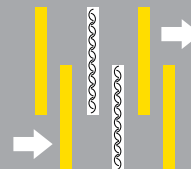
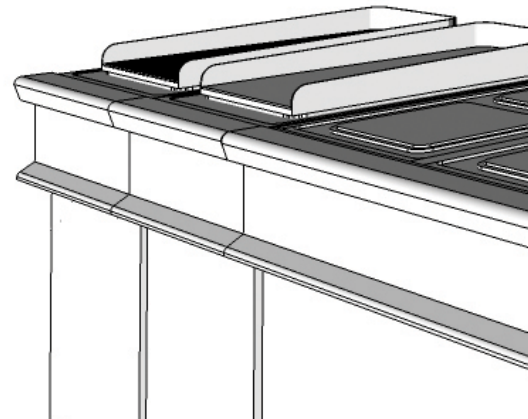
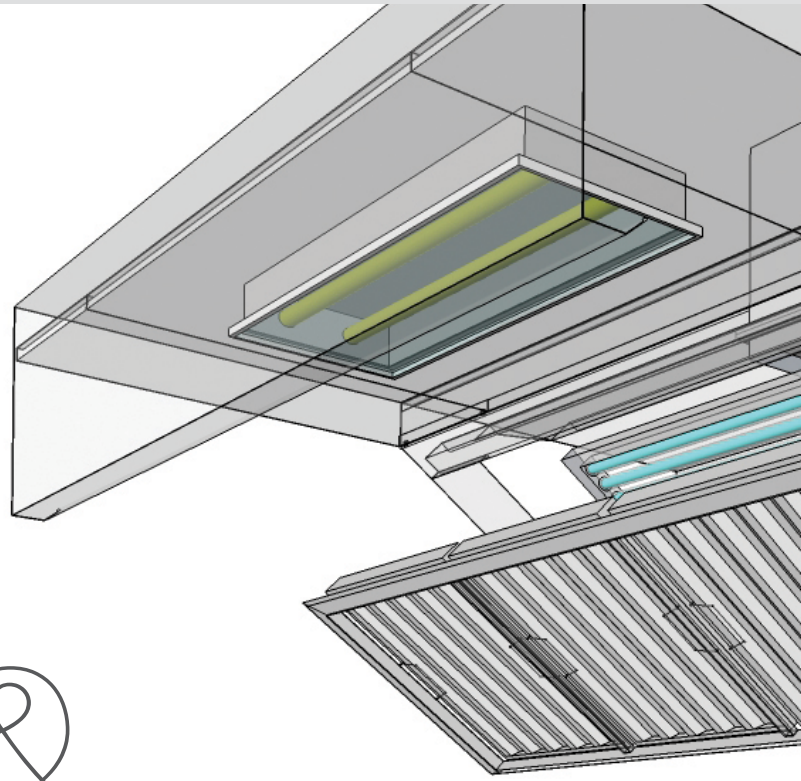


Engineers & Consultants Manual



Welcome

EFTECH (Environmental Food Services Technologies Ltd.) is a Kilkenny based company which supplies extraction canopy solutions and environmental products for Commercial Food Service Kitchens. We specialise in extraction canopy designs that can reduce maintenance costs and offer the client a return of investment on their expenditure. Over our range of canopies we are able to offer the following benefits:

- Reduction in Energy and Maintenance costs
- Improvement to the Environment
- Odour Removal
- Improved fire safety
- Improved air quality / comfort
- Control over Carbon Monoxide levels

Value Proposition

At EFTECH we understand the economic demands that customers face in the current marketplace. As a company it has helped to drive us in developing “value engineered” solutions for our clients. On all of our product ranges you will find options to better suit your budget requirements.

(Friendly) Customer Service

Customers make purchasing decisions based on relationships developed with suppliers. At EFTECH we are mindful of offering clients backup service on all of our products but also expert assistance in choosing the right solutions to fit your requirements.

Service & Maintenance

As a full service company, we are happy to be able to offer each of our clients back up assistance on all of our products. This includes customized preventative maintenance plans or emergency call out solutions as required. We won't disappear after the sale is complete!

Survey & Consultation Service

With our team of experts, EFTECH can perform free site surveys to assess the individual needs and requirements for each specific customer. We will offer cost effective solutions realizing the need to be competitive in today's market place.

