
Carlton ALC – Energy Centre

Design & Access Statement

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BDP.

Energy Centre, Carlton ALC

Design & Access Statement

Introduction

This Design & Access Statement has been prepared by BDP on behalf of Barnsley Partnership for Learning in support of a Full Planning Application for an energy centre at Carlton Advanced Learning Centre (ALC). The proposal will provide accommodation for a biomass boiler, providing energy for the larger overall development of the school in accordance with the national Building Schools for the Future (BSF) programme and Barnsley Remaking Learning.

The purpose of this statement is to identify the key design principles which apply to the proposed scheme.

Use

The proposal is for a single storey energy centre, which is to accommodate a 500kW biomass boiler, the purpose of which is to secure a source of renewable energy which, in combination with an associated thermal store arrangement, will provide for the annual heating requirements of the ALC.

The proposal will provide for the required energy needs of the ALC, whilst also allowing for the reduction of carbon emissions at the site by securing a renewable energy supply. This will make a positive contribution towards the delivery of a BREEAM 'very good' rating at the ALC.

Amount

The proposal is for a small 163m² single storey energy centre building and a 32m² underground silo for biomass fuel storage within a fenced enclosure. This will provide the main plant area for the biomass boiler. Energy distribution will be underground to the main school. The size of the biomass boiler has been determined to meet the heating requirements of school and will provide adequate heating to suit the building load so that the boiler operates at maximum efficiency where possible.

The proposals will have little impact on the overall density of the site and its surroundings by virtue of the small quantity of development and the scale of the proposal.

Layout

The Energy Centre has been located at the rear of the site, away from the entrance to the new school and neighbouring residential properties and is largely obscured from view from Royston Lane. The proposed energy centre will be located adjacent to the delivery and service yard and close to the main school building to maximise the efficiency of energy distribution and accessibility by vehicles for delivery and maintenance purposes.

The layout within the structure has been carefully designed to minimise the footprint and height of the building, with biomass pellets stored in the adjacent underground silo within the site compound. The flues are positioned towards the rear of the compound in order to maximise the distance between them and the school buildings.

Scale

The Energy Centre is single storey with a mono-pitch roof. It has a maximum height of 5.3m at the rear, with a flue height of approximately 16.8m to allow for the safe dispersal of fumes away from the main school buildings. The scale of the proposed development is in keeping with its surroundings.

Landscape Design

The proposals are to be accommodated within the landscaping details approved under the wider ALC construction programme.

The energy centre will be surrounded on three sides with a 2.4m high green screen, composed of 2m high pre-planted weldmesh panels set into 450mm high raised block or brickwork planters. Contained within the fenced enclosure will also be the sprinkler tank and bin store. The fourth side of the energy centre opens out onto the delivery & service yard to enable access for deliveries and maintenance.

Appearance and Materials

The energy centre will be a simple, functional design, to accommodate a range of mechanical and electrical equipment, including a biomass boiler and sprinkler pump room. An adjacent underground silo houses the biomass fuel pellets, whilst allowing easy access for deliveries.

The proposed design of the energy centre will allow for a structure which is complimentary to, and ancillary to, the overall ALC development. It will follow closely the design of the proposed ALC, using similar materials. The ALC is largely clad in a microrib sinusoidal black metal sheet with the ground floor clad in a dark brick (Fig.1). The energy centre will feature a plinth constructed from the same brick and black metal trapezoidal composite cladding panels, which are used for the main building's stair-tower roof enclosures (Fig.2). Access into the building is via steel doors, coloured to match the cladding. Louvers within the cladding panels will also have a PPC finish to match the cladding colour.



Fig.1 – Main school building brick & sinusoidal black cladding



Fig.2 – Proposed trapezoidal black cladding on stair towers to be used for energy centre

Sustainability

The design team is committed to designing schools based on sustainable environmental principles from the basic concept through to detailed design. The purpose of the energy centre is to provide energy for the ALC from sustainable sources.

The form of the energy centre has been designed to passively manage; daylight and direct sunlight, solar gains and climatic control, ventilation, water management, acoustics and energy use.

Biomass will be used to generate heat throughout the life cycle of the building to serve the ALC. The initial BREEAM assessment shows that we will achieve a 'very good' rating whilst aspiring to achieve 'excellent'.

The biomass facility is considered to be the most appropriate source of renewable energy in this location to achieve the amount of energy needed to meet the requirements of the ALC.

Accessibility

The proposed energy centre will require occasional access for maintenance purposes in line with a specified schedule. Parking will be directly outside the building to minimise heavy lifting.

The proposals will also require weekly deliveries of wood chips / pellets which is the fuel for the boilers. The building is single storey, offering level access internally.

Access to the gutter at the front of the building for periodic cleaning and maintenance is gained via MEWP (mobile elevating work platform) from the deliveries and service yard.