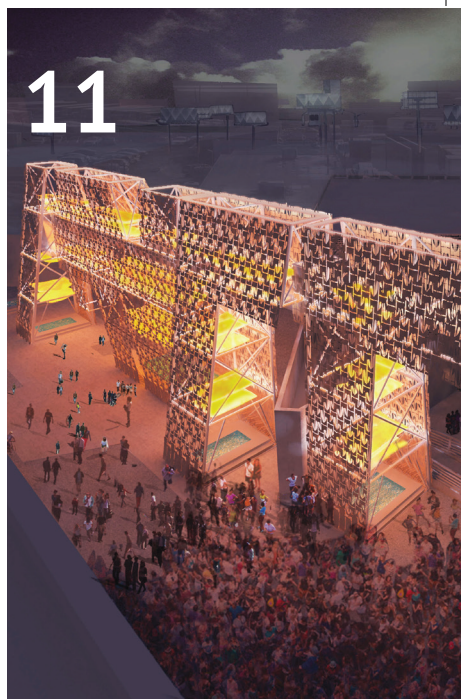


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Architects - Denis Byrne Architects
 Roland Bosbach, Denis Byrne,
 Sean Attley, Serena Bastianelli, Louise Clavin, Dave English,
 Gosia Meder, Marcus Reid, Gustavo Sapina
Landscape Architects - TOPOTEK 1 (with Cunnane Stratton Reynolds)
Environmental Consultants - Transsolar
Structural and Civil Engineering - Buro Happold
Mechanical and Electrical Engineering - Buro Happold
Façade Consultant - Buro Happold / FSA
Project Management and Quantity Surveying - Long O'Donnell
Acoustic Consultant - AWN
Ecologist - Open Field
Transport Consultant - MVA
BREEAM Assessor - Buro Happold
Main Contractor - Walls Construction

Project size - 5,200m²
Value - €15.7m
Duration - 17 months
Location - St Margaret's Road, Finglas, Dublin 11

Photography - Paul Tierney
Drawings & Axonmetrics - Roland Bosbach

BORD GÁIS NETWORKS

28 | 29 <

Report by Denis Byrne Architects

The new Bord Gáis Networks Services Centre is located where fragmented urban development and infrastructure meets rural landscape. Strategically placed in direct proximity to the M50 motorway, the new 5,200m² building consolidates the Dublin operations of Bord Gáis Networks in one single location and incorporates a number of its' primary operational functions including the:

- Design, construction, maintenance and operations of Ireland's distribution gas network;
- 24/7 emergency response for Dublin and surrounding counties;
- the National Technical Training Centre; and
- the Health, Safety, Quality & Environment Unit

The architectural design of the Networks Services Centre evolved from the winning entry of a two-stage RIAI-administered international design competition held in 2008. In response to the design brief, the new Networks Services Centre promotes an integrated sustainable design approach that balances a bespoke low energy

design with the specific operational requirements of its users, while also addressing the challenges of the peripheral site context with high levels of noise pollution from the M50 motorway and the nearby main airport.

"TAKING ITS INSPIRATION FROM INDUSTRIAL AND INFRASTRUCTURE BUILDINGS, AND COMBINING IT WITH A SOPHISTICATED OFFICE ENVIRONMENT, THE BUILDING FORMS A UTILITARIAN LANDMARK"

Site and Landscape Strategy

The new Networks Services Centre is set in a reconditioned landscape reaffirming the rural settlement pattern of compound and landscape at the fringes of the city. A new landscape integrates the required car parking and loading areas and connects the existing site and the anonymous green along St Margaret's Road to an extended parkland, presenting a green interface to the city.

A new common entrance plaza for the existing building and new Networks Services Centre is distinguished by a large group of oaks and an attractive new water feature. Terraced parking draws inspiration from traditional Irish hedgerows and features a central infiltration area with native grasses and landscaped pedestrian circulation. The treatment of storm water run-off occurs throughout the site in different forms – from the native grasses in the car park to a densely planted swale along the eastern border and to a water feature at a newly unified entrance to the site. Pedestrian circulation is emphasised, with paths and boardwalks creating a park-like network between the buildings and car park. Inside the new building a series of colour-themed courtyard gardens provide orientation and amenity spaces for the staff. A wooden boardwalk on the roof gives views to the surrounding area and a close experience of the green roof planting. >>