Irish Manufacturer

By buying Irish goods and services you are helping to keep jobs in Ireland. We are proud of the fact that we can offer products manufactured in Ireland that achieve international standards. With your support we can help keep our skilled workforce in business.

Measurements & Fitting

We at EFTECH pride ourselves in developing solutions to “fit” your needs. We understand that site dimensions and restrictions vary dramatically across our trade, and we are capable of designing solutions to suit. Our team of installation engineers will ensure that the equipment is fitted to the highest of standards also.

Our Clients

No job is too big, no job is too small! At EFTECH we pride ourself in offering all of our customers the same level of service from design through to installation and backup needs. As can be seen below from some of our customer base, we have a wide and varied experience level across our industry. From national landmarks to educational and medical sectors we have provided solutions throughout the country.



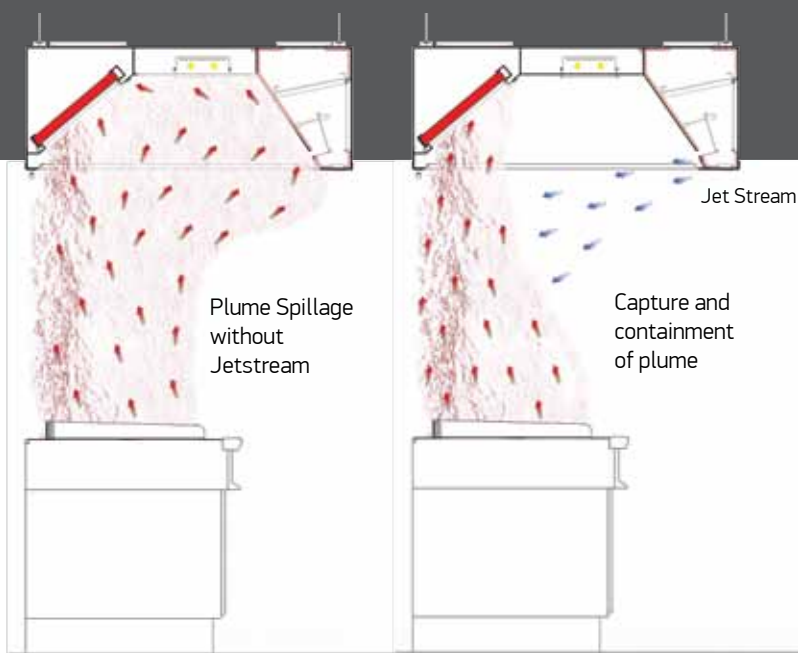
- Ethihad Terminal 2 Airport Lounge, Dublin
- Tescos Cabra, Dublin
- Ursuline Convent
- Francis Hospice, Dublin
- Nationwide,
- Osprey Hotel Naas, Co. Kildare
- The Convention Centre, Dublin
- Blackrock Clinic, Dublin
- Disneyland, Paris
- Macari's Takeaway, Tramore Waterford
- Clonskea Hospital, Dublin
- Grand Canal Theatre, Dublin
- Beacon Hospital, Sandyford
- Holy Ghost Fathers, Dublin
- Bord Gais, Dublin
- Kilbride Military Barracks, Co. Kildare
- Irish Prison Service
- Avoca Bray
- Athlone Institute Of Technology Co. Westmeath
- Shannon Nights, Co. Clare
- National University Ire Galway
- Mary Immaculate College, Limerick
- Tayto Land Ashbourne Co. Meath
- Opw Department Of The Environment, Wexford
- St. Patricks College, Drumcondra, Dublin
- Tescos, Newtownards, Belfast
- Guinness Store House, Dublin

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EFTECH Canopy Technology

EFTECH incorporate the latest engineering technologies to further enhance our product range.



Test Pic 1. CIT Shadow graph test with Jet Stream

Shadowgraph

Shadowgraph is an optical method that reveals non-uniformities in transparent media like air, water, or glass. It is related to, but simpler than, the “schlieren photography” methods that perform a similar function. Using this technology EFTECH have carried out extensive studies aiding the development of their canopies and technologies.

Shadowgraph is a type of “flow visualization”. In principle, we cannot directly see a difference in temperature, a different gas, or a “shock wave” in the transparent air for example. However, all these disturbances refract light rays, so they can cast “shadows”. The plume of hot air rising through an extraction canopy, for example, can be seen by way of its shadow cast upon a nearby surface by a uniform light source.



