

How UfAC works

AN INTRODUCTION TO UNDERFLOOR AIR CONDITIONING



How does underfloor air conditioning work?

Our systems are proven to offer solutions to unique design challenges. UfAC systems are inherently flexible, modular in design and equipment is installed at floor level, making it easy to maintain and re-arrange to suit the demands of today's commercial workspace.

Create high quality indoor workspaces with superior flexibility, adaptable and easily reconfigured. Ideal for commercial offices, learning centres and mixed use space.

Underfloor air conditioning (UfAC) systems make use of the space beneath a raised access floor to create the air ventilation zone, eliminating the need for ceiling based services and associated duct and pipework.

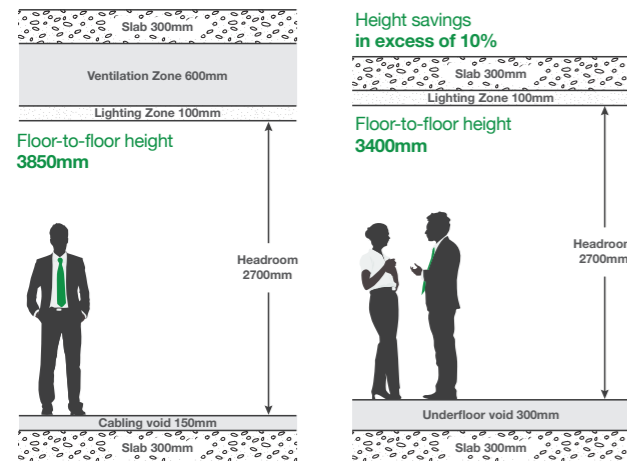
Each floor is divided into zones of up to 300m² depending on the potential use and occupancy density of the area. Each zone is supplied with chilled or warmed air by a zonal air handling unit or CAM (Conditioned Air Module) and the conditioned air is then delivered into the space using a recessed (Fantile) or floor standing fan terminal. Air travels back to the CAM for re-conditioning either at floor level via

the plenum (CAM-C), or at high level (CAM-V). Both CAM-C and CAM-V systems can be configured to be either chilled water (CW) or direct expansion (DX).

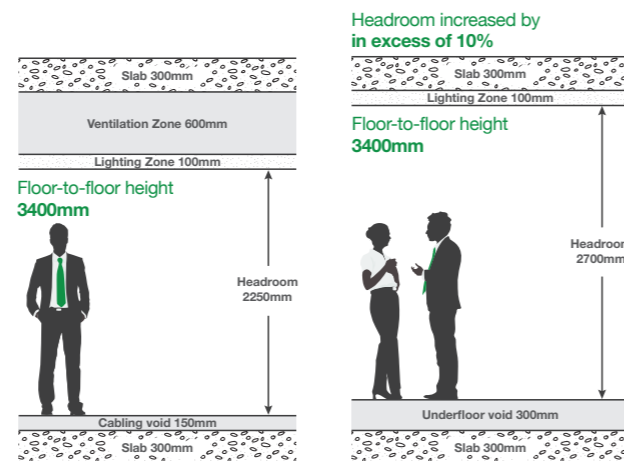
Space Saving

Less waste, a better use of space is our ethos. By eliminating ceiling based services and ductwork our systems have helped achieve around 10% reduction of building height in new build projects, and increase floor to ceiling heights in height restricted refurbishment projects, helping to achieve British Council for Offices (BCO) recommended standards.

In new buildings Flexible Space offers **height savings**



In refurbishments Flexible Space offers **increased headroom**



Benefits

WHY USE UFAC

- Architectural design freedom
- One system for heating and cooling
- Adaptable and easily reconfigured
- Faster construction time
- Reduced construction costs
- Overcome planning constraints
- Height saving advantages
- Energy efficient operation
- Reduced maintenance
- Excellent indoor air quality
- Optimum user comfort
- Improve LEED and BREEAM points
- Attract capital allowances
- Maximise rentable space

Features

WHAT MAKES OUR SYSTEMS DIFFERENT?