SITE PLAN

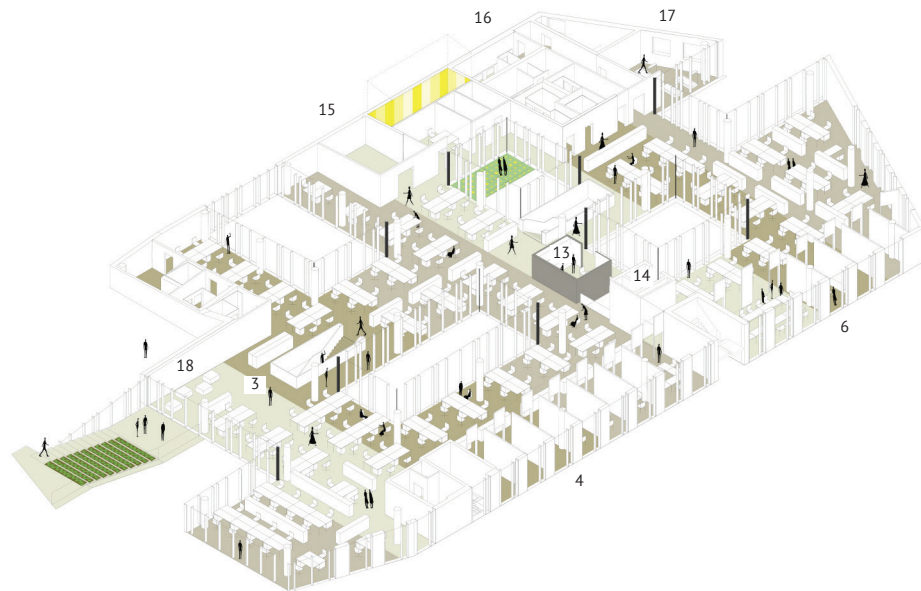
1. The new Bord Gáis Networks centre consolidates the Dublin operations in a single building, set in a new landscape on the fringes of the city. The plant tower is central to the environmental strategy



2	3	
4		
5		7

2. Service entrance
3. A layer of perforated silver anodised aluminium wraps the building in a light, permeable yet robust skin
4. The building is organised over two levels with sheltered courtyard gardens and a roof landscape providing amenity spaces for staff
5. The staff restaurant benefits from light and views of the landscaped areas
6. View of building and plant tower from the original competition (2008)
7. A sophisticated working environment allows for a flexible, inter-departmental work environment