In Conjunction with CIT, EFTECH tested and evaluated the ability of the “Aero Jetstream” canopy to operate efficiently under different load and airflow conditions. This involved the building & testing of the Jetstream canopy using flow visualization to accurately analyse the effects of the varying plumes within the canopy.

EFTECH have developed a version of the “Shadowgraph Technique” which indicates how molecules of different densities diffract light at different angles. Using this process it was possible to see the effects of closed circuit supply air for example on the extract efficiency!



Canopy in text at CIT



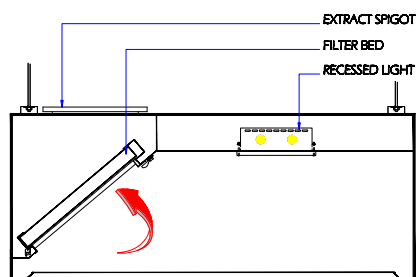
Canopies

Extract Canopies “**fit for EVERY purpose!**”

Wall Canopies

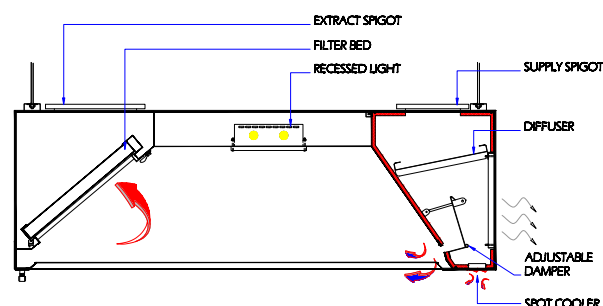
FlowX Wall Canopy

EFTECH wall canopies are mounted on the wall directly above cooking equipment. These are the most commonplace type of canopy as most kitchens have their cooking equipment along a wall.



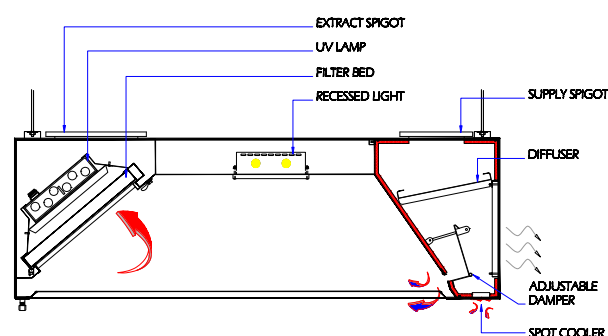
Jetstream Wall Canopy

With Jet Stream technology, the standard extract canopy can be upgraded to accommodate supply air for the kitchen area. This is commonly known as makeup air and can replace up to 85% of the extract air as per **DW172** guidelines.



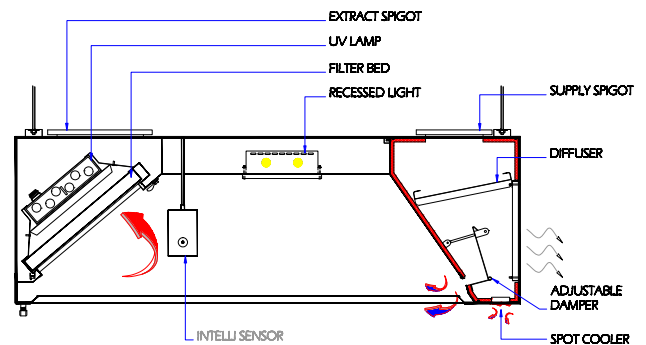
Clean Stream Wall Canopy with Jetstream Technology

With Clean Stream technology your canopy can be upgraded to include patented UV-c technology which will destroy grease and odours from the airstream. Combined with a Jet Stream system for supply air introduction, your canopy is fully equipped to meet your kitchen demands.



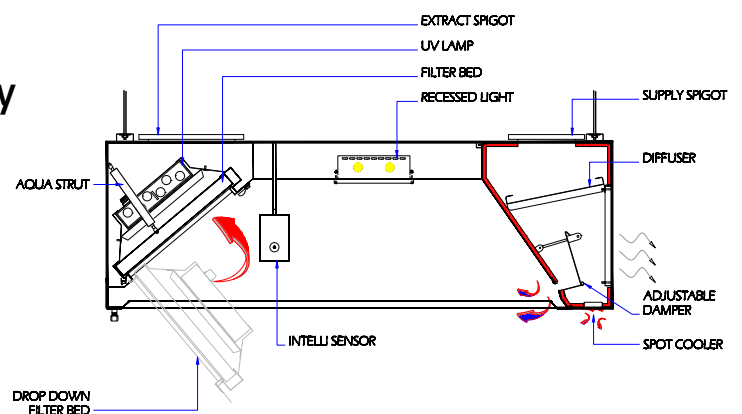
Autosense Smart Canopy with Cleanstream and Jetstream technology

