Houghton Primary Care Centre

The first BREEAM Outstanding UK healthcare building and winner of multiple awards for sustainable design

Project Team

Client: Sunderland Teaching Primary Care Trust/Sunderland City Council

Contractor: Willmott Dixon

Architect: P+HS Architects

Natural Ventilation Engineers: Breathing Buildings

M&E Engineers: Mott MacDonald

Structural Engineers: Cundall

P+HS architects

As the first, and currently only, healthcare facility within the UK to achieve BREEAM outstanding, Houghton Primary Care Centre has attained the highest benchmark in sustainable design and demonstrated that even buildings for health – traditionally such heavy energy consumers - can be successfully designed as future facing. Houghton is an holistic design solution which is demonstrably fit for the future.

Although impressive, the BREEAM Outstanding rating, is just one aspect of the project's success. Immensely popular with patients, staff and the local community, the building's holistic approach represents a current, relevant model for healthcare service delivery focusing on long-term good health and prevention rather than short-term quick fixes. This project has broken down barriers to healthcare and encourages cross discipline working, reminding us to aim high and hold fast to our belief in a sustainable future for healthcare.

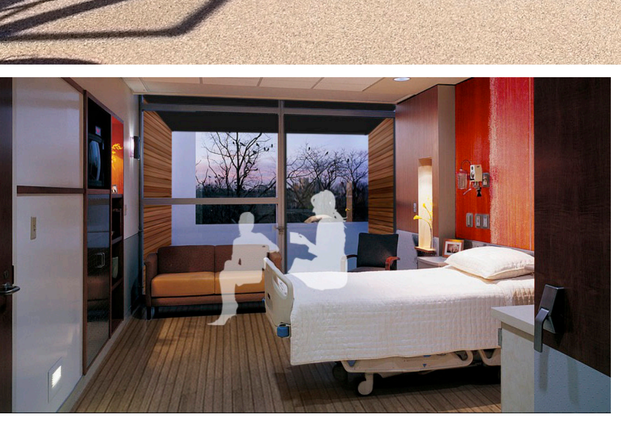
The building is designed to operate efficiently and to be welcoming and accessible to all, encouraging participation, ownership and cross-discipline approaches to health and wellbeing. The scheme provides for the co-location of a range of services - NHS, Local Authority Social Services and Health and Leisure. Strategically located next to an existing council operated leisure centre, the entire facility operates seamlessly. A cafe, next to the main entrance has proved popular as a meeting place for the local community.

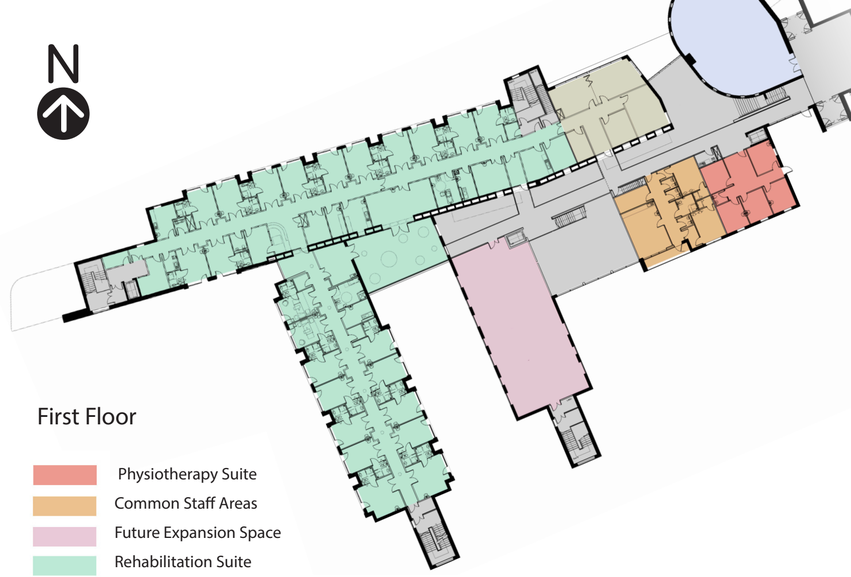
Health facilities include a minor injuries walk-in centre, planned care and diagnostics suite, minor surgery treatment centre and a 24 bed rehabilitation unit. Sports and leisure facilities include a refurbished sports hall, dance studio and indoor bowls hall as well as a 'wellness studio' linked to fully equipped physiotherapy facilities. Externally the extensively landscaped grounds offer a wide choice of exercise options alongside an existing outdoor bowls green. The generous grounds include a Multi Use Games Area (MUGA), skatepark, trim trail and community gardens.

Facts

185 days were saved on the average preconstruction period, due to the already well established design and construction team

- Considerate constructors score 36/40
- Over 50 engagement and feedback sessions with building users and the wider community
- Predicted performance suggests a 39% reduction in the building's CO_2 emission rate compared with the NBER (National Building Energy Rating). This exceeds the requirements under Approved Document L2A





P+HS worked closely with Breathing Buildings to incorporate an innovative low-energy natural ventilation strategy into the building's design.

The central feature of the system is a 'thermal wall' which extends along the spine of the building and provides ventilation for consulting rooms and the open plan waiting area and café. The wall is split into a series of 49 individual shafts/chimneys which are used to separate the ventilation for individual spaces, reducing the potential for infection and noise transfer.

To optimise comfort and energy savings, different strategies are used in summer and winter. In summer, the thermal wall is used as passive cooling for the incoming air. The wall is cooled by drawing cold air down the shafts throughout the night and this is then used to reduce the temperature of the warm outside air brought into the building the following day. In winter, the consulting rooms use mixed ventilation where air is brought in at high-level to each room. This provides an opportunity for blending the air as it descends which can reduce the requirement for pre-heating of the incoming air.

The waiting area and café use a series of e-stack ventilation units at high-level in conjunction with the thermal wall and additional low-level openings on the façade of the building. In summer the system operates in up-flow displacement ventilation mode with outside air entering at low-level and hot air venting through the e-stack units. In winter, the low-level openings are closed and ventilation is provided by the e-stack units where cool outside air is brought in and mixed with room air in a controlled manner before it reaches the occupants. This tempers the cold air and can reduce the requirement for pre-heating in the same manner as with the consultancy rooms.