- Choose from zonal downflow, or all air central plant systems
- Chilled Water (CW) or Direct Expansion (DX) coils
- Cooling loads in excess of 200 W/m²
- Compatible with most types of raised access floor
- Optional EC or AC fans
- Floor voids from 180mm
- Personal control for users
- Modular, relocatable components
- Variety of grille colours and shapes
- Local, central or remote monitoring and control

System Configurations

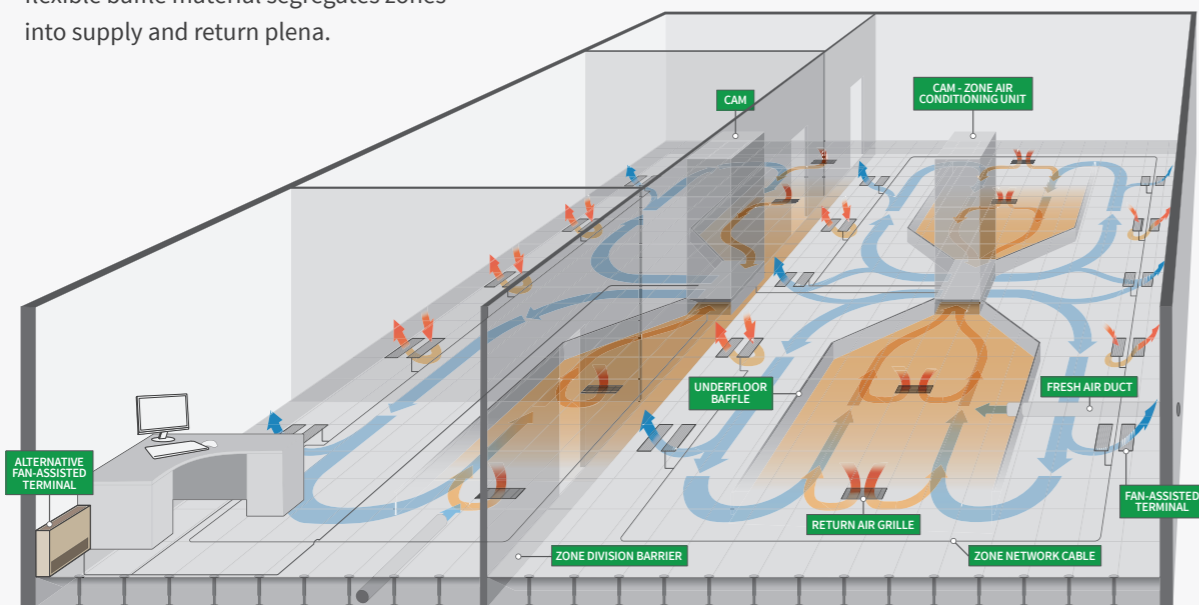
CAM-C

AET Flexible Space offers a variety of standard system configurations as well as bespoke hybrid solutions. A CAM-C system is the best option for increasing headroom in height restricted buildings and where ceilings may be left exposed to highlight architectural features.

