



Clean Modules Ltd.

Unit 3, Hawthorn Road
Castle Donington
Derbyshire
DE74 2QR
United Kingdom

Tel: +44 (0) 1332 696970
Fax: +44 (0) 1332 696963
E-mail: export@cleanmodules.co.uk
Website: www.cleanmodules.co.uk

- PRESS RELEASE - - July 2008 -

The next generation of modular cleanrooms

The British company; Clean Modules Ltd specialises in the construction of bespoke modular cleanrooms and as a result, no two cleanrooms are the same. This diversity has allowed Clean Modules Ltd to continuously develop their modular cleanroom concept and after several years of building modular cleanrooms, Clean Modules Ltd has now developed the next generation of modular cleanrooms.

Modular cleanrooms can be used for a wide range of applications: They can provide both temporary and permanent facilities; they can be used to extend an existing facility, to provide a new stand-alone facility or as a mobile unit. Some of Clean Modules Ltd's modules have literally been sent to the far corners of the globe.

Modular cleanrooms are a fast and convenient method of providing cleanroom facilities and can be fitted, commissioned and validated away from the site, then quickly installed and put into use. This was the main reason for Clean Modules Ltd being selected to construct a modular cleanroom facility for the Stem Cell Tissue Bank at the National Institute for Biological Standards and Control (N.I.B.S.C.) in Hertfordshire and the Royal Free Hospital in London.

The modular pharmacy unit for the Royal Free Hospital, which extended the existing pharmacy manufacturing facility, meant that the hospital could continue to use the existing facility right up to the point where the break through was made to join the new modules to the old facility.

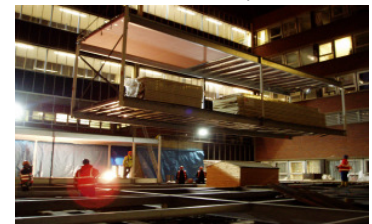
When thinking of modular cleanrooms, most people think of small temporary containerised cleanrooms, but constructing modular cleanrooms is not limited to size or height. The Pharmacy Department at Glan Clwyd Hospital in North Wales proved that modular cleanrooms benefit from their versatility and can accommodate any size facility. The MHRA approved facility at Glan Clwyd Hospital was constructed from fourteen pre-fabricated modules, making it one of the largest modular Cleanroom facilities in the United Kingdom.

Site restrictions can also be a reason for choosing a modular cleanroom. As modular units are transportable and can be lifted into any location, modular cleanrooms can prove effective for projects with restricted site access. In 2007, Clean Modules Ltd completed a 408 m² modular cleanroom facility for the St. Georges Hospital NHS Trust in London. This facility was to be placed within the hospital's courtyard, on top of another building and had to be lifted



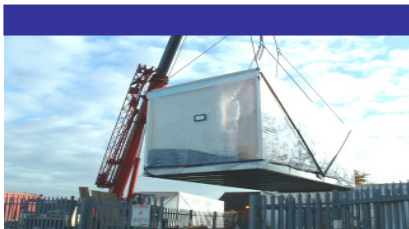
Top: One of fourteen modular steel cleanroom frames is lifted carefully over a six-story hospital wing.

Bottom: Work continued at night to minimise disruption to hospital services, and achieve a quick result



over the surrounding six-storey hospital buildings. The modular construction provided a lightweight but rigid structure which could be prefabricated off-site and moved into position with minimal disruption to patients, staff, emergency services and public transport. The open modules also provided a versatile space into which the state-of-the art new cleanrooms could be created without the usual size limitations imposed by portable buildings.

Over the last few years, Clean Modules Ltd has constructed numerous modular and mobile cleanrooms, varying from single to multi storey cleanroom buildings, and comprising from single to numerous modules. The modular cleanrooms have been used for various



purposes varying from stem cell research, pharmaceutical research, biotech research to aseptic and laboratory processing. As Clean Modules Ltd constructs bespoke cleanrooms and laboratories, no two installations have been the same and the next modular cleanroom will be improved by the lessons learned from the previous modular cleanroom.

Clean Modules Ltd's concept of modular cleanrooms has changed and with it the way of building modular cleanrooms. The early modular cleanrooms included some timber elements, but the current generation is constructed within a hot rolled steel frame. As a result, the modular units feel and behave more like traditionally constructed buildings, the modular units can become wider and longer, and can accommodate bigger rooms.

Besides improvements to the structural frame, the walls and ceilings have also improved. While the earlier walls and ceilings were constructed out of timber and vinyl chipboard, the current walls and ceilings are set out in cleanroom panels. Cleanroom panels comprise of a PIR foam or a Rockwool structural core, pressure bonded to pre-stressed steel skins, allowing for higher insulation values, better fire ratings and stronger wall structures. The panels are finished with a smooth "foodsafes" hard PVC laminate cleanroom surface on the inside and a weather proof surface on the outside. As a result these panels function both as cleanroom wall and external wall at the same time. In combination with the modular cleanroom concept, newly constructed modular cleanrooms benefit from considerable cost-reductions



Top: *Modular Cleanroom under construction*

Bottom: *Lifting a modular unit*



compared to traditional constructed cleanrooms.

The continuing improvements have not limited themselves to the building's structure, but have also included improvements to the services. The electric services are now installed via a plug and socket system, enabling full installation and testing of the system off site. The system is unplugged before shipping to site and plugged back together on site. On site the system only has to be checked for damage caused by transport. As a result, the time for service people on site has been reduced considerably. A similar philosophy extends to the air systems and other services which can be constructed for many cleanroom installations.

Clean Modules Ltd builds bespoke cleanrooms, and no two modular cleanrooms are the same, but the main approach towards the structure and services will remain the same each time. Clean Modules Ltd is continuously looking to improve their modular cleanrooms, but the new generation is at the fore front of modular cleanroom design and quality.



Caption: *Two views of spacious Modular Cleanrooms at St. Georges Hospital, London*