Combining Clean Stream, Jet Stream and Smart Sense technologies your canopy becomes the most efficient canopy in the marketplace. Offer savings of up to 63% on energy costs the EFTECH Smartsense control system will deliver supply and extract air only when it is required.



Autosense Smart Canopy with Cleanstream, Jetstream and drop-down filter bed technology

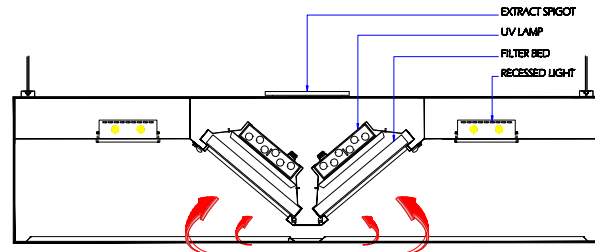
Combining all of our technologies and offering our patented drop down filter bed, the canopy become easily accessible for service requirements.



Island Canopies

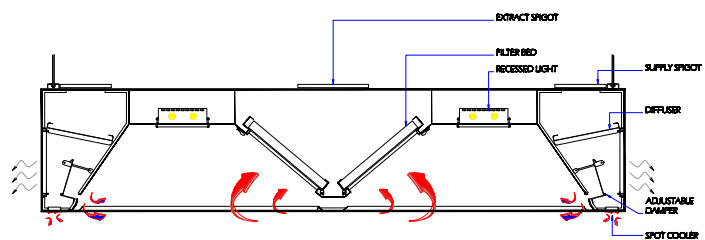
FlowX Island Canopy

EFTECH Island type canopies are normally situated centre room above the cooking equipment. These allow for a larger array of cooking types and volumes. The canopies can be manufactured in sections to allow for access to the kitchen area.



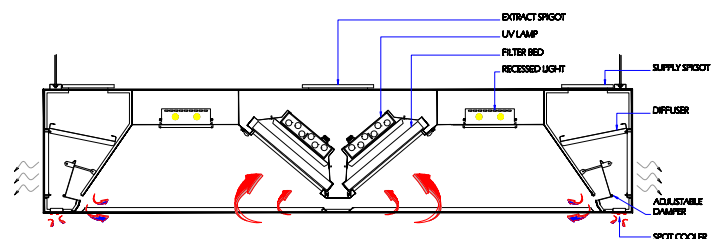
Jetstream Island Canopy

With Jet Stream technology, the standard extract canopy can be upgraded to accommodate supply air for the kitchen area. This is commonly known as makeup air and can replace up to 85% of the extract air as per **DW172** guidelines.



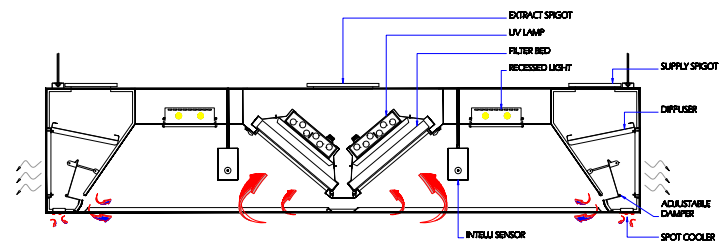
Cleanstream Island Canopy with Jetstream Technology

With Clean Stream technology your canopy can be upgraded to include patented UV-c technology which will destroy grease and odours from the airstream. Combined with a Jet Stream system for supply air introduction, your canopy is fully equipped to meet your kitchen demands.



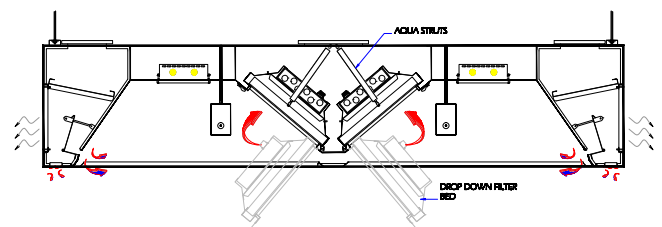
Autosense Smart Canopy with Cleanstream and Jetstream Technology

Combining Clean Stream, Jet Stream and Smart Sense technologies your canopy becomes the most efficient canopy in the marketplace. Offer savings of up to 63% on energy costs the EFTECH Smartsense control system will deliver supply and extract air only when it is required.