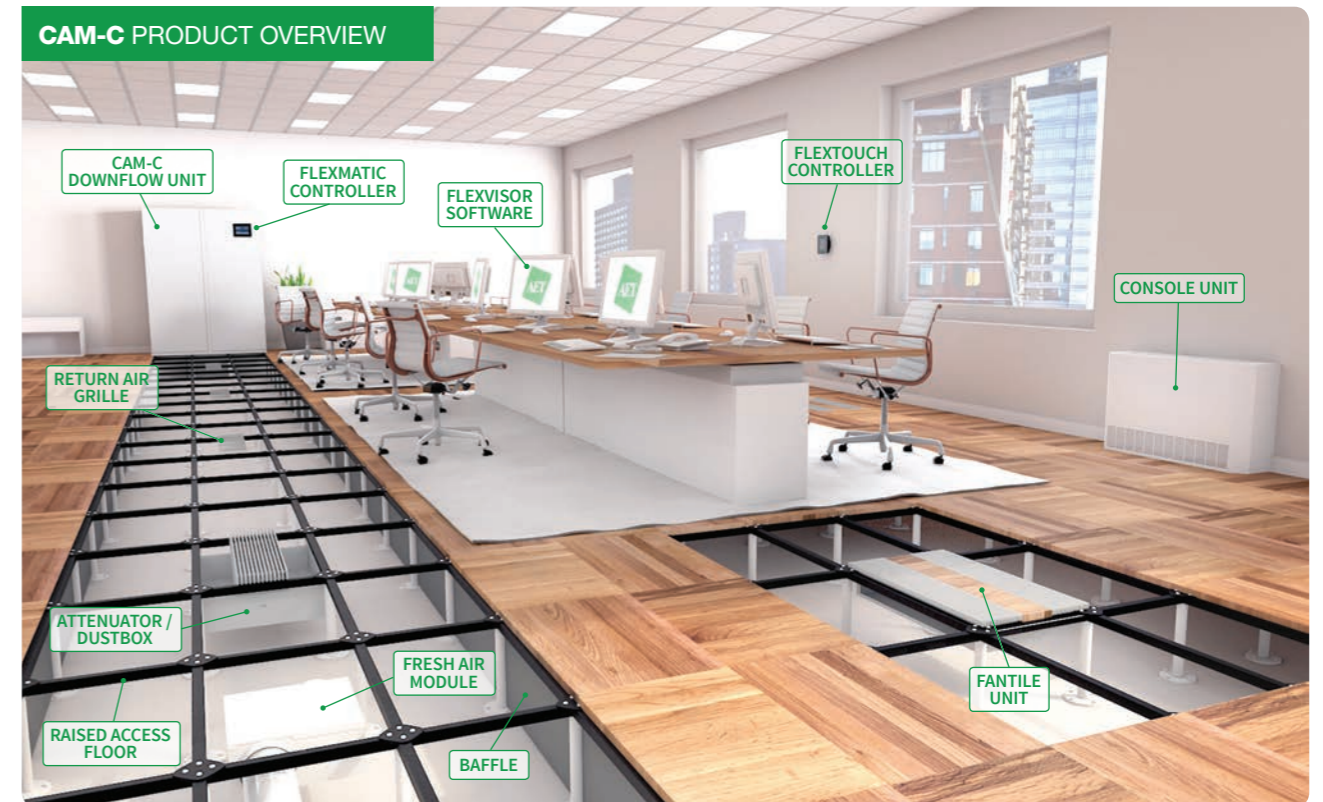
CAM-C

FULLY UNDERFLOOR,
SUPPLY AND RETURN AIR

The CAM-C system makes use of the raised floor void as a plenum for the distribution, and the return of air. Within the floor void, flexible baffle material segregates zones into supply and return plena.



CAM-C PRODUCT OVERVIEW



CAM-C Downflow Unit



The CAM-C delivers conditioned air into the supply plenum and receives return air via the underfloor plenum for re-conditioning. The unit is mounted on a baseframe which is used to divide supply and return air channels within the plenum. Six designs can accommodate different airflow patterns. The units come with a 3-row coil as standard offering cooling capacities from 8-36kW and airflow from 2270 to 9310 m³/h.

Maximum CAM-C unit dimensions:
1950mm height x 2000mm width x 750mm depth

OPTIONS INCLUDE:

- Refrigerant or CW/LPHW coils
- AC or EC fans
- Single row coil for hot water supply
- 2 stage electric heater
- Humidity control