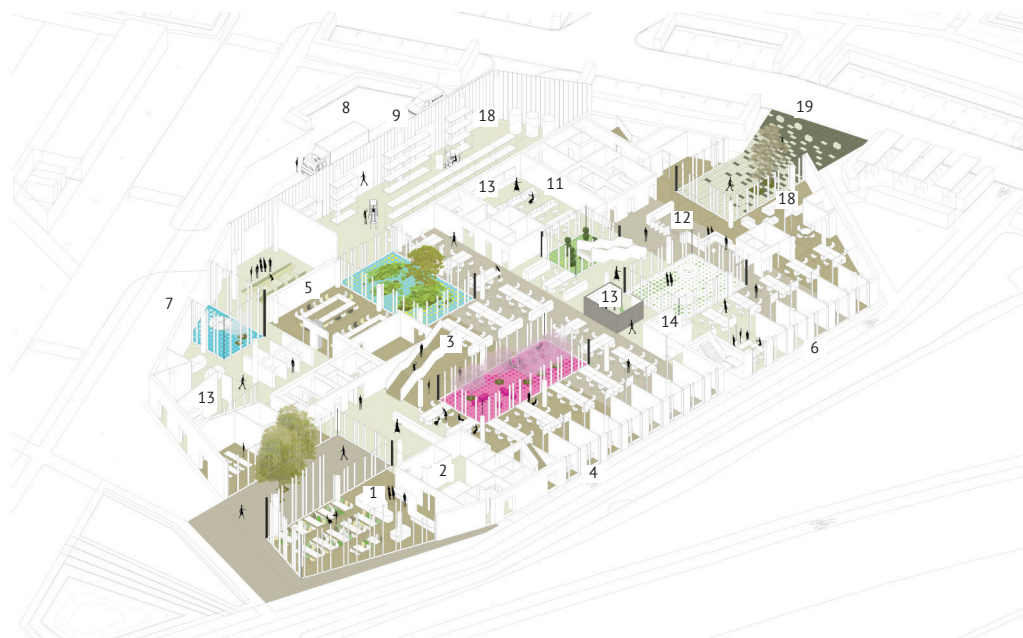


FIRST FLOOR - AXONOMETRIC



GROUND FLOOR - AXONOMETRIC

- 1 > Restaurant
- 2 > Kitchen
- 3 > Office open plan
- 4 > Offices cellular
- 5 > Classrooms
- 6 > Meeting rooms
- 7 > Training school
- 8 > Loading area
- 9 > Stores
- 10 > GSHP
- 11 > Emergency room
- 12 > Reception
- 13 > Tea kitchen
- 14 > Lift
- 15 > Data centre
- 16 > Showers
- 17 > Gym
- 18 > Break out spaces
- 19 > Main entrance from parking
- 20 > Secondary entrance



Building Design and Workspace Design

Taking its inspiration from industrial and infrastructure buildings, and combining it with a sophisticated office environment, the building forms a utilitarian landmark providing a common base for its diverse operational activities. Organised over two levels with sheltered gardens, office areas, emergency control centre, training facilities, stores and circulation woven to an informal fabric, the building enables a highly flexible and inter-departmental work environment.

A layer of perforated silver anodised aluminium panels wraps the building as a light, permeable, yet robust and protective skin that expresses and reacts sensitively to the operational program,

the external microclimate and the building's solar orientation. The super insulated envelope of the building with a U-Value of 0.15 for roof and walls exceeds current guidelines set out in Part L and achieves a verified air-tightness of 1.82m³/m².hr.

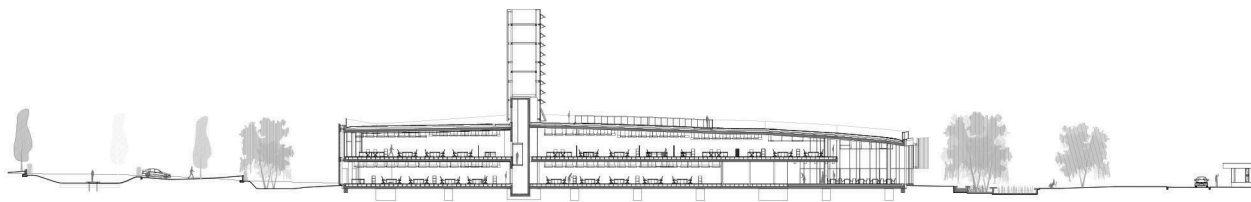
Working with BREEAM

While the Design Team defined sustainability targets early on in the competition stages, the integrated sustainable design approach facilitated a continued evolution of the environmental strategies in tandem with the landscape and building design, as well as specific end user preferences. The preliminary review under the bespoke building BREEAM assessment procedure at

competition stage indicated the potential of an "Excellent" rating. Embracing the BREEAM assessment as both marketing and management tools to safeguard the environmental aspirations, the client opted to continue the BREEAM assessment throughout the design and construction stages in order to maintain the "Excellent" rating. Monthly review meetings attended by the client, the Design Team and the contractor ensured that all parties were acutely aware of the inter-dependency between the environmental design components, the capital costs and life cycle costs, the material specification and long-term maintenance requirement and the detailed credit criteria under the BREEAM assessment.

8. A wooden boardwalk on the roof gives views of the surrounding area and a close experience of roof planting 9/10. The making of a new landscape – at different intervals – is central to the building design





SECTION

THE BREEAM DESIGN STRATEGY FOR MECHANICAL AND ELECTRICAL SERVICES BY EDITH BLENNERHASSETT

The brief for the competition was to deliver a sustainable building. The competition design was for a highly insulated and air-tight naturally ventilated and naturally lit building served by heat pumps, solar thermal and solar PV panels. A preliminary BREEAM analysis was carried out on the competition design and an Excellent rating was achieved. The tower was a fundamental part of the design – acting as the natural ventilation exhaust chimney as well as providing support for the PV and solar thermal panels whilst housing all plant for the building.

