

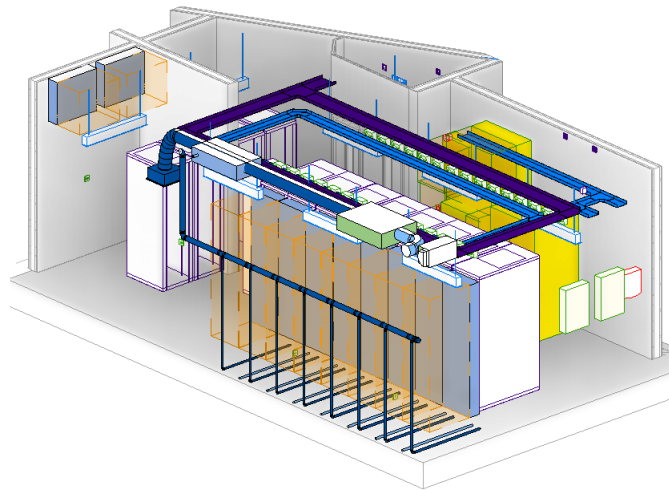
## Description

- ◆ SDS were appointed by the Main Contractor to undertake a detailed design for the relocation of the existing University data centre. The new data centre was relocated to an existing teaching facility on the opposite side of the campus
- ◆ The Babbage building is located on the main campus and will be undergoing a complete refurbishment along with some new additional elements, starting early July 2021. In its place the University is planning on creating a New Engineering and Design Facility which will house variety of flexible teaching spaces for various facilities and student use
- ◆ SDS undertook detailed surveys and supported the tendering contractors at bid stage to inform the project budget
- ◆ The current 132KW data centre consists of a mainframe and terminal room, with a total of six racks consisting of four which is used for central IT equipment and two racks for faculty needs.



## Benefits Delivered

- ◆ Proactive advice on the engineering requirements to meet the Employers Requirements
- ◆ Provided a design to reduce energy consumption. This included heat recovery to the new rooftop chillers for future adaption to the campus district heat network
- ◆ Designed the cooling system to operate at higher flow and return temperatures, reducing energy demand
- ◆ Prepared and supported with the commissioning of the systems, including a watching brief of the mains to generator simulations
- ◆ Prepared the design in Revit to allow the client and contractors to visualise the designs in a 3D environment
- ◆ Utilised the Matteport Scanner during surveys
- ◆ Prepared the fire alarm and suppression system cause and effect strategy.



## Involvement

- ◆ Options appraisals were carried out on the plant space and services distribution. Engagement with building control, UoP fire officers and estates services, CDM and specialist contractors were required to achieve a compliant solution within the context of the existing campus
- ◆ Key challenges included:
  - accommodating the data centre within the designated space provided by UoP
  - accommodating routes for infrastructure in an existing building
  - providing a suitable external location for the standby generator on a central campus location adjacent an existing halls of residence
  - acoustic treatment of the generator and data room
  - fire safety design measures
  - environmental planning constraints
- ◆ Designed a 200kVA Standby Generator with the capability to support 48 hours running capacity and 125kVA Uninterruptable Power Supply (UPS) system with 10 minutes autonomy to support the data centre server PDUs and dedicated life safety systems
- ◆ Isolating phase shift transformer to provide galvanic isolation during mains to generator failover
- ◆ New MCCB and MCB LV distribution and switchgear
- ◆ Rooftop Chillers in an N+1 configuration to provide data room cooling via rack door coolers
- ◆ Fire suppression system using FM200 full flood technology. This included post discharge ventilation systems
- ◆ VESDA fire detection system
- ◆ Positive spatial pressurisation via Air Handling Unit
- ◆ Dedicated Schneider control outstation
- ◆ Campus blown fibre optic installations.

*Part of the University of Plymouth's campus masterplan*