System Configurations

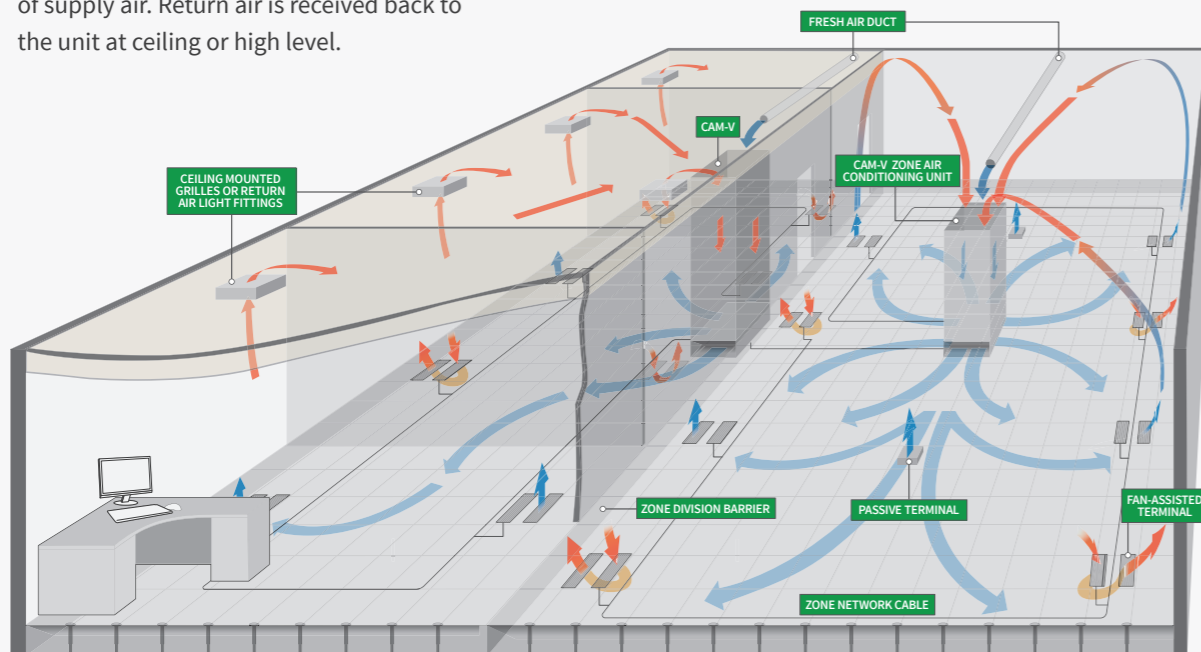
CAM-V

The CAM-V system allows complete freedom to maximise the floor plate. No division in the floor plenum means the CAM-V system is the best option for flexibility and reconfiguration.

CAM-V

UNDERFLOOR SUPPLY AIR,
HIGH LEVEL RETURN AIR

The CAM-V system makes use of the raised floor void as a plenum for the distribution of supply air. Return air is received back to the unit at ceiling or high level.



CAM-V Downflow Unit

The CAM-V delivers conditioned air into the supply plenum and receives return air at high level for re-conditioning. The unit is mounted on a standard baseframe with no airflow division. The units come with a 3-row coil as standard offering cooling capacities from 8-30kW and airflow from 2270 to 9310 m3/h.

Maximum CAM-V unit dimensions:
1950mm height x 1450mm width x 750mm depth

OPTIONS INCLUDE:

- Refrigerant or CW/LPHW coils
- AC or EC fans
- Single row coil for hot water supply
- 2 stage electric heater
- Humidity control

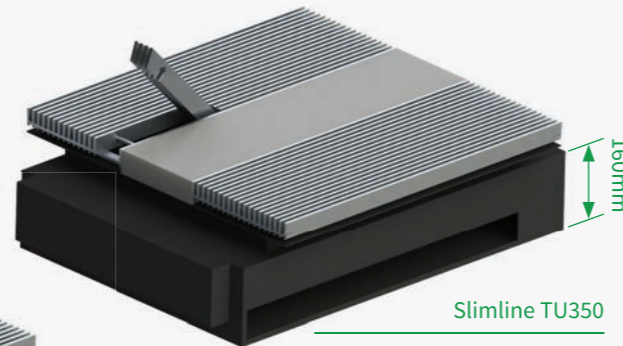
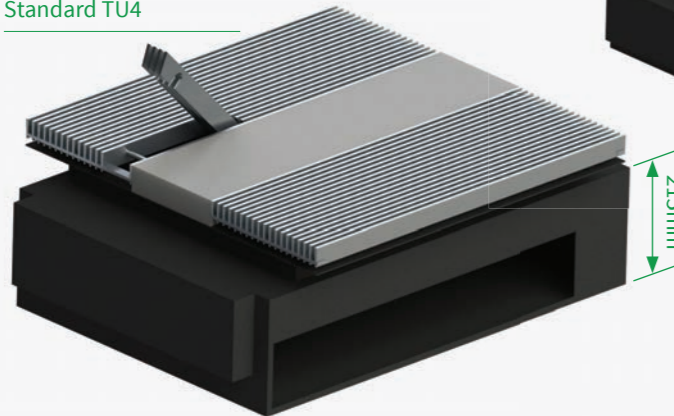


Fan Terminal Units

Fantile Unit

The Fantile (Fan Air Terminal) is designed to replace a standard 600mm x 600mm raised access floor panel and is recessed into the floor. It extracts conditioned air from the plenum below the raised floor and introduces it into the workspace. It also re-circulates room air.

Standard TU4



Slimline TU350

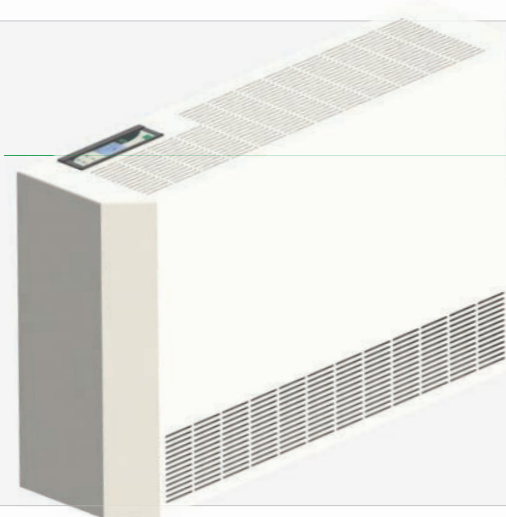
Fantiles feature two temperature sensors (floor and room) and a motorised damper. Standard connections permit easy relocation and the integrated Fatronic allows user adjustment of fan speed and temperature. A master-slave function can be configured for large zones with multiple units. Cooling capacity of up to 2.5kW is achieved with a nominal airflow between 300-500m³/h.

