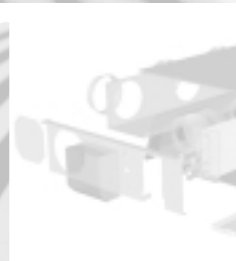
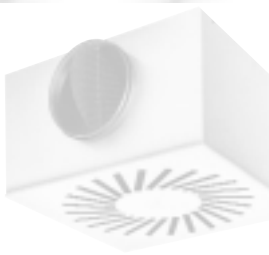
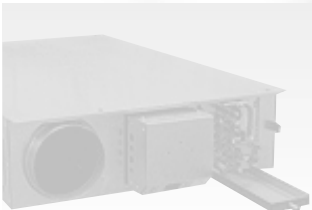


Design Bureau

Fan Coil System Solutions

A





Design Bureau



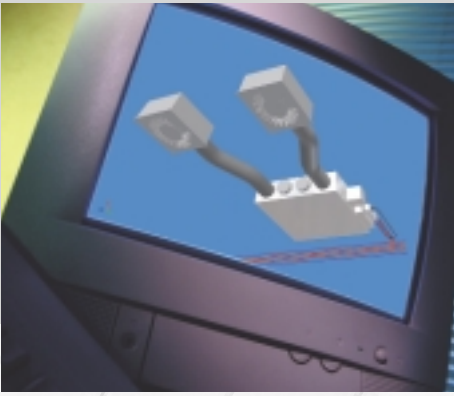
The Trox Design Bureau has a reputation for developing solutions to satisfy the most challenging Architectural and Building Service applications around the globe.

The Bureau draws on over 50 years of experience within construction, offering professionals the opportunity to compliment their project with optimised solutions.

The Design Bureau service has been successfully employed for:

- Fan Coil & Diffuser Systems*
- Multi-Service Chilled Beams*
- Integrated Ceiling Design*
- Architectural Air Distribution*
- Decentralised Ventilation*
- IT Cooling Systems*
- Labcontrol*





Collaborative Design Process

1) Initial Briefing

Key design criteria are established such as:

Heat gains and losses

Budget and programme

Space planning and flexibility

Airside or waterside control

Design conditions

2) Outline Proposals

A range of solutions are developed covering:

Fan coil and diffuser options

Budget costs

Potential savings

3) Detailed Design

Latest technology is harnessed to produce schedules of optimised Fan Coil and

Diffuser options with emphasis on:

'System' noise level

'System' pressure losses

Air distribution

4) Testing and Refinement

Thorough testing is conducted in a dedicated Fan Coil and Diffuser mock-up test cell. All aspects are considered including:

Thermodynamics

Aerodynamics

Acoustics

User comfort

5) Design Approval & Guarantee

Witness testing and inspection to client's satisfaction, to form the basis of the Design Bureau Guarantee. Analysis to include:

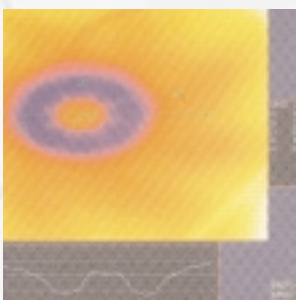
Performance

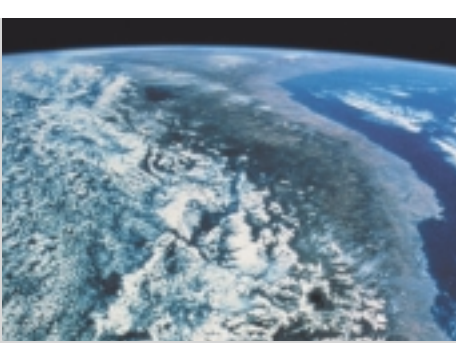
Aesthetics

Installation and buildability

6) Contract Implementation

Implementation and control to stringent manufacturing and delivery schedules guarantee that programme and cost certainty are realised for the client.





