




IE_Cork_Western Gateway Building, UCC	
Image 01: Northeast view © Scott Tallon Walker Architects	Image 02: South view © PM Group
	
Image 03: Interior view © Scott Tallon Walker Architects	
	
Building Specifications	
Address	University College Cork, Western Road, Mardyke, Cork, Ireland
Building Category	Office/ Educational
Year of Construction	2009
Special Qualities	Groundwater heating and cooling
Location	51° Northern latitude, - 8° Eastern longitude. Located in city and surrounded by a large size building to the west, with residential buildings to the north and south.
Climate	Cfb (warm temperate climate, moist with adequate precipitation in all months and no dry season, warm summer)
Vent. Cooling Site Design Elements (Solar Site Design and Wind Exposure Design, Evaporative Effects from Plants or Water)	
Building orientation was southeast facing to take advantage of solar gain in the morning but reduce the solar gain effect in the evening. As areas of the building would have higher internal gains, rooms with estimated high internal gains were placed on the north side of the building, horizontal brise soleil were incorporated on south façade to reduce solar gains in summer.	
Vent. Cooling Architectural Design Elements (Form, Morphology, Envelope, Construction & Material)	
Construction: Design utilized thermal mass in form of exposed concrete soffits in over 90% of the ceiling area.	
Vent. Cooling Technical Components (Airflow Guiding Components, Airflow Enhancing Components, Passive Cooling Components)	
High level inward opening slat windows were actuated to supply cooling to offices using natural ventilation. Manual low level windows also available for occupants. Some offices use mechanical ventilation for supply air and natural ventilation via central atrium for return air to the central AHU. In winter heat recovery is achieved at the roof of the atria and in summer heat is rejected to atmosphere.	
Building Energy Systems (Heating, Ventilation, Cooling, Electricity)	
<p>Heating & Cooling: A groundwater supplied heat pump is used for both heating and cooling with 43m² of evacuated tube solar water heating panels and a gas fired condensing boiler for domestic hot water.</p> <p>Ventilation: Underfloor mechanical ventilation is used in areas with high internal gains. Displacement ventilation is used in auditoria areas. Night ventilation is performed with automated vents in areas with low heat gains.</p>	

IEA EBC Annex 62 Ventilative Cooling

Actuators, Sensors and Control Strategies
Ventilation system is demand controlled based on CO ₂ sensors with 1000-ppm set-point. Actuated windows are controlled using local temperature sensors in each office.
Building Ownership and Building Facility Management Structures
The Western Gateway Building is owned and managed by University College Cork. Architect: Scott Tallon Walker Architects
Acknowledgements
n/a
Datasheet Source: Keohane, Michael F. and Leonard, Declan (2012) "UCC's Western Gateway Building: a Case Study for the Integration of Low Temperature Heating and High Temperature Cooling Systems," SDAR* Journal of Sustainable Design & Applied Research: Vol. 1: Iss. 1, Article 3 Cork Institute of Technology © 2/2 All images and copyrights belong to the original owners and are reproduced for the purpose of training and education only