
Supply, design and installation of mast and flue systems at Southwater Energy Centre



AT A GLANCE

Company: TDR Mechanical Services Ltd

Industry Sector: Tertiary (recreation)

The Challenge: To design, construct and install a new flue system which would be aesthetically pleasing and complement the existing building.

Solutions and Services:

- Photo realistic visualisation
- Surveying and site investigation
- Structural and Civil design works
- Design, manufacture and installation of new flue systems and mast structure

The Benefits:

- A flue system which meets legislative requirements
 - A robust and attractive solution to a complex engineering problem.
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CASE STUDY

Southwater was the plan for a development of shops, restaurants, cinema, car park, ice rink and commercial properties around Telford Town Centre. The project included the development of a new energy centre that would provide the surrounding buildings with electricity and hot water.

The energy centre included 4No boilers and 1No CHP unit. Due to the high load of approx 11MW in accordance with the Clean Air Act Memorandum, the final confirmed discharge height above roof level of 4m resulted in a requirement for a structural mast support system.

Midtherm Engineering developed a concept with the architect, which required us to produce a bespoke mast support system which would be aesthetically pleasing and would complement the existing building. The proposed mast was to be purple in colour and tilted at a 10 degree angle.

Midtherm were quick to engage with the customer to arrange a site survey. Co-ordination drawings were developed from the surveys and photographs taken on site enabled us to complete visualisations of the proposed flue system, these assisted our client with the planning approval of our design.

“ This project was a challenge as there were restrictions with regards to the foundations which had to be larger than typical due to the masts eccentric load. Our concept involved additional high level restraints to reduce the overturning moments to allow a more practical foundation design. ”

Adam Slipanczewski,
Estimating Manager
Midtherm



Flue and mast systems being craned into position

As well as supplying and installing the boiler and CHP flue systems at Southwater, Midtherm also undertook the design works for a bespoke reinforced foundation base. The mast was designed to fix to this foundation base and also back to the building at a higher level, this would minimise the impact of wind loading, enabling us to select reduced steelwork section sizes and a smaller foundation.

The flues were factory mounted onto the mast structure so that the entire external flue and support system could be craned into position on site in one day. The internal interconnecting flues were then connected up from appliances to the external mast structure; a bespoke wall cover penetration plate was also designed and installed by Midtherm.



Flue systems within the plantroom

CONTACT

Midtherm Engineering Ltd

ADDRESS

Midtherm Engineering Ltd
28 New Rd
Dudley
DY2 8TA

TELEPHONE NUMBER

01384 455811

EMAIL ADDRESS

sales@mideng.net

WEBSITE

<https://www.mideng.net/>

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