These fundamental aspects of the design remain in the completed building with the exception that the building became mechanically ventilated using an under floor displacement system. The tower was still used to collect exhaust air and a heat recovery coil was introduced to reclaim heat from the exhaust to pre-heat the incoming fresh air. The decision to mechanically ventilate the building was based on the high background noise levels on the site generated by the M50

motorway and the nearby Dublin Airport. The exhaust air rises naturally through the tower and a small axial fan has been provided where assistance may be required in summer months.

The structure of the building was designed to help to moderate internal temperatures with exposed concrete slabs absorbing heat in summer months to help keep the office spaces cool. To avoid high mass in the slab, and to deliver the mass where it was needed for best thermal effect, void formers were used in the structure minimising the use of materials.

The slab at first floor level slopes to help deliver the exhaust air to the base of the tower. In addition to the inherent thermal properties of the concrete, a series of pipe coils were cast into the slab. These deliver both radiant heating and radiant cooling to the office spaces.

The heating is served from heat pumps partly powered by the PV array. When cooling is required, the heat pump is by-passed and coolth is taken via a heat exchanger from the ground loop and is effectively 'free' delivering up to 160kW of cooling at a COP of 10. The incoming fresh air is heated by a high efficiency gas-fired condensing boiler located in the tower. This also supplies a top-up to the hot water above and beyond what is

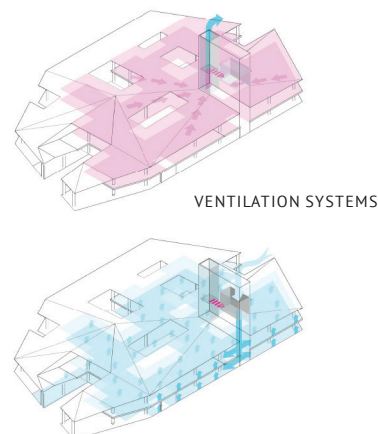
provided by the solar thermal panels. The 100m² photovoltaic panel array generates approximately 10,000kWh of electricity per annum meeting approximately 15% of the heat pump power requirement for the year. The 20m² solar thermal panel array deliver approximately 6000kWh per annum meeting approximately 50% of the annual hot water demand.

There are two ground coupled heat pumps rated at 180kW. These feed a buffer vessel which in turn serves two circuits – a low temperature circuit for the radiant coils – 32°C flow and 28°C return and a higher temperature circuit for radiators and trench heaters running at 45°C flow and 38°C return. The COP for the low temperature circuit is 4.5 and for the higher temperature circuit is 2.7. By splitting the circuits in this way, the maximum efficiency is delivered from the heat pumps. A number of small direct expansion heat pumps provide cooling to the meeting and training rooms. Heat is recovered from these heat pumps and put in to the buffer vessel which is also served by the solar panels to pre-heat the hot water for the building.

All of these measures ensured that the BREEAM excellent rating for the building was maintained even with mechanical ventilation and cooling provided.

CLIENT COMMENT BY JOHN BARRY

In 2008, Bord Gáis Networks embarked on a two-stage international architectural competition, facilitated by the RIAI, for a purpose built, low carbon, sustainable building on an existing brownfield site at Dubber Cross, St. Margaret's Road in Finglas. For over thirty years, we have been constructing gas pipelines with an excellent reputation earned through positive relationships and a respect for the preservation of the built and natural heritage on pipeline routes. We are ever conscious of our impact on the environment and communities and always endeavour to act responsibly and in





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12. The Bord Gáis
Networks Services
Centre is a powerhouse
of ideas – combining
innovative workplaces
with sustainable design



POWERHOUSE – THE BORD GÁIS NETWORKS SERVICES CENTRE BY LOUISE COTTER

The typology of the contemporary workplace has evolved significantly in the last 50 years. Frank Lloyd Wright's Johnson Wax, Herman Hertzberger's Centraal Beheer offices and Niels Torp's SAS headquarters are points on a timeline that is underpinned by an encyclopaedia of management and behavioural theory. Design concepts such as the 'bürolandschaft' (office landscape) with its organic clustering of work groups illustrate a culture of work that is on the cusp of even greater transformation, facilitated by advances in communications technology. The physical manifestation of this is not yet as evident as might be expected. The pace of change in the design of our workplaces has been limited to the ephemeral world of fitting out and spatial planning, rather than a fundamental shift in the organisation of the buildings that we spend most of our working lives in.