System Engineering

Complete Solution

The Design Bureau has developed a selection computer programme that selects the fan coil unit, the diffuser and plenum box.

Parameters can be varied to achieve the most optimum selection.

Optimisation takes into account:

Noise level

Pressure drop

Air distribution

Thermal output



Single System Schedule

By linking the selection of all the components in the fan coil system a comprehensive schedule can be produced for inclusion in the specification.

Iterative Design

The design of the project is an ongoing process. Changes always occur and with the Design Bureau computer software reselection of equipment can be made at the touch of a button.

Trox Design Bureau®

Fan Coil Unit + Diffuser Schedule

TROX FAN COIL UNIT - COOLING								TROX FAN COIL UNIT			
AIR VOL l/s	GRADE NR	TROX FCU MODEL	SIZE	SENS COOL KW	PRESS kPa	FLUID FLOW l/s	AIR OFF °C	HEAT KW	PRESSURE kPa	FLUID FLOW l/s	PRE AP
320.00	35.00	PWS	4	4.81	12.29	0.25	12.77	2.40	4.51	0.12	0.62
320.00	35.00	PWS	4		12.29	0.25	12.77	2.30	4.51	0.12	0.75
320.00	35.00				12.29	0.25	12.77	2.30	4.51	0.12	0.75
400.00				1.58	16.54	0.35	11.70	3.30	7.30	0.15	1.57
			2	2.12	6.83	0.11	12.20	2.20	3.69	0.05	3.22
		PWS	5	4.74	13.28	0.25	12.15	3.10	4.32	0.12	1.45
	34.00	PWS	3	3.78	11.82	0.19	12.77	2.30	2.48	0.10	0.67
175.00	35.00	PWS	2	2.64	9.50	0.14	12.70	2.60	6.01	0.07	4.24
250.00	34.00	PWS	3	3.78	11.82	0.19	12.77	3.40	2.48	0.10	1.46
370.00	35.00	PWS	5	5.91	23.52	0.34	12.02	3.30	6.35	0.14	1.61
	34.00	PWS	3	3.78	11.82	0.19	12.77	3.60	2.48	0.10	1.63
		PWS S	5	7.26	18.62	0.39	11.89	5.80	9.16	0.17	4.77
		PWS	2	2.32	7.67	0.12	12.44	1.80	4.62	0.06	1.65
		PWS	3	4.03	12.47	0.21	12.85	2.30	4.00	0.11	0.90
		PWS	3	4.03	12.47	0.21	12.85	2.30	4.00	0.11	0.90
			3	3.76	11.02	0.19	12.77	2.20	2.48	0.10	0.61
			3	3.76	11.02	0.19	12.77	2.20	2.48	0.10	0.61
			3	3.76	11.02	0.19	12.77	2.10	2.48	0.10	0.56
			3	3.76	11.02	0.19	12.77	2.10	2.48	0.10	0.56
			3	3.76	11.02	0.19	12.77	2.10	2.48	0.10	0.56



Laboratory Testing

The back-bone of the Design Bureau lies in the extensive in-house test facilities which are made available for project specific tests and mock-ups.

With the introduction of a dedicated fan coil system test cell the Design Bureau will offer:

- 1) *Project specific testing*
- 2) *Rapid system demonstration*
- 3) *Economic testing*

Extensive laboratory testing will enhance confidence in the system and eliminate on-site uncertainty.