A minimum clearance of 180mm is required.

OPTIONS INCLUDE:

- Standard or slim-line units
- AC or EC fans
- Electric trim heaters
- Hot water coil

Console Unit / TUC-500



A floor standing fan terminal unit designed for areas unsuitable, or with inadequate space for recessed terminals. The unit is positioned over an opening in the raised floor, extracts conditioned air from the plenum and delivers it into the space.

Accessories

Raised Access Floor



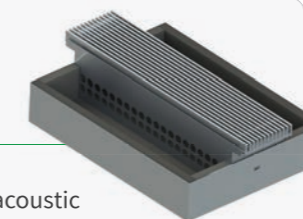
A raised access floor creates the underfloor plenum which becomes the ventilation zone for the supply (and return) of conditioned air. The substructure must have slotted pedestals and stringers is for maximum support and air tightness. 600mm carpet tiles or bonded floor finishes are recommended for ease of space reconfiguration as Fantiles are designed to be interchangeable with standard 600mm floor panels.

Supply Air Grille



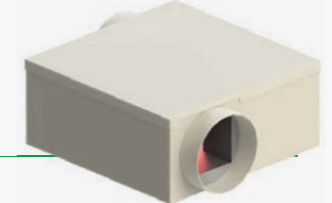
Light aluminium alloy grilles featuring hatch access to the Fantile's integrated controller. Designed to be part of the walkable surface and height adjustable to fit level with different floor finishes. Circular or custom shape grilles and different colour finishes are available on request.

Attenuator / Dust Box



Dust collection trays and acoustic attenuators are available to fit underneath the return air grilles.

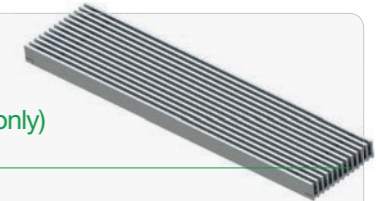
Fresh Air Module



The fresh air model FA7/FA5 draws additional fresh air from outside and delivers it directly into the CAM to mix with spent air often used when central air treatment plants are not installed.

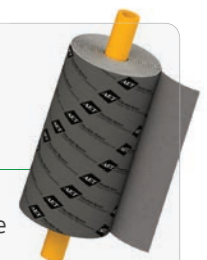
Fresh air modules can also be used in the supply zone to boost airflow within large areas. The unit features a 2-speed centrifugal fan and removable EU filter and achieves nominal air flows of 430 and 630 m³/h.

Return Air Grille (CAM-C only)



Light aluminium alloy grilles. They are designed to be part of the walkable surface and are height adjustable to fit level with different floor finishes. Different colour finishes are available on request.

Air Segregation Baffle (CAM-C only)



Fire-resistant and airtight fabric made from glass fibre cloth which is used to divide the underfloor plenum into supply and return air channels.

Controls

Communications



Flexvisor BMS

All CAMs and Fantiles can work independently or connected in a network. FLEXVISOR BMS software is available for independent remote monitoring and supervision, with local access using network IP address, or remote access using remote access web address. The FLEXGATEWAY interface module can connect the UfAC system to the Flexvisor software, or to a central BMS using either Modbus or BACnet protocol.

Fatronic Controller



Integrated controller for fan terminal units allowing individual user control of fan speed and temperature adjustment.

Flextouch Controller



Flextouch

Wall mountable, touchscreen remote controller for Fantiles which allows user adjustment of fan speed and temperature and measures CO2 and humidity. PIR sensor detection available. Master-slave function available for large zones with multiple units.

Flexmatic Controller



Flexmatic Touch

Display unit allowing visual access and control of CAMs, Fantiles and zone communications.

The Flexmatic can monitor up to 16 CAM, or 8 if the system is configured with an external BMS.

Selected Projects

UK

8 Waterloo Place
London



Here East
Stratford



20 Soho Square
London



Europe- Africa

iQuest Headquarters
Romania



Mukusalis Business Centre
Latvia



One Airport Square
Ghana



Asia

Parkview Green
Beijing



Microsoft
Shanghai



Nina Tower
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