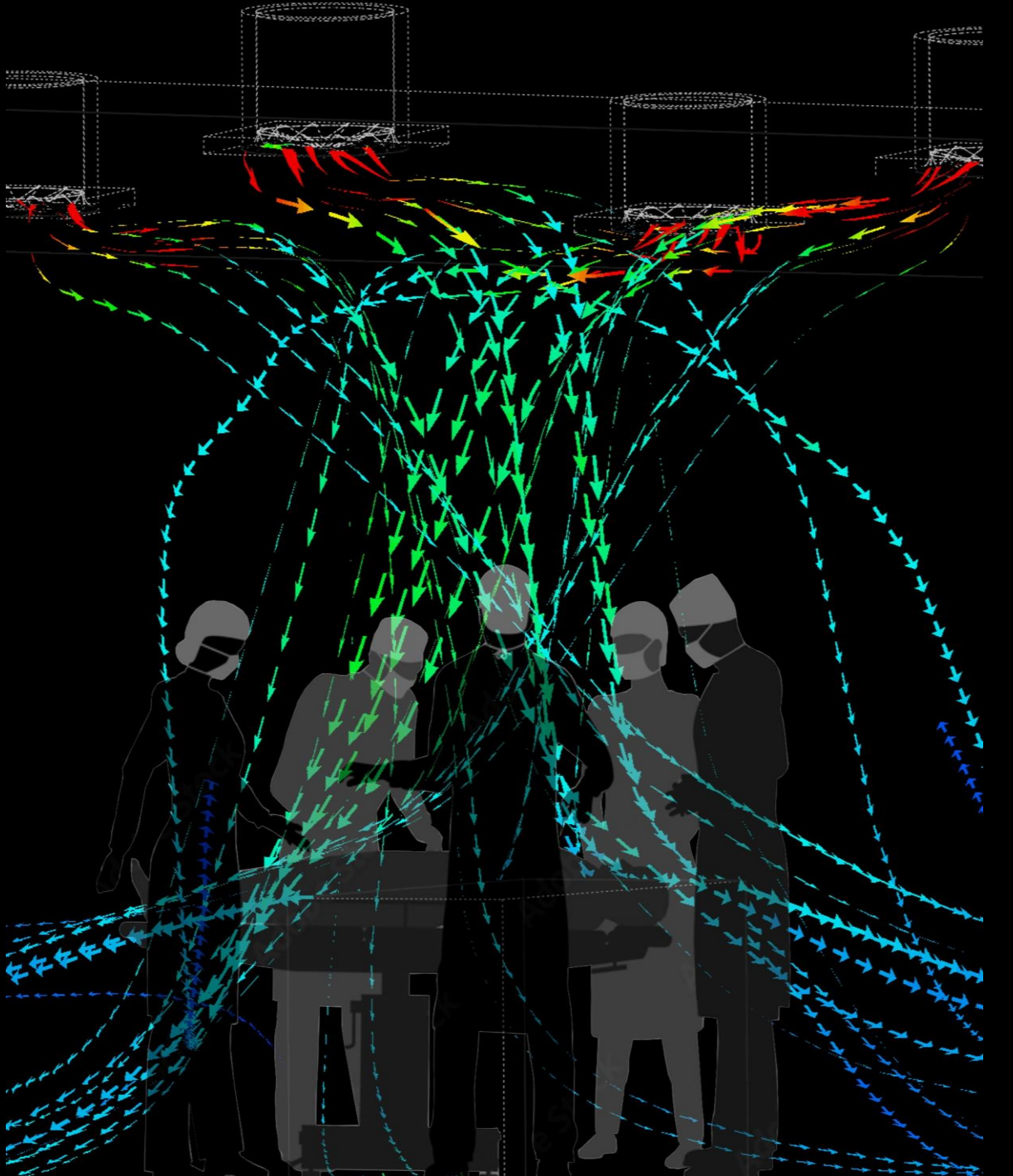


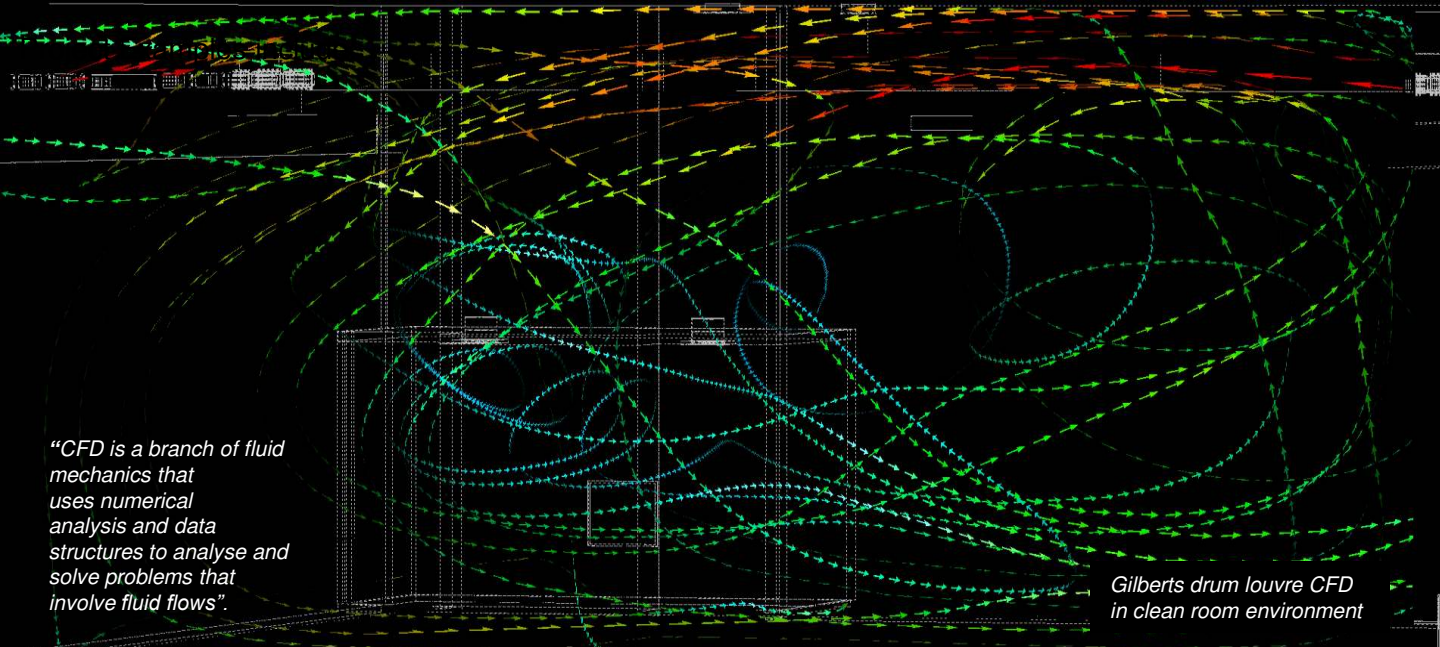


GILBERTS

AIR DISTRIBUTION AND NATURAL VENTILATION SOLUTIONS



C F D S I M U L A T I O N



"CFD is a branch of fluid mechanics that uses numerical analysis and data structures to analyse and solve problems that involve fluid flows".

Gilberts drum louver CFD in clean room environment

Gilberts are one of the leading UK manufacturers of Air Distribution Grilles, Diffusers, Louvres and Natural Ventilation Solutions.

Benefitting from over 60 years of industry experience we have developed a number of technical support activities which enable us to verify and validate our product and design performance. One of these key tools is Computational Fluid Dynamics (CFD) which provides the following benefits

- Validation of air distribution strategies to assess environmental conditions in heating, cooling and isothermal modes.
- Validation of individual air terminal device selections. These include swirl, slot and 4-way diffusers, perforated laminar flow systems, drum louvres, bar grilles and external louvres.
- Validation of multi-outlet bespoke configurations, including firing range laminar walls and operating theatre layouts.
- Development of air distribution and HVAC products, examples include a new heat recovery unit and thermally activated swirl diffuser.
- Air throw velocity analysis [projection and drop].
- Temperature and air mixing.
- Quantifying grille / diffuser and associated ductwork system pressures.
- Heat transfer studies.
- Time dependant and steady state scenarios.

