

## Project Profile

<b>Project Description:</b>	<b>Geosciences Laboratories</b>
Location:	Purdie building
Client:	University of St Andrews
Project Value:	£1.9m
Project Duration:	Dec 2012 – Jun 2014
Sector:	Education



Callidus Design Limited was appointed by the University of St Andrews to carry out the design of all services related to the conversion of existing workshops and stores into new Geosciences Laboratories.

The laboratories will be used for dating sediment samples based on Thorium concentration. This work will create maps of reservoir ages and how they changed in the North Atlantic over the last 50 thousand years with a special focus in times of rapid climate change.

The project was carried out in two phases. Phase 1 saw the existing area known as the Rock Store being vacated and emptied of all contents. The area was then split up into several individual rooms including Mechanical Workshop, Stores, Electronics workshop and Chemical Store. Once complete the various functions were relocated from their existing location to the newly completed rooms. Phase 2 consisted of stripping back the old stores and workshop areas back to the perimeter walls and the creation of a Clean Instrument Lab, 2 x Clean Wet Chemistry Labs and a Wet Chemistry Lab. The rooms labelled clean were designed and constructed to achieve a cleanliness classification of ISO 7 (or Class 10K to Fed Std 209D). The cleanrooms were also designed with tight temperature and humidity control requirements. The nature of the Wet Chemistry work required strict control over relative room pressures to prevent the escape of acidic vapours used to prepare rock samples. The most important part of the client brief was that the labs should be Boron-free since Boron is a contaminant to the research and must be eliminated from the labs. In order to achieve the cleanliness standard this required the use of HEPA filters. However, normal HEPA filters are

# callidus design limited

made from woven fibreglass which contains Boron. Therefore, bespoke HEPA filters were manufactured and installed in the HVAC plant to prevent contamination of the labs.

The lack of space in the existing building meant that it was necessary to site the ventilation and chilled water plant in a new external plant compound.

Callidus Design was responsible for the design of the following services provided to the Geosciences Laboratories:

- Fresh Air and Recirculation Ventilation to maintain environmental conditions and make-up for the air lost as a result of Pressurisation and Process Extract (incorporating Room Pressure Control)
- Process Extract Systems
- Multiple Fume Cupboard and Laminar Flow Cabinet Installations
- Domestic Water Services
- Drainage
- LTHW System serving the HVAC plant and space heating
- Reverse Osmosis Water Supply
- Natural Gas Supplies (serving Fume Cupboards)
- Specialist Gases (Nitrogen, Compressed Air, Argon)
- Liquid Argon Tank, Tanker Delivery Facility & Distribution System
- Building Management System (BMS)
- Small Power
- Lighting
- Data
- Fire Alarm
- Security
- CCTV Camera Monitoring