




<b>IE_Cork_Cork County Hall</b>		
<b>Image 01:</b> North view © BAM building	<b>Image 02:</b> Northeast view © Mercury Engineering	<b>Image 03:</b> Climatic Façade © BAM building
		
<b>Building Specifications</b>		
<b>Address</b>	County hall, Cork, Ireland	
<b>Building Category</b>	Office	
<b>Year of Construction</b>	2006	
<b>Special Qualities</b>	One of the tallest buildings in Ireland	
<b>Location</b>	51° Northern latitude, 8° Eastern longitude. Located in city and surrounded by buildings of a smaller size	
<b>Climate</b>	Cfb (warm temperate climate, moist with adequate precipitation in all months and no dry season, warm summer)	
<b>Vent. Cooling Site Design Elements</b> (Solar Site Design and Wind Exposure Design, Evaporative Effects from Plants or Water)		
Building is surrounded by smaller structures that have little effect on sun or wind exposure. The river Lee is located 100 meters to the north and the Curragehen river is 50 meters to the south of the building, which can contribute to cooler air in the area.		
<b>Vent. Cooling Architectural Design Elements</b> (Form, Morphology, Envelope, Construction & Material)		
Introduction of an automated double skin façade using glass cladding installed externally to the existing 1960's concrete and window envelope. This provided improved solar protection reducing incident solar radiation and also enhanced the control aspect of the façade enabling night cooling as a strategy as well as removal of heat build-up in summer months. The external louvers incorporated a 'hard' coating to reduce the 'g' value (solar transmission reduced). This improved thermal performance.		
<b>Vent. Cooling Technical Components</b> (Airflow Guiding Components, Airflow Enhancing Components, Passive Cooling Components)		
The primary principle of ventilative cooling relies on single sided ventilation primarily. The external operable glazed louvers protects the natural ventilation openings from wind and rain which allows the windows to be opened in any weather conditions. The tall building can get very windy at the upper floors and the new external louvers make it possible to achieve effective natural ventilation. On the west façade, the effects of evening solar gain can be mitigated through 'free' cooling through the night .		
<b>Building Energy Systems</b> (Heating, Ventilation, Cooling, Electricity)		
n/a		

## IEA EBC Annex 62 Ventilative Cooling

### Actuators, Sensors and Control Strategies

The control strategy relies on monitoring of external wind speeds, rain precipitation & air temperature. When conditions are acceptable the internal temperature then determines the level of cooling ventilation. Night cooling is also implemented and is controlled on air temperature.

In summer operation before 12 noon louvres on the east façade track sun and reflect excessive solar gains away from the building while louvres on the west façade are open. After 12 noon the functions are reversed respectively. In winter louvres are open to allow beneficial heat gains into the building during the daytime. Rain sensors drive the external façade louvres to the 45 degree position when protection is required. Finally the louvres close when outside air temperatures are less than 6°C or wind speeds are greater than 10 m/s.

### Building Ownership and Building Facility Management Structures

The building is owned by Cork County Council.

### Acknowledgements

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Datasheet Source:

Arup Engineers, Cork Institute of Technology

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