Autosense Smart Canopy with Cleanstream, Jetstream and drop-down filter bed technology

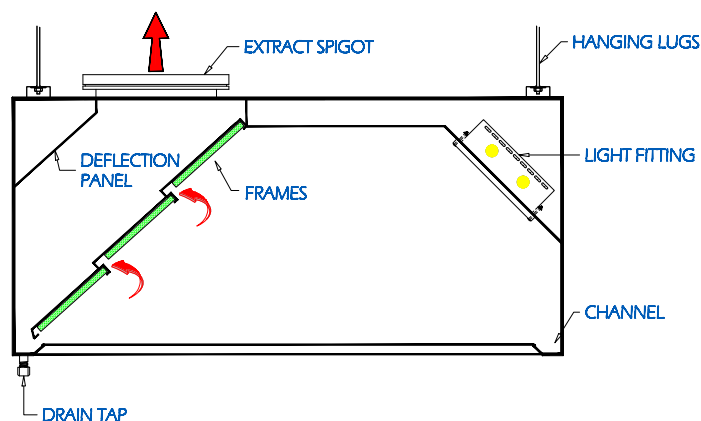
Combining all of our technologies and offering our patented drop down filter bed, the canopy become easily accessible for service requirements.



Condense Canopies

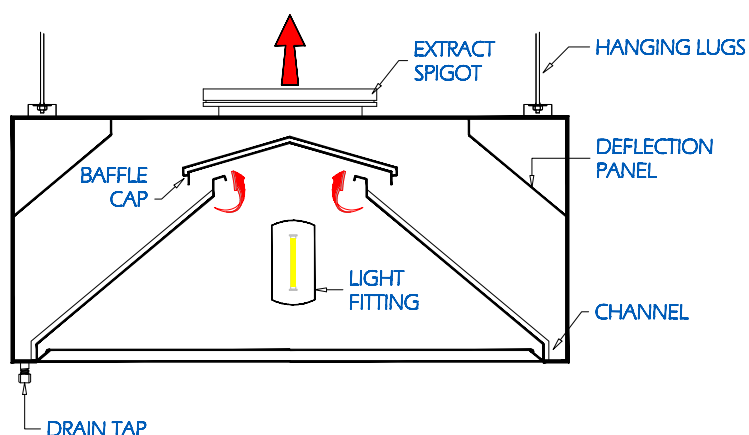
Condense Canopy 1

Condense or condensate canopies are specifically designed to extract steam produced by commercial dishwashers. Our angled plate type canopy, Model CS1, achieves condensation through specially designed deflector plates. The canopy also comes equipped with an optional IP65 rated fluorescent light fitting.



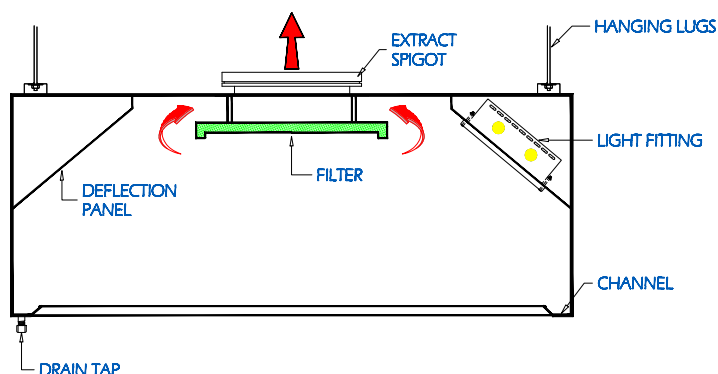
Condense Canopy 2

Our second model, CS2, achieves condensation through specially designed baffle caps. An optional IP65 rated bulk head fitting can be supplied also.



Condense Canopy 3

Our third condense canopy model, CS3, uses a slotted filter to achieve condensation. This is the simplest design and accommodates smaller pieces of equipment. An IP65 rated light fitting can be supplied also as required.





