
CAVENDISH
Experts in Engineering for the Built Environment

Cavendish Overview

- What is Terotechnology
- Technology Led Asset Maintenance
- Cavendish Capabilities
- The Benefits of Using Cavendish
- The FM Pathway to Net Zero
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- Condition Based Management
- Awards

What exactly is Terotechnology?

It is the technology of installation, commissioning, maintenance, replacement and removal of plant machinery and equipment.

Terotechnology is the maintenance of assets in an optimal manner. It is the combination of management, financial, engineering, and other practices applied to physical assets such as plant, machinery, equipment, buildings and structures in pursuit of economic life cycle costs.

It is concerned with the reliability and maintainability of physical assets and also takes into account the processes of installation, commissioning, operation, maintenance, modification and replacement. Decisions are influenced by feedback on design, performance and costs information throughout the life cycle of a project.

Something to Think About

THE FUTURE OF THE BUILT ENVIRONMENT REQUIRES US ALL TO EMBRACE OUR NET ZERO TARGET WHILST IMPLEMENTING THE PRINCIPLES OF TEROTECHNOLOGY.

STEPHEN J ALLEN

Stephen J Allen

CEO, CAVENDISH ENGINEERS

OUR MINDSET

Failure is not an option at 30,000ft.

THE BACKGROUND

Steve's background in aeronautic engineering and aviation drives our mindset to be that failure is not an option. Having worked with British Aerospace on projects such as the Mars Rover and building the UK's largest clean room.

Our ethos is delivering bespoke engineering solutions whether they be consultancy, installation, maintenance or energy bureau services to the highest possible level.

Technology Led Asset Maintenance

Celebrating our 25th Anniversary

Trading since 1994 borne out of Environmental Laboratories, Cavendish provides Innovative Solutions for the Built Environment.

Cavendish Engineers is unique in the fact that we engineer solutions for properties on a holistic, full life cycle basis . incorporating
energy manageement and condition based monitoring technology into our daily operating processes.

Whilst maintenance is a significant and important part of our business, our background in design, projects, energy and technology means our customers benefit from a more rounded solution to their asset and property operations.

Our aim is not simply to maintain a property or asset, but to continuously seek improvements and efficiencies supported by our in-house engineering, energy and technology experts.

To further our support this aim, Cavendish heavily invests each year into Research and Development in technology that will support our customers aims, improve energy efficiency and the asset management strategy.

45%

THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE BUILT ENVIRONMENT ACCOUNTS FOR 45% OF TOTAL UK CARBON EMISSIONS.

TECHNOLOGY STRATEGY BOARD NOV 2020

Consultancy

The principles of Thermodynamics and Physics are the core of this division. We are versed in the very latest in design approach using the AI infrastructure to monitor, learn and control a better workspace environment.

Central Saint Giles

Engineering Technology & Projects

Our experienced solutions team are here to help you solve the most demanding challenges through the integration of modern engineering into existing buildings.

Maintenance

Built Environment Systems are complex and essential in todays world. We are right there beside you ensuring systems are reliable, efficient and modern. We offer flexible support packages to meet the needs of a diverse industry. Our development of digitisation and robotics in this field is second to none.


The Rolls Building


201 Bishipsgate & The Broadgate Tower

Energy Bureau

Our in-house Energy Management team, including bureau service, are fully embedded into our day-to-day operations. With the goal being to achieve our customers aims by reducing their carbon footprint, energy consumption and costs. We work closely with our customers to provide a pathway to net zero based on their own corporate objectives without the need for further external resources and the costs associated with this.

Meet the Engineers

REUBEN NABEEBACCUS

Director Engineering & Technology

NICK MARSHALL

Director of Maintenance

THOMAS MCCROSSIN

Chief Engineer & Energy Manager

BENEFITS OF CAVENDISH ENGINEERS

1

Reduction of operating costs

A Lean and Agile approach to the provisions of technological solutions.

