

**Location**

Belfast, Northern Ireland

**Client**

Northern Ireland Science  
Park

**Project at a glance**

Andover BACnet BEMS

Continuum BACnet  
Supervisor

Mechanical Services Control  
Panels

Controls Electrical Installation

Commissioning

Controls maintenance and  
remote Bureau support

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**Project Overview** Opened in summer 2006, White Star House is a 40,000 sq. ft. facility which provides over four storeys of approximately 10,000 sq. ft. per floor. It is a reinforced concrete building with its internal layout maximizing the workspace available on each floor and allows, if desired, the clear sub-division in the building into 8 self-contained domains. Each of these areas has its unique service platform which provides a location for the ventilation, heating and cooling equipment. Ground water is used to assist the cooling process and thus reduce its carbon emission and running costs.

The extensive use of glass in the work areas makes good use of natural lighting and the spectacular views to the north and south of the building. The major north and south elevations are framed in a solid or perforated metal panel feature, designed to reflect the former gantries of the Harland & Wolff ship yard. The three projecting features represent the three Olympic class liners – Olympic, Titanic and Britannic. White Star House is currently leased in its entirety to Citigroup and accommodates over 350 knowledge-workers attached to Citigroup's Northern Ireland Technology Centre of Excellence. The development sits within the 185 acre Titanic Quarter site which is planned to be the largest waterfront urban regeneration project in Europe with an estimated value of £1 billion.

**Control system overview**

The Building Energy Management System (BEMS) is a TAC Andover BACnet based system employing distributed intelligence stand alone controllers which are programmed using a plain English programming language.

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DIRECTORS  
D. A. Brookes • G. P. Spark • P. Blower  
Company registered in England No. 3211394



### Systems

Andover BACnet BEMS

Continuum BACnet Supervisor

Mechanical Services Control Panels

Controls Electrical Installation

Commissioning

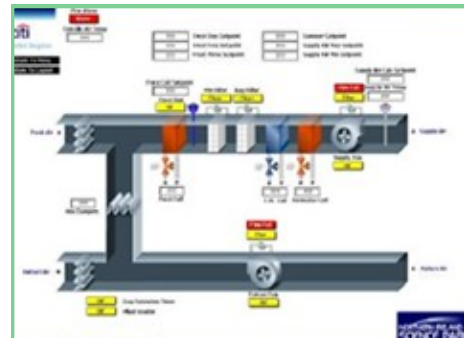
Controls maintenance and remote Bureau support

The BACnet controllers are distributed across eleven mechanical services control panels which control and monitor all the mechanical services plant. This is comprised of eight main air handling units, eight LTHW systems, two chilled water systems serving the multiple zones of Active Chilled Beams and the common condenser water circuit which uses ground source water for energy efficient heat rejection. Energy information is gathered from the electrical service landlords and tenant sub-meters, this facilitates energy profile monitoring and inter zone comparisons.

The system is remotely supported over broadband modem from our Warrington based Bureau.

### Special control features

The control system was pre-commissioned in its entirety prior to dispatch to site from our Warrington based facility. This involved simulation of all inputs and outputs and control software from the outgoing control panel terminals through to the BEMS supervisor graphics. A broadband modem link was set up to facilitate remote commissioning of the system. This link is now used to provide remote Bureau support and maintenance of the BEMS



### Energy conservation strategies

The cooling system condenser water is cooled by use of ground source water via tandem plate heat exchangers.

Zone optimisation minimises operation of the heating/cooling systems outside the occupancy periods.

Zero energy bands employed between the chilled beam cooling and perimeter heating systems reduce energy consumption and prevents overlap between the heating and cooling systems.

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**Andover Controls**  
System Integrator

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Member of  
**BACnet**  
International

