

## S-Lab Case 13: AstraZeneca Macclesfield – New Facility Improves Performance

### The Building and its Users

AstraZeneca's £63 million, 12,000m<sup>2</sup> Etherow Building, which is used for Pharmaceutical Development, opened at its Macclesfield site in late 2009. Two key aims were to encourage greater interaction between groups of researchers and specialists who were previously on different parts of the site, and to improve the efficiency and effectiveness of support services. The facility now houses around 220 staff, mainly in multi-disciplinary teams involved in chemistry, analytical, process engineering and project management.

A full height atrium fronts the building, connecting to existing structures on either side. The building's ground floor has meeting rooms, business support activities, a library and refreshment areas. Three laboratory floors above it are linked by a central service hub. The latter are open plan, but with some glazed write up and breakout areas for privacy. The laboratories contain 250 VAV fume cupboards with a 0.4 m/s face velocity and extract heat recovery. Fume cupboard sash positions are monitored and visually represented in the breakout areas so that users can see which are closed or open.

80% of the project was pre-fabricated and pre-commissioned off site, reducing construction risk and time. Each floor has its own side mounted plant room so that they can be reconfigured independently. A "no ceiling" philosophy allows easy access to services for flexibility and maintenance. Adaptability is also enhanced by use of standard service supply modules in all areas; piping that will meet any scientific needs; and easy disassembly and moveability of laboratory furniture.

Low carbon features include a closed loop chilled water system for cooling; a twin skin façade to reduce solar gain; lighting controls; and heat recovery from the ventilation system. The building's heat needs are supplied from a 23MW on-site tri-generation plant, providing heat, power and cooling (via absorption chillers). The company estimates that these reduce energy costs by 20% compared to previous buildings. Some temperature problems have been experienced on hot days in the first summer of operation in 2011 but these should be eliminated by system modifications for 2012.



The Etherow Building

### Key Points

- The new Etherow Building brings groups of researchers from different sites together in inter-disciplinary teams
- Engineering Project of the Year in the 2010 IChemE Innovation and Excellence Awards
- Cooling from a trigeneration plant
- Low flow VAV fume cupboards with heat recovery
- Fume cupboard sash positions displayed in breakout areas
- Very flexible design – layouts can be changed quickly and easily
- Many low carbon features reduce energy costs by 20% compared to previous buildings
- 80% of project was pre-fabricated and pre-commissioned off-site
- Surveys of staff before and after the move found that most felt that working conditions, creative interaction and environmental performance had all improved.

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## Before and After Survey

S-Lab surveyed relevant staff before they moved into the new facility (in September 2009) and afterwards (in April 2010). 103 respondents answered the after questionnaire, of whom 60% were lab based researchers. The results gave a very positive picture of the change. 56% of respondents said that they were quite satisfied, and 23% very satisfied, with working conditions after the move, compared to 53% and 7% before. 89% of lab researchers and managers said that it was easy or very easy to interact with members of their project group in the new building, compared to 48% before their move. They also noted more useful contact with colleagues (53% said there was a lot, compared to 36% before) and less unproductive time spent walking around their building (15% after, compared to 34% before). One respondent summed up the views of many when he said that: *"[the] current working environment provides a very collaborative workplace with a lot of informal interaction while retaining sufficient individual separation. I would not want to go back to a cellular office."*

The quality and access to equipment also improved after the move with 21% of respondents very satisfied with the quality of equipment and 25% with access to equipment compared to 3% and 9% previously.

(The full survey results are on [www.goodcampus.org](http://www.goodcampus.org). Please contact S-Lab if interested in a similar survey of your laboratory).

## Effective Environmental Improvements

The surveys provided these answers on whether improvement measures were effective or very effective:

	Before	After
Closing fume cupboard sashes	66	81
Avoiding wasteful use of water	18	79
Avoiding wasteful use of energy	25	70
Recycling/reuse materials	28	48
Minimal wastage of chemicals	34	38
Facilities for cycling/walking	26	37



Open plan laboratories with central service hub

## Views from the Survey

*"The improvement of the new building over the old in terms of general environment and openness is massive. Despite some snags I've loved this building since that day I moved in and I think it has had a positive impact on my general mood and efficiency."*

*"It's an enjoyable place to work with excellent opportunities to interact with colleagues in either an open or private manner. The design of the office space has encouraged interaction with new people from different disciplines and background which is very important for the collaborative working to which AstraZeneca aspires."*

*"Being closer to the rest of my project team is a very positive change - project interactions have become more frequent and natural."*

*"Process water system and smaller sash openings obviously effective at saving water and energy."*

Further Information – [www.goodcampus.org](http://www.goodcampus.org) or Mike.Dewsbury@astrazeneca.com

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Disclaimer – Every effort has been made to ensure accuracy, but readers should verify all information.