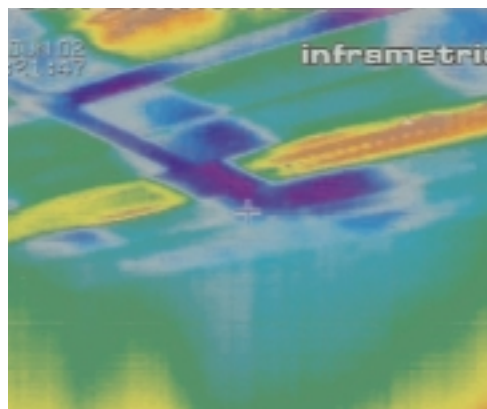
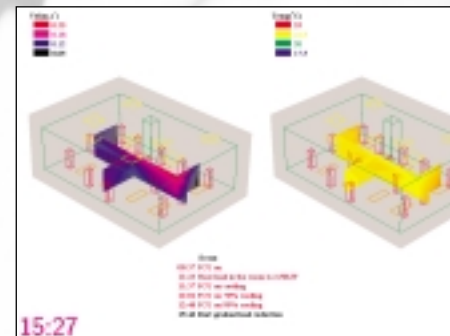
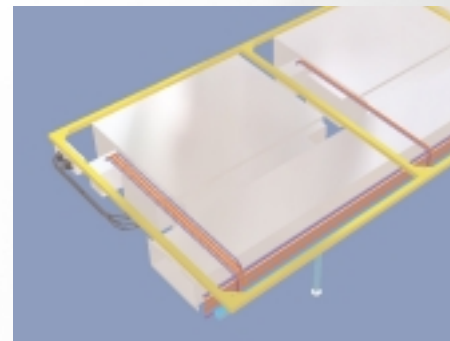
Each test is conducted in accordance with a detailed brief agreed with the Design Team. Attention to detail is of paramount importance and all aspects of the project test zone need to be replicated within the test cell.

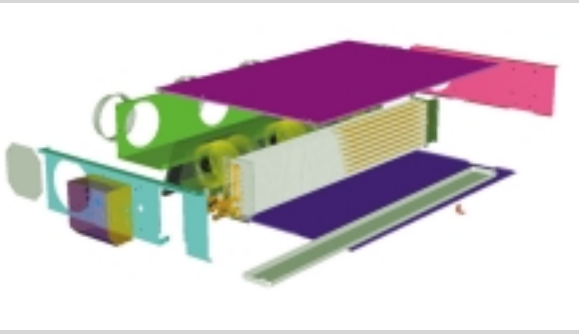
Once comprehensive testing has been carried out a detailed test report together with video of the smoke visualisation is supplied to the Design Team.

Design Bureau Guarantee

Available for:

- ▶ Noise level
- ▶ Air Distribution
- ▶ Cooling and heating capacity
- ▶ User comfort





System Components

Trox Design Bureau has an enviable reputation for its R&D engineers and laboratory test facilities. These resources have been successfully employed to develop a range of equipment to satisfy the most demanding internal environmental conditions.

- ▶ Waterside Fan Coil Units
- ▶ Airside Fan Coil Units
- ▶ High Induction Swirl Diffusers
- ▶ High Induction Slot Diffusers
- ▶ Louvred Faced Diffusers
- ▶ Integrated Ceiling Design

Fan Coil Units

Airside Fan Coil Unit

Meeting the demands of today's construction industry, the airside unit controls temperature by regulating the airflow over the heating or cooling coil via a unique rotating air control cylinder.

The cylinder rotates under modulating control to direct the airflow through the heating coil, bypass, or cooling coil as required to maintain the room design condition.

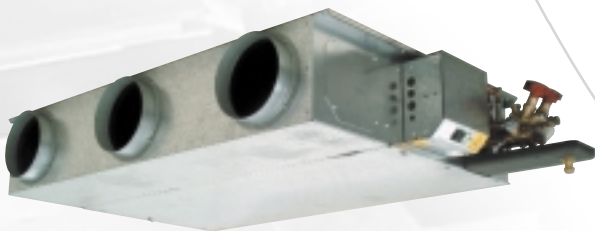
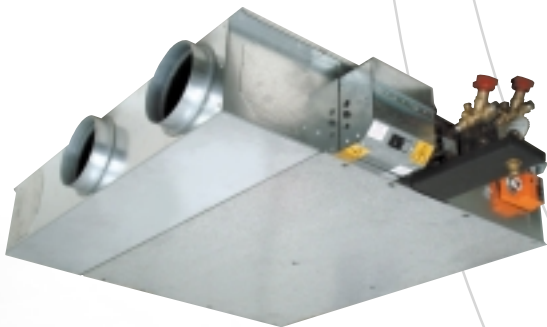
Air seals ensure airflow regardless of cylinder position. The cylinder is driven by a direct coupled actuator.

