



The UCC Lewis Glucksman Art Gallery was opened in October 2004. Taking just over 4 years to procure, this project was so unusual that the services engineers had to start from a clean canvas in their attempt to meet the client brief. There is 2350 m² of floor area spread over 7 floors. The building is an architectural masterpiece, which has been very sensitively etched into the natural surroundings of the river Lee. It is purpose built and equipped with state of the art facilities, including international curatorial standard environmental conditions and security controls.

The gallery is anchored into the limestone escarpment at basement level while the galleries are held aloft, cantilevered out over the river banks. Clad in Carlow limestone and angelim hardwood, the architecture itself succeeds in nestling in with the natural environment of the riverbank. And it is to the river the engineers turned their attention to source much of the energy required to heat, cool and provide moisture control in the gallery.



The building's HVAC systems were selected from a palette of innovative technologies, carefully adapted to match the requirements of each space while optimising the benefits of energy efficient solutions. A Ground Energy Thermal Transfer System (GETTS) coupled with displacement ventilation is used to transport thermal energy from ground water to the gallery spaces. Two ground-water cooled chillers generate chilled and heating water at the same time, achieving extremely high Coefficients of Performance, refer fig.1. Net thermal energy balance to the system is transferred to or from the ground water through a plate heat exchanger. The ground water is also used for toilet flushing and landscape irrigation with excess discharged to river. With thermal capacity of 200kW, this is the largest geothermal application in Ireland.

A research study concluded that energy consumption will be reduced to 400,000 kWhr, 175 kWhr/m²/annum, 25% of the levels expected from conventional chiller and boiler heating systems (for the assumed hours of operation). CO₂ emissions have been reduced by 256 tonnes per annum.



All systems have been designed to minimise noise intrusion to the gallery space. This results in larger, low-velocity, duct distribution systems and acoustic attenuation on all plant, including the use of specially lined drainage systems. Due to the limited plant accommodation of rooms, routes and risers, the services have been threaded through the building fabric, using normally out-of-bounds zones such as the space between floor, wall and ceiling joists.

The appearance of the building has not been affected in any way by the mechanical services. Passers-by will not see or hear the systems that are providing a high spec controlled environment for the galleries, restaurant and kitchens.

Triple redundancy temperature and humidity control is provided by a BMS. Energy metering systems are in place to enable post occupancy evaluation to close the design feedback loop. The building is well equipped to meet the requirements of the forthcoming EU Energy Performance in Buildings Directive.