2

The Team

Our diversely qualified team have a collective experience spanning multiple industries across the globe.

3

Boost occupant productivity

Increasing occupier wellbeing by the use of C02 sensing technology and demand driven control.

4

Optimise life-cycle asset performance

Retro-engineering your equipment to ensure its long term sustainability and reliability.

The FM pathway to Net Zero

CONSULTANCY

A baseline review and target agreement needs to be set up in order for us to identify areas of improvement and then set goals.

RETRO-ENGINEERING

Once effeciency opportunites are raised the Design team will determine value engineered solutions.

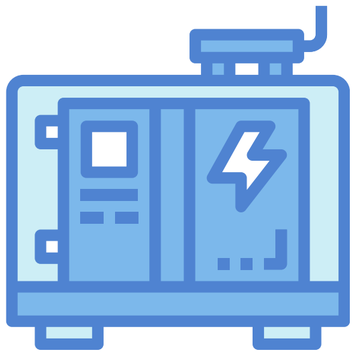
MAINTAIN

The maintenance team form a key part of the pathway ensuring the rules of terotechnology are implemented and followed.

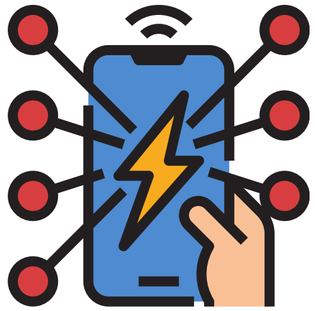
ENERGY BUREAU

The bureau service is the coach feeding back realtime information into the team highlighting areas of usage falling outside of our targets set in the consultancy phase.

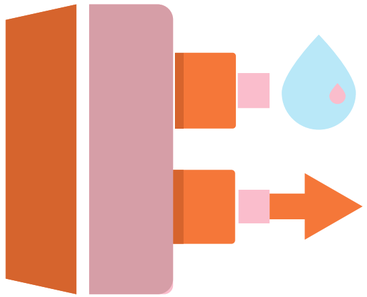
Cavendish's Most Sustainable Engineering Projects



Tri-Generation CCHP System (110 Fetter Lane)



Energy Management Bureau (Leadenhall Building)



Condense Driven Heat Pumps (Central Saint Giles)

350 EUSTON ROAD

The existing chillers on the property were nearing the end of their life cycle and Cavendish Engineers were asked to look into ways of reducing energy consumption with an innovative design for the new system.

350 Euston Road saw the two existing chillers replaced with a Turbo Core Chiller (4.8 tonnes) and an Air Source Heat Pump (ASHP, 6 tonnes) capable of providing both heating and cooling.
A Spiering AT7 crane was used to remove the two existing machines and install the new systems on the top of the building, all of which was complete in 7 hours.

The existing boiler room was modified and one of the three existing boilers removed and replaced with additional pumps while new pipework was installed to connect the new pumps to the ASHP and back to the system. BMS modifications were implemented to provide a new Heating and Cooling strategy that made the ASHP the primary source of heating.

This allowed the Cavendish Engineers design to provide the building with free cooling, negating the need to run the chiller simultaneously. To ensure minimal day time disruption to office tenants, the installation had to take place through the night while the contract required that Cavendish Engineers led meetings with Transport for London for 12 weeks prior to the project around road traffic management and public safety.

The 350 Euston Road project was recognised at the Verdantix Energy Innovation Awards and won the RAC Cooling Industry Award for Building Energy Project of the Year.

Condition Based Management

C02 MONITORING

Originally provided in buildings for demand driven strategy we're now utilising this technology to assist occupiers in maintaining a Covid-19 prepared environment.

