



### Description

- ◆ A £5.5m three storey sixth form teaching block integrated to the existing site infrastructure
- ◆ The building comprises of a learning resources centre, staff facilities, a full commercial catering kitchen, centralised server room, general teaching rooms with interactive whiteboards, lab space, teaching kitchens, a refractory, classrooms, central computer room, IT teaching rooms and staff rooms
- ◆ The passivent systems were developed to be controlled by local room sensors to operate dampers which allow vitiated air to rise to the roof by utilising stack effect and wind pressure
- ◆ In areas with a high density of IT usage, a VRF cooling system combined with variable air volume strategy to enable individual room control was used. All air is provided from variable speed fans to achieve energy savings. The refectory kitchen is served from a variable volume air handling unit which utilised balanced supply and extract with an induction canopy.

### Involvement

- ◆ We provided full and detailed design of building mechanical and electrical engineering services including variable air volume design operated from CO<sub>2</sub> sensors, passi-vent natural ventilation to south facing classrooms, energy efficient lighting with daylight switching, services infrastructure for full catering facility and teaching laboratory services
- ◆ Overheating calculations to ensure summertime comfort and full energy modelling for part L compliance
- ◆ Arrange utility scans to be undertaken, and identify necessary existing site services diversions to accommodate the building.

### Benefits Delivered

- ◆ Undertook façade engineering and thermal modelling of the wind driven natural ventilation cooling strategy developed in conjunction with the building envelope design in the general teaching space, for the South facing classrooms to ensure peak conditions are not exceeded for more than 80/hours per year
- ◆ Work collaboratively with integrated design team to identify the best value solutions to achieve BREEM compliance.

*State of the art post -16 teaching block in the heart  
of the city of Exeter*