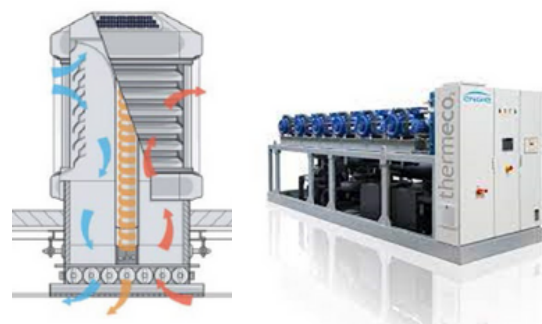
Building Fabric

- EWI solutions using non-combustible insulants, semi-rigid mineral wool batts or hemp fibre insulation and integrated rain screen solutions to mimic existing rendered, cladding or stone finishes.
- Pumping cavities with EPS bonded bead insulants to supplement EWI solutions and improving air-tightness within the buildings.
- Triple glazed windows and doors as standard.
- Replacing flat and pitched roofs with insulated build-ups and new finishes.
- Where required, the provision of insulated dry lining but this generally only applies to some protected structures where external solutions would not be appropriate.



Services

- Air to water heat pumps with water-to-water booster heat pumps which will bring the water up to 78° enabling the existing heat emitters and pipework to remain in place, reducing disruption to the live accommodation.
- Photovoltaic arrays to surface car parking areas and on building roofs
- Solar thermal panels to roof areas to preheat the hot water.
- LED lighting and improved controls throughout.
- Limited meters on the sites and the inability to track plant running times requires improved BMS controls to manage energy use, log data and assist with maintenance strategies for primary plant.
- Prioritising natural ventilation.



RESULTS

Under MCA's stewardship, the designs for all 10 projects will deliver on the required anticipated BER ratings and the learnings from this project are being collated into a summary report to inform an application for a Phase 2 Deep Retrofit Programme – focusing on Site DCPs, Building Stock Plan and coordination with Capital Plan and Infrastructure Resilience Plans.

Based on this success the National Capital and Property Steering Group approval has been received to progress Stage 2 design across the Pilot Pathfinder Sites and Business Cases / Project Briefs have been completed for 5 of the sites.

The Pilot Pathfinder is programmed to progress through Statutory Approvals / Detail Design / Procurement in 2024 with on site-construction to progress in 2025 & 2026.

EXPERIENCE GOING FORWARD

With the step up in the requirements of the EPBD and the huge emphasis on the futureproofing of new projects along with the requirement for deep retrofitting of existing buildings, the experience of leading this scale of successful Deep Retrofit projects now puts MCA in a very advantageous position to be able to provide this type of expertise across a number of sectors and help clients upgrade their portfolios in line with the target of all buildings having net zero emissions by 2050.

Contact

Peter Duffy
Director, Healthcare Lead
MCA Architects
pduffy@mca.ie

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