

Gifford

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Gifford

Gifford is an inter-disciplinary Consulting Engineering Practice employing some 800 staff working in the core disciplines of Civil, Structural, Mechanical, Electrical Engineering and Environmental Engineering, plus Project Management, Archaeology and many specialist disciplines.

Founded in 1951 by E W H Gifford the Partnership has consistently pursued a policy of technical excellence combined with diversity of interest which has resulted in steady growth (12% per annum over the past five years).

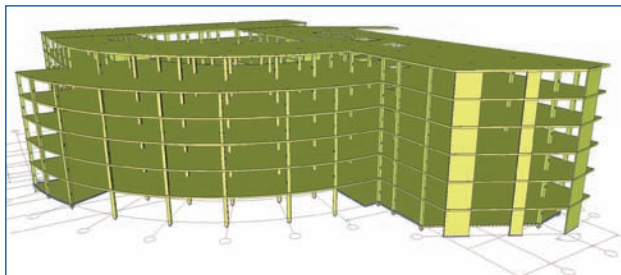
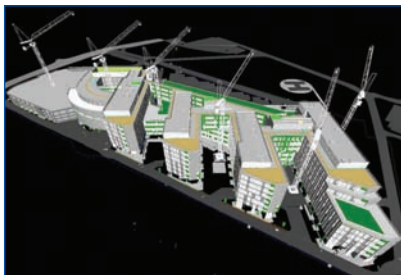
Our ten main UK offices, in Birmingham, Cardiff, Chester, Hounslow, Leeds, London, Manchester, Oxford, Southampton and York provide independent professional advice, planning, design, supervision and project management services to clients undertaking major capital, maintenance or improvement works. Advanced management systems to meet quality assurance are employed and Gifford are Quality Assured to BS EN ISO 9001:2000. The QA system underpins a culture of individual creativity and integrated team working.

Offices outside the UK include Cyprus, Gibraltar, Dubai and India.

The in-house disciplines within Gifford include:

- Building Structures and Services
- Building Sciences and Energy
- Bridges and Highways
- Infrastructure
- Transport Planning
- Marine, Coastal and Ports Engineering
- Environmental Engineering
- Public Health
- Geotechnical and Seismic
- Materials and Forensic Engineering
- Surveys
- Conservation of Historic Buildings
- Archaeology
- Cultural Heritage
- Project Management
- Rail

Where needed the practice employs sub-consultants to extend the range of service, so that a total service for all required disciplines can be provided. These collaborative arrangements can be very stimulating and create the appropriate 'bespoke' team for a particular project.



Pembury Hospital

Short Description

The redevelopment consolidates Pembury Hospital and Kent & Sussex Hospital into one new, modern facility on the Pembury site. The new facility, which will include 512 bedrooms, will be the first hospital in the country to have completely single rooms. In total the new development will have 1,200 car parking spaces while it will also include a helipad to cater for air ambulances on the upper part of the site.

Project Information

Owner: Maidstone & Tunbridge Wells NHS Trust
Architect: Anshen+Allen
General Contractor: Laing O'Rourke
Engineering Office: Gifford

Construction Start: 2008
Construction End: 2011
Location: Tunbridge Wells, Kent,
 United Kingdom



The redevelopment consolidates Pembury Hospital and Kent & Sussex Hospital into one new, modern facility on the Pembury site. The new facility, which will include 512 bedrooms, will be the first hospital in the country to have completely single rooms. In total the new development will have 1,200 car parking spaces while it will also include a helipad to cater for air ambulances on the upper part of the site.

A new primary road access will be constructed in the form of a signalised junction and a separate access will also be provided for service vehicles. Within the site there will be a new road layout, designed to minimise conflicts between cars, buses, pedestrians and ambulances. Transport will be further aided by a new plaza, incorporating set down points for buses, taxis and patient transport.

With a total floor area of approximately 66,000 m², the main hospital building will consist of an in situ concrete frame with flat post-tensioned floor slabs and traditional in situ concrete columns and retaining walls.

Existing substrata dictates a concrete pad foundation solution. Due to the weight of the structure some of these foundations are very large with core foundations totalling 16 m x 8 m x 2 m deep.

Steeply sloping site conditions presented the proposal for a stepped foundation solution.

The main building structure is braced by concrete shear walls to the stair/lift cores, while its height is squeezed between the rock line and a maximum planning restriction level. Due to the nature of the

sloping site and this restriction, the building has been designed to vary between three storeys at the top of the hill and seven storeys at the bottom. As a consequence of the sloping site, large propped retaining walls up to 11 m in height will retain the earth beneath the building. Ground floor slabs are a mixture of in situ ground bearing or suspended depending on whether they are in cut or fill condition.

The scale of the hospital dictates that the building is split into four separate structures together with a three-storey split-level 500 plus space independent car park situated at one end of the main building. Its top deck will be level with the ground on the entrance side of the building and for each floor level cut into the ground; a retaining wall will run along the full length of the building cut face. Designed to store any excess cut, this avoids the removal of material from the site.

The proposals are to construct the main building prior to commencement of the car park. The ground slab to ground floor level of the adjoining proposed building will be constructed on backfilled material, retained by walls built on the junction of the car park and the main building. The difference in levels between the bottom level of the car park and ground floor level is approximately 10 m. The foundations of these walls were placed at levels such that the excavations for the car park do not undermine the main building.

There are four portalised steel frame plant room structures situated at roof level each measuring 70 mx20 m. There is also a further steel frame plantroom located at 1st floor level and blended within

the elevation of the front of the hospital. Additional exposed plant screening and lightweight roofs are required at roof level.

Access to the hospital is via a feature canopy constructed from steelwork seamlessly integrated into the building to form a glazed atrium main entrance structure.

A four storey steel bridge spanning 25 m forms a corridor to link the wards in block 1.

Gifford has a total of eight Revit Structures models, built in three different offices which, when merged together, form a complete frame as shown on the image to the right.

Revit models were produced for each structure and then imported into Scia Engineer for loading and design.

Gifford responsibilities included:

- Structural Engineering
- Public Health Drainage
- Environment Development Planning
- Transport Planning
- Geotechnical Engineering
- Vibration Analysis
- Surveying
- Highways and Civil Engineering