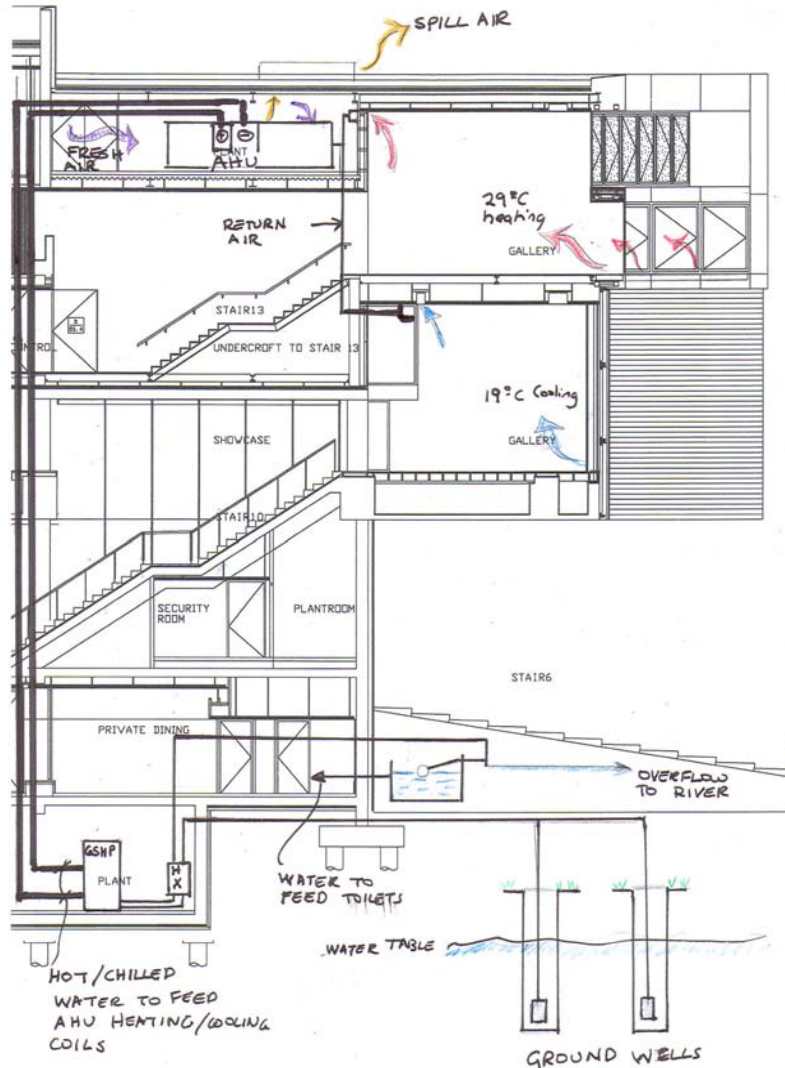
Day light is permitted in the wrap-around galleries that surround a windowless room for collections sensitive to natural light. All windows in the gallery areas are fitted with motorized blinds to facilitate control when daylight penetration is not desired. Lighting of gallery walls using dimmable fluorescent wall washers and tungsten halogen spotlights, fitted with adjustable UV filter and sculpture lens, provides flexibility to suit the particular exhibits on show. All galleries have floor outlets concealed within the timber floor for future display of freestanding exhibits.

External feature lighting of the building and riverside paths have been designed to incorporate bespoke fittings in keeping with the external appearance of the building. Uplighting of the concrete soffit produces a sparkling effect, caused by reflections from mica inclusions in the concrete mix.

A multi-zone intruder alarm system has been installed throughout the building and provides for separation of gallery and restaurant use. The alarm function is particularly useful as a motion sensitive CCTV system enables security personnel at the remote monitoring centre to immediately view cameras in the triggered alarm area.

Sophisticated IT systems and concealed sound equipment are provided for audio-visual performance art presentations.





Project credits

The successful completion of the Lewis Glucksman Art Gallery is a tribute to the effort and commitment to all those involved in its inception, design, construction and operation. The challenges presented by the demanding architectural vision and client brief have been overcome by the dedication of all who worked on the project.

Client Testimonials:

The Director for the Gallery, Fiona Carney, has enthusiastically observed that “ the project has been delivered within the budget of €12 million but another zero could be added to that number and it would not look out of place “.

Mark Poland, Director of Buildings and Estates, has expressed his excitement through acknowledgement of the massive research effort undertaken to implement innovative technologies while minimising risk “The Glucksman Gallery is seen by all in UCC to be a watershed in the standard of new buildings, buildings that capture the imagination of the public while achieving the triple bottom line of environmentally sustainable design. On a scale of 0 to 10, this project achieves the highest mark (10) for delivery of a highly serviced building within budget and programme while meeting the very demanding architectural and aesthetic objectives required of an internationally recognised art gallery.”



Design Team

Architects	O'Donnell Tuomey
Structural Engineers	Horgan & Lynch
Services Engineers	Arup
Quantity Surveyors	Andrews O'Keefe Collins
Fire Consultant	Cantwell & Keogh
Kitchen Consultant	Quentin Adams Design
Acoustic Consultants	AWN Consulting
Landscape Consultants	Brady Shipman Martin

Contractors

Main Contractor	PJ Hegarty
Mechanical Contractor	Mercury Engineering
Electrical Contractor	IIF Process M & E
Lifts Contractor	Ennis Lifts
Stoneworks	Stone Developments
Timber Cladding	Timber Structures
Glazing	McNeill & McManus, and Duggan Systems
Kitchen Contractor	Brodericks
Ground Source Heatpump	Dunstar Energy
Building Management	SystemStandard Controls