VIBRATION ANALYSIS

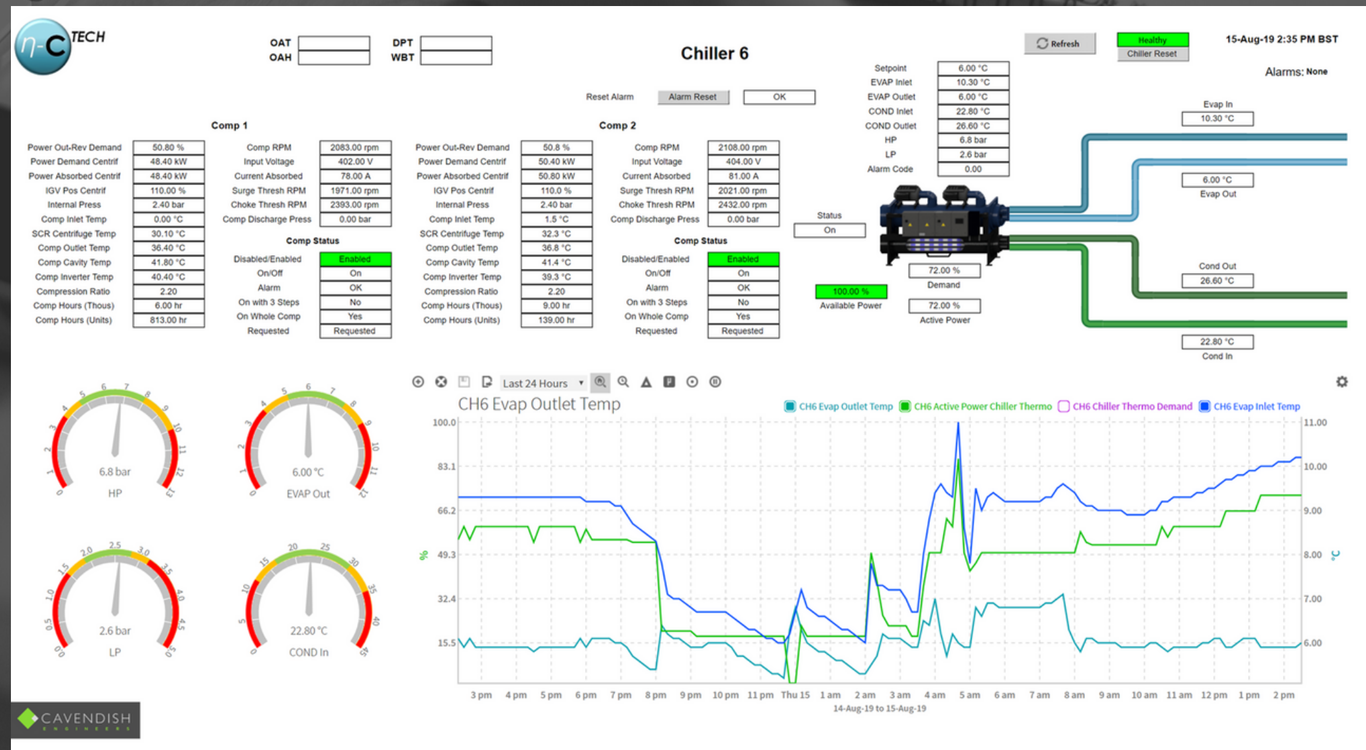
Vibration trending is a useful function to track the health of your assets. Our partnerships with Iconics and Phantom utilise the highest calibre of VA monitoring equipment available.

CHILLER FLIGHT INFORMATION SYSTEM (CFIS)

Our CFIS system is a condition based management platform ensuring that your chillers are feeding critical information back in realtime. A true self-diagnostic system ensuring optimal machine health at all times.

Realtime C02 Monitoring

Chiller Flight Information System (CFIS)



AWARDS

PFM AWARDS FINALIST 2020

Finalist with Savills at the Leadenhall Building for partners in energy management & finalists for partners in sustainability.

CIBSE BUILDING PERFORMANCE WINNER 2019

Energy management initiative for demand driven strategies at 2 Kingdom Street.

GREEN APPLE AWARD WINNER 2019

Tri-Generation system design and installation at 110 Fetter Lane.

Contacts

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