Waterside Fan Coil Unit

Developed to meet UK market requirements, air temperature is controlled via modulating water valves which control the flow of water through either the heating or cooling coil. This is the most traditional method of control.

Features

- ▶ Horizontal and vertical units
- ▶ Low noise levels (independently tested)
- ▶ Thermally and acoustically insulated
- ▶ All fan coil units manufactured in the UK
- ▶ 300mm extended drain tray



Air Distribution

High Induction Swirl Diffuser

Type SDW

Adjustable blade swirl diffuser to suit a range of ceiling types and sizes. A circular face plate is available to suit the architectural requirements.

High Induction Slot Diffuser

Type VSD

High capacity, high induction linear slot diffuser purpose designed for perimeter office applications. Individually adjustable barrels ensure maximum induction to achieve optimum room air pattern and user comfort.

Louvre Faced Diffuser

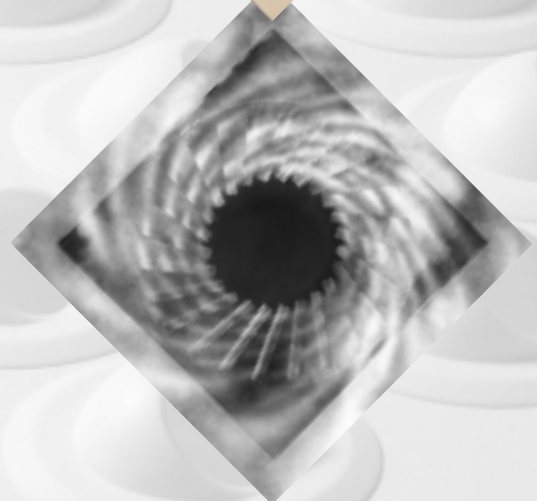
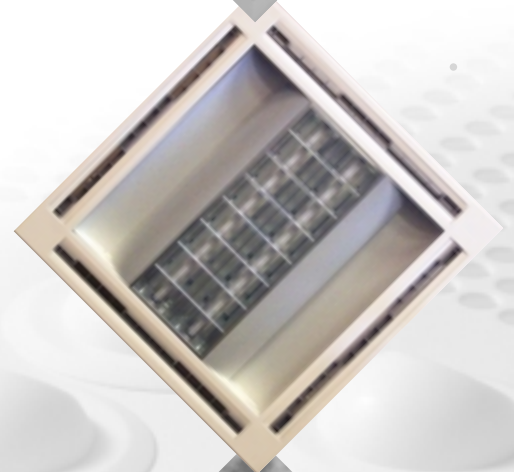
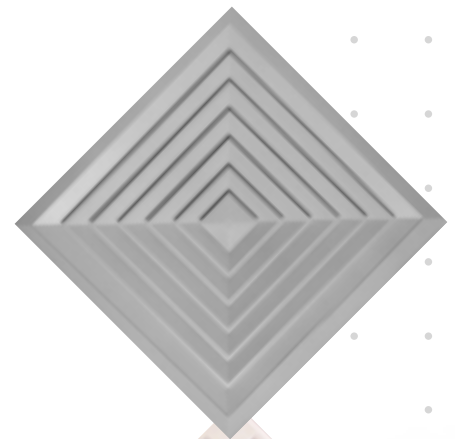
Type ADT

Traditional louvre faced characterised by horizontal air discharge. A range of edge flanges ensure successful ceiling grid integration.

Integrated Ceiling Design

Type MSU

Individually architecturally designed fittings that combine the air supply and lighting. PIR lighting/movement sensors and sprinkler heads may also be included. The MSU's are available as plank or square tile replacements.





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Design Bureau