Resistance to change is reinforced by an established building supply chain (somewhat broken at present) that starts with investors and pension funds and moves on to developers, estate agents, architects and facilities managers. Few companies of small or medium size will have the means or long-term stability to commission their own buildings. Therefore the predominance of speculative commercial space has ensured the ubiquity of generic floor plates, minimal volumes and maximum net to gross ratios, and limited opportunity for interaction between different tenancies. The lift lobby is the public space, from which workers are propelled upwards to their allotted level. There may be an atrium if the footprint permits.

There has been little incentive for developers to invest in the level of design and technology that permits a sustainable adaptable and therefore innovative response to the requirements of the modern workplace. The Bord Gáis Networks facilities building therefore offered an ideal opportunity to commission an innovative solution for a contemporary place of work. The project was conceived at a time of change for Bord Gáis Networks, as it engaged in a business transformation programme, investing in its people, systems and

facilities, to sustain its future as one of Ireland's leading utilities. The site was not glamorous – a brownfield plot bounded on one side by the M50 and set on the outer fringes of extra-urban Dublin.

“THE NEGATIVE ISSUES PARTICULAR TO THE PLACE, THE NOISE AND LACK OF CONNECTION, WERE TAKEN ON BY DENIS BYRNE ARCHITECTS AND RECONCILED INTO A COHERENT ARCHITECTURAL RESPONSE TO THE SITE AND BRIEF.”

DBA have referred to the building in its setting as reaffirming the rural settlement pattern of compound and landscape. It is largely introverted, an amorphous structure, roofed over with a bucolic landscape of wildflowers and overlooked by a tower of services. The tower is both sign and powerhouse; signalling the Bord Gáis Networks presence along the M50 and festooned with solar panels. It is intentionally iconic. The building eschews the conventional arrangement of front office and factory shed; the multiplicity of functions and spaces inside are not expressed or differentiated. The building is sheathed all round with a defensive metal skin, which almost avoids the task of designing a façade composition. I say 'almost' because the skin has been peeled away in places to allow a number of windows to private offices and meeting rooms.

The building hosts a number of uses: administrative, technical, training and staff facilities and operates on a 24/7 basis. The client's decision to centralise and co-locate all of these activities in one building results in the building functioning as a small community rather than a conventional office. The scale of the building, akin to a small ship, is immediately apparent on arrival at the open entrance foyer; access is controlled through turnstiles. A wide staircase provides visual and physical connection to the floor above.

The building is densely occupied but logically planned. The operations and administrative workstations are arranged to one side of the axial route through the building. Two courtyards perforate this space. The training workshop and storage

area are placed on the opposite side; these too are interspersed with courtyards. The gas control room is the nerve centre of the building: an altar-like array of monitors tracking gas pressure and leaks throughout the country is placed on a yellow wall, washed with natural light from above. The building is something of a hermaphrodite; two equivalent entrance courts are carved out at either end of the axial spine. The main entrance to the north is adjacent to the parking area, while the southern court services the double-volume staff canteen.

The wide staircases lead up to an open floor where the expanse of the space is laid out under the undulating planes of the concrete roof. An even wider stairs outside forms a stepped outdoor room, handy for workers to catch a few rays, and continues up to the landscaped roof above. A boardwalk circumnavigates a wildflower meadow, a welcome amenity for the monitor-weary office worker and other wildlife. The landscaping in general has been designed with great consideration for the sustainability of the project but also as a coherent design element. A green swale is hollowed out between the two aisles of car parking and is threaded through with a boardwalk that hovers over the meadow. This fills with surface water during rainy periods and lightens the impact on surface water drainage systems, as does the more formal attenuation pond to the south.

Inside the building a monochrome palette of grey floors and white screens reinforces the calm workman-like ambience. There are few workplace fripperies here, no beanbags and Fatboys, but robustly engineered fittings and furniture, built to last. The only indulgences are the courtyards, finished out with intense pop colours and animated with topiary and playful forms. A bit like furry dice in a BMW now, these spaces will no doubt mature and integrate over time.

The building is an intelligent response to Bord Gáis Networks' requirements for a working facility that has a real sense of community and place, while deftly addressing the particular characteristics of the site. It establishes a valuable precedent against which future developments of this type might be measured and the generous volumes and loose fit will ensure that it will be adaptable and versatile for some time.