UNIVERSITY OF Southampton

# Life Sciences Building Update

Issue 05 | February 2009

www.southampton.ac.uk/estatedevelopment

## Taking a load off your mind...

**A significant structural element of the new Life Sciences building was recently put in place with the installation of the first of three steel transfer beams.**

The beams have been especially designed and manufactured to bear the load of the floors above the ground floor teaching labs so that the labs can be built without the need for supporting columns. Each beam has been designed to support up to 76 tonnes of load – i.e. 76,000 kg or 167,580 lbs – from each of the two columns which will sit on top of the beam. That means that the three beams together can support the weight of up to 62 double decker buses, or 6,528 students, or 760,000 pints of lager and a packet of crisps!

The design of the building has taken account of its effective use as a teaching and research facility and without the transfer beams it would have been impossible to provide uninterrupted views from the back to the front of each teaching lab. The design has incorporated stiffening webs, to ensure that the beams do not buckle when loaded, as well as allowing for services to be routed through their interior. The planning process for the design and manufacture has taken around 4 months. The beams vary in size depending on where they are to be located in the building's frame:

Beam 1: 29 tonnes in weight, with dimensions of 16.5metres x 1.6 m x 1.5 m

Beams 2 and 3: 20.5 tonnes in weight, with dimensions of 15.5metres x 1.2 m x 1.5 m

The first steel transfer beam is lowered into position on the concrete frame

The transfer beams are manufactured from steel and transported to the site for installation. Each beam will take a full day to install due to their size and weight, and this requires the careful co-ordination between the two on-site tower cranes and a mobile tower crane, which has the capacity to lift up to 250 tonnes. This crane is loaded with 100 tonnes of additional ballast to enable it to lift and manoeuvre the beams to ensure that they are correctly and safely located within the building's concrete frame. Beams 2 and 3 will be installed in mid-February.