We have accumulated nearly 30 years of experience in CFD having applied the technology in commercial, leisure and the public sector :

- Open plan office layouts
- Operating theatres
- Firing ranges
- School classroom studies
- Laboratories
- Warehouses
- Airport terminals
- Swimming pools
- Lecture theatres
- Atrium areas
- Apartments
- Dentists

Gilberts can also cater for one-off bespoke CFD projects, examples which include:

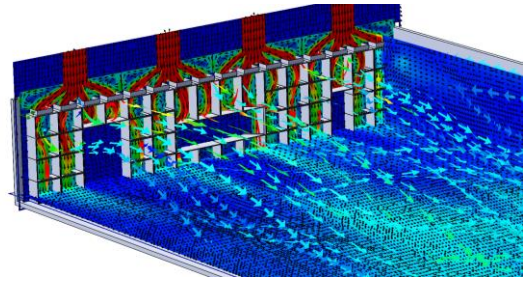
- Offshore acoustic enclosures
- Battery storage containers

Our client list includes the MOD, NHS, Department for Education, Siemens, BAE systems, Arups, Oracle the University of Manchester and many more.

In addition to CFD desktop style modelling and analysis we also have a state of the art air movement test laboratory where real world physical testing can be carried out alongside CFD modelling for baseline sampling or as a stand alone service.

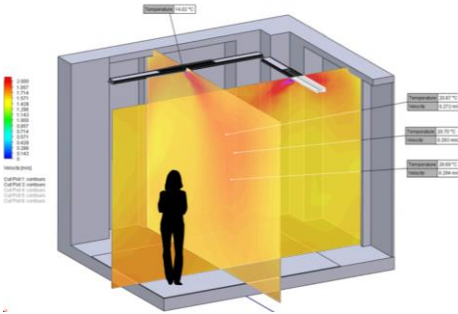
FIRING RANGES

Gilberts have become the industry leading specialists in the design & manufacture of bespoke firing range laminar wall systems. We provide an unparalleled turnkey service including 3d parametric design modelling, CFD and physical test validation and also final on-site commissioning.



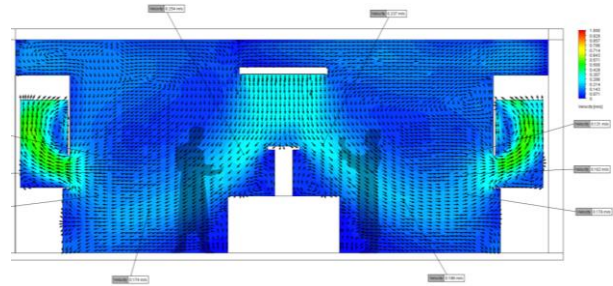
OFFICE PROJECTS

The setting for this CFD was a large open plan office with exposed ceilings. The simulation demonstrated that with slot diffusers configured to direct two thirds of air flow towards windows and one third into the office space, no velocities above 0.25m/s were detected in the occupied zone. Mixing was excellent with less than $\pm 1^{\circ}$ temperature differential and no stratification detected.



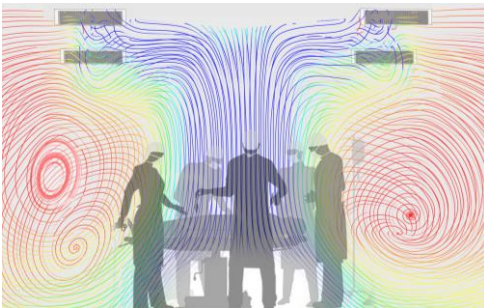
LABS WITH FUME CUPBOARDS

Velocity section cut plots were assessed in a proposed Lab facility primarily in relation to BS EN 14175 – 4 :2004 which states that supply air velocity does not exceed 0.2 m/s at 400mm from the fume cupboards.



