

PROJECT NAME: South Essex College

Basic description of the project and building:

The project consists of two new buildings for South Essex College, consisting of general and teaching spaces and specific workshop and studio spaces for vocational training. Also included are Student Café, Library, Staff areas, and ancillary/FM spaces. The external landscape areas include amenity space for students as well as staff car parking, cycle storage, refuse compounds etc.

Key innovative and low-impact design features of the building:

The use of Building Information Modelling (BIM) throughout the design, construction and aftercare phase of the project has increased efficiency and reduced waste through the avoidance of re-work.

The gravity fed rainwater harvesting system collects rainwater from the west and east building roofs and uses it for toilet flushing. This reduces the volume of potable mains water required to flush the College's toilets.

BUILDING FACTS:

Basic Building Cost	£3741/m2
Services Costs	£455/m2
External Works	£186/m2
Gross floor area	1500 m2
Total area of site	1.6123 hectares

Function areas and their size:

Teaching & Learning Areas	1412.5	m2
Toilets, changing rooms and showers	611	m2
Catering	531	m2
Circulation space	3094	m2
Estates	1191.5	m2
Hair and Beauty	764	m2
HC & PC	235.5	m2
Media and Creative Arts	810.5	m2
ICT Support	116.5	m2
Multi-use	467	m2
Services	142.5	m2
Storage	201	m2
Support Services	2233.5	m2
% area of buildings (plus AWP) to be used by community	10	%
Predicted electricity consumption (core hours)	915,194	kWh/yr
Predicted fossil fuel consumption (core hours)	305032	kWh/yr
Predicted renewable energy generation for PV	21,740	kWh/yr
Predicted water use	1.5	M3/yr/person
% predicted water use to be provided by rainwater or greywater	1.4	%

Steps taken during the construction process to reduce environmental impacts, i.e. innovative construction management techniques:

An ISO14001 certified management system was used to minimise and manage environmental and local community impacts.

The South Essex College project has implemented Building Information Modelling (BIM) during the design, construction and maintenance phases of the project.

From an environmental compliance perspective the use of BIM for environmental inspections allows

the users to identify risks and allocate actions to close out directly from site thus negating the time that the risk is at large.

From a wastage perspective, the reduction in any re-work or clashes that BIM allows means that waste is reduced both in material terms and through an increase in efficiency.

Then once in operation, the BIM model can be accessed by any interested parties in order to drill down into the fabric of the building and access detailed information relating to sourcing for example.

A site based environmental coordinator was dedicated to the project during the construction phase. This allowed for constant monitoring and implementation of best practice to be carried out.

Off site fabrication of Modules to reduce waste and save time on the install.

Gravel materials excavated from site were reused as piling mat and backfill to reduce the waste.

High efficiency LED lighting scheme.

High efficiency air source heat pumps with heat recovery providing the heating and cooling to spaces. Intelligent controls system providing a zoned approach to user comfort without unnecessary over heating or cooling.

High efficiency energy reclaim within each mechanical ventilation system to greatly reduce wasted energy and minimise carbon footprint.

Dedicated hot water generation plant to enable greater control of energy associated with hot water generation.

Rainwater harvesting using the roof level as attenuated storage area, reducing the water demand of the site whilst also removing the energy load associated with pumping from traditional below ground harvesting tanks.

Photovoltaic panels on the East building provide a significant long term electricity source which will act positively towards running costs and the carbon usage of the site.

The thermal properties of the building have been selected with a focus on energy efficiency in mind. Notably the specification of the glazed elements have been optimised to provide a balance between providing useful daylighting whilst also minimising nuisance solar gains.

List of any social or economically sustainable measures achieved/piloted

The entrance to the staff car park enjoyed a makeover and flowers were donated by a local nursery and placed in planters around the outside of the hoarding. We improved the pathway and regularly did litter collections around the perimeter of site. Nearby there is a section of the Thames "Grays Beach" Skanska sent teams of employees over the course of 2 days and the beach was cleared of as much debris and litter we could remove.

We held a presentation with a local community group. The presentation was given to approximately sixty members of TOFF on the Construction of South Essex College.

Skanska donated a 20ft Christmas Tree & lights to the Grays High Street.

Student Career presentations were regularly held by Skanska and our design / cost consultants to SEC students over the project duration.

We regularly had student visits to site.

Regular visits by the occupation health team to check on the workforce's health – lung function tests – tool box talks on men health – mini health checks.

BREEAM Man9 Publication of Building Information

Held presentation with the college on the Taster day to 50 students about the construction industry as a career.