UV-c Solutions

EFTECH has specialised in the elimination of grease and reduction of odour problems through the development of advanced patented UV-C & Ozone Technology.



UV-c & Ozone EFTECH Air Cleaning Units

EFTECH has specialised in the reduction of grease and odour problems through the development of advanced patented UV-C & Ozone technology.

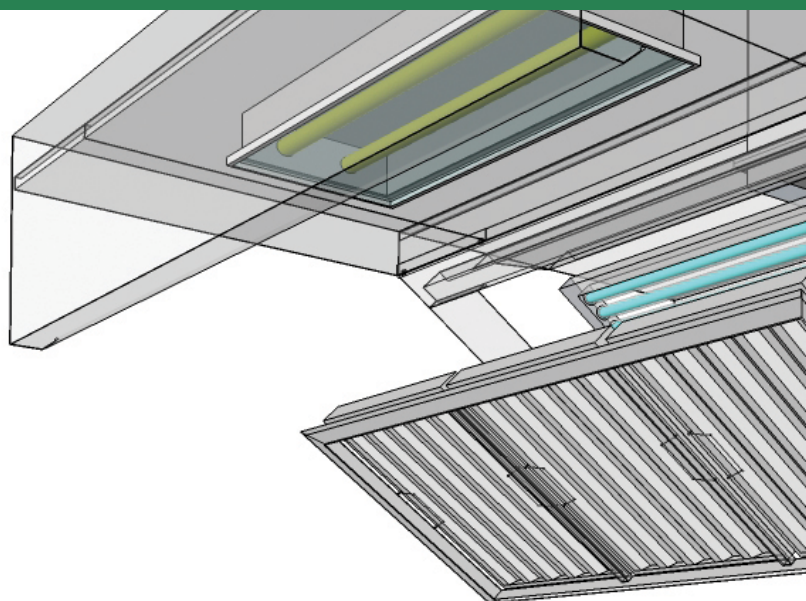
EFTECH Cleanstream® UV Technology removes unwanted odours and grease from the extracted airstream – net result? Grease free ductwork and planning authority approval!

Products

- Aero Cleanstream® Canopies
- KPC Cleanstream® Bespoke Systems (retro-fit)

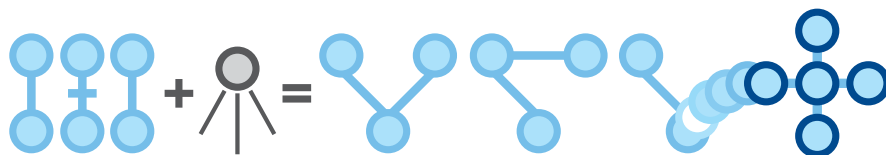
The Benefits

- Alternative method to duct cleaning
- Tested and reliable equipment
- Effective reduction of odours and VOC's
- No use of chemicals or fragrant oils
- No use of filters or absorbents
- No use of micro biology
- No liquid effluent or harmful residues
- Compact installation that efficiently utilises space
- Simple to retrofit into existing canopies
- Instant startup and shutdown
- Low maintenance and operational costs

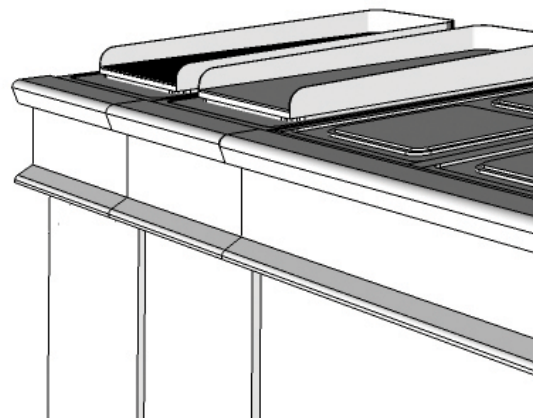


UV-C light reacts with the common oxygen molecule O_2 in the air that we breath converting it into ozone O_3 .

Ozone O_3 readily sheds an oxygen atom to become O_2 once again but in the process oxidising the unwanted substances.



Oxygen O_2 + UV-C Light = O_3 Extra Oxygen atom attaches to organic or chemical pollutants.

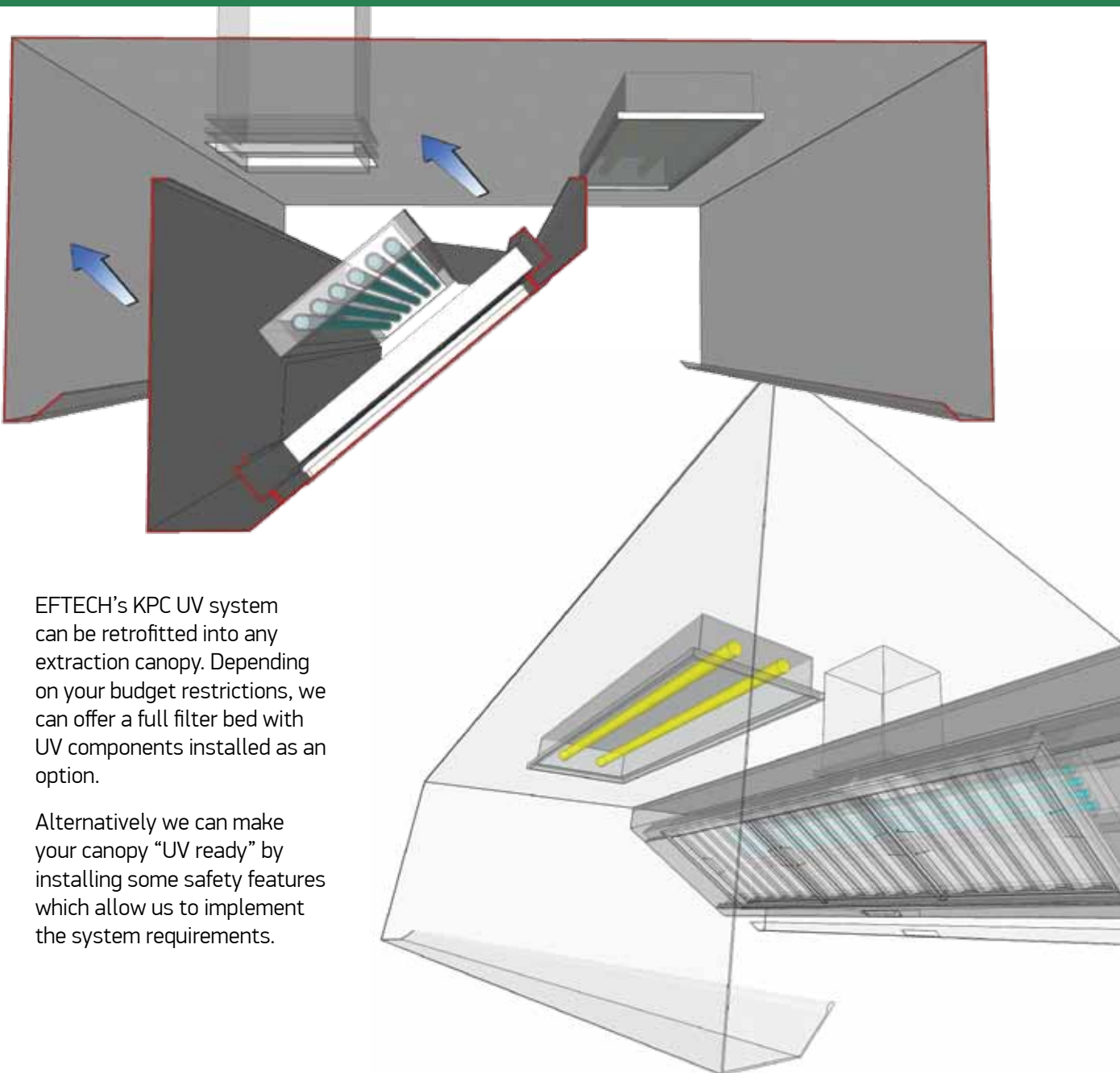




UV-c & Filter Bank Retro Fit Solution

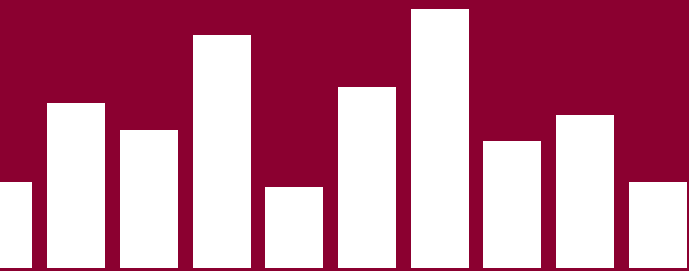