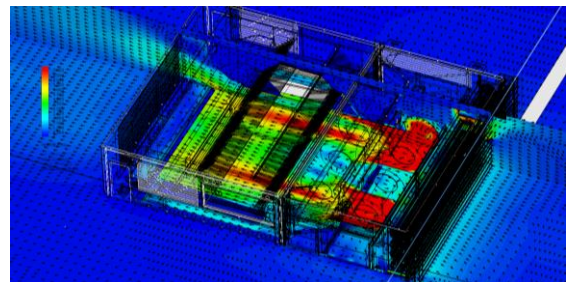
OPERATING THEATRES

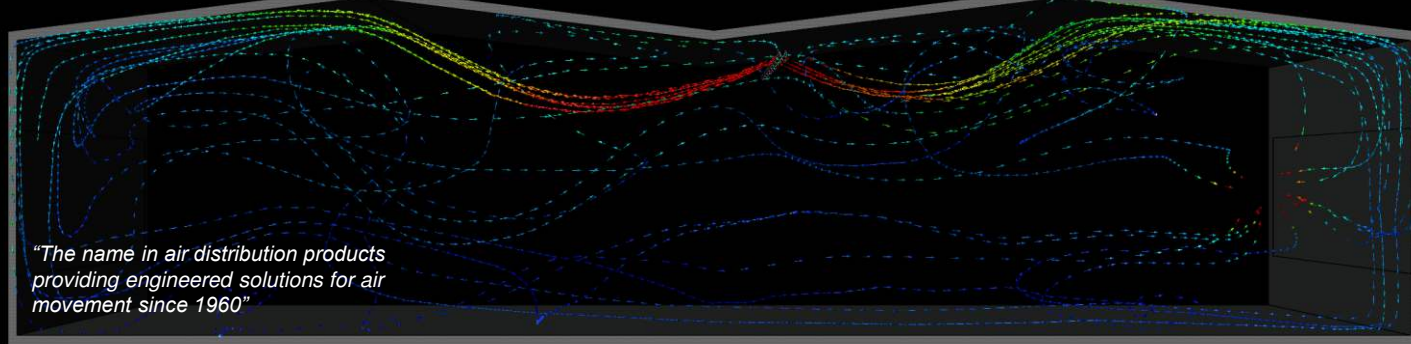
Further to the release of the revised 2021 version of the HTM 03-01 [specialised ventilation for health care premises] Gilberts have undertaken comprehensive testing to aid with compliance of air diffuser selection within operating theatres. Gilberts can offer laminar flow and air convergence solutions to suit any given operating theatre configuration.



GILBERTS PRODUCT DEVELOPMENT

This study was carried out to collaborate physical lab testing with CFD analysis to assess system pressures, velocity / temperature profiles and heat exchange efficiency rates for the new Gilberts MFS-HR in heat recovery mode.





*"The name in air distribution products
providing engineered solutions for air
movement since 1960"*

GILBERTS [BLACKPOOL] LTD

Air distribution Products

First choice industry leading air grille and diffuser range developed for all types of heating ventilation and air conditioning application.

Natural Ventilation Solutions

Natural Ventilation strategies for passive stack, wind driven and hybrid applications as provided by our innovative Mistrale solution.

Architectural and External Louvres

Mastering the elements with our Standard and high weather performance louver ranges featuring both factory built and on-site kit form solutions.

Smoke & Fire Protection

Wrapping up smoke and fire protection with our range of Fire dampers, Smoke dampers, Smoke/Fire dampers and air volume control dampers all developed to the latest test standards.

Quality Assurance

Gilberts (Blackpool) Ltd designs, develops, manufactures, inspects and tests its products to ISO 9001:2015 to ensure that they are suitable for the purpose for which they are specified, either as described in standard company literature or as agreed in a contract to meet our customer requirements.

"We care about quality"

Environmental policy

We take environmental awareness seriously and beyond just the basics. We deliberately design engineer every component to balance performance and cost effectiveness with its final environmental impact considered.

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