

Supply, design and installation of two free chimney structures at Thermo Fisher Scientific

AT A GLANCE

Company: CFB Boilers

Industry Sector: Medical
Manufacturing

The Challenge: To design, construct and install two new self supporting chimney structures that would fit within the clients spatial constraints.

Solutions and Services:

- Photo realistic visualisation
- Surveying and site investigation
- Structural design works
- Design, manufacture and installation of new self supporting chimneys.
- 3D CAD drawings.
- Specialist roof capping plates.

The Benefits:

- A flue system which meets legislative requirements
- A bespoke and attractive solution.
- Strategic sequence of works allowing enough space for all necessary plant and equipment for the duration of the works.



CASE STUDY

Thermo Fisher Scientific is an American provisioner of scientific instrumentation, reagents and consumables, plus software service. Their mission is to make the world healthier, cleaner and safer, which has become profoundly even more focused through the midst of the global COVID-19 pandemic.

Throughout the pandemic Thermo Fisher Scientific has been at the heart of the global response to COVID-19. They have been closely working with government agencies and researchers to ensure priority access to instruments, consumables, safety supplies and other products to address the outbreak, particularly in analysis of the virus, diagnosis and personal protection.



Self supporting structures in situ during installation



Our photo realistic visualization of the proposed installation

In Winter 2020 Midtherm Engineering Ltd. were contacted by CFB Boilers to assist with the new boiler installation programme at the Thermo Fisher Scientific, Basingstoke location. Where 2No Bosch UL-S 4.5MW gas fired steam boilers were to be installed, these new modern high efficiency boilers would replace the existing boilers which were installed over 20 years ago.

The project sought Midtherm Engineering Ltd's expertise and renowned attention to detail because of difficulties associated with spatial constraints within the plantroom; due to the need to install new plant while maintaining the use of existing services. The independent supporting of the flue and chimney systems was imperative, as the existing roof structure was unsuitable to accept any imposed loads.

These parameters lead to the solution of installing two individual self-supporting chimney structures, that connected onto each boiler, rising to above roof level and discharging in accordance with the Clean Air Act Memorandum. With their foundations being located at the rear of the boilers within the plantroom.

CASE STUDY

In February 2021 Midtherm were instructed to begin work and were quick to begin making progress with the project. Initially attending site to enable us to obtain the viable information required to start compiling 3D CAD drawings of the proposed installation. Upon completion, these drawings were issued to our client for approval along with the structural calculations, all essential to assist with the intricate installation of our free-standing chimneys, scheduled for Summer 2021.

However, the limited space available and client's production schedule required Midtherm Engineering Ltd to work alongside Thermo Fisher Scientific and R S Services Eastern Ltd, to establish a strategic sequence of works ensuring that sufficient space was available, for the required plant and equipment, during the entire installation process.

Firstly, the existing appliances, pipework and associated services were removed or modified, followed by construction of the new foundation block which incorporated the bespoke holding down bolt cages, a vital component when installing free-standing structures, additionally specialist roof openings were formed to pass our chimney structures through.



Our self supporting structures exiting the roof.



Our free standing structures positioned on their foundation blocks.

The approx 25 tonne boilers were then positioned on site in preparation for the chimney installation, in the following weeks.

In August 2021, following months of detailed design and manufacturing works, Midtherm installed two individual self-supporting flue structures inclusive of branches, using dual cranes to delicately position the new structures onto the newly installed holding down bolt cages. Due to their close proximity the chimneys were additionally braced together, preventing wind excited oscillation, whilst still maintaining the facility for independent thermal expansion and lateral wind force movements, incurred as a consequence of them being exposed structures. Final connections were then made between the new boilers and the chimney branches.

This installation was delivered on time accommodating the precise timescale the project was required to be completed by. The overall project showcases Midtherm Engineering Ltd's ability to use critical thinking to overcome complex site constraints and customer parameters, whilst working to the client's budget, yet not compromising the integrity and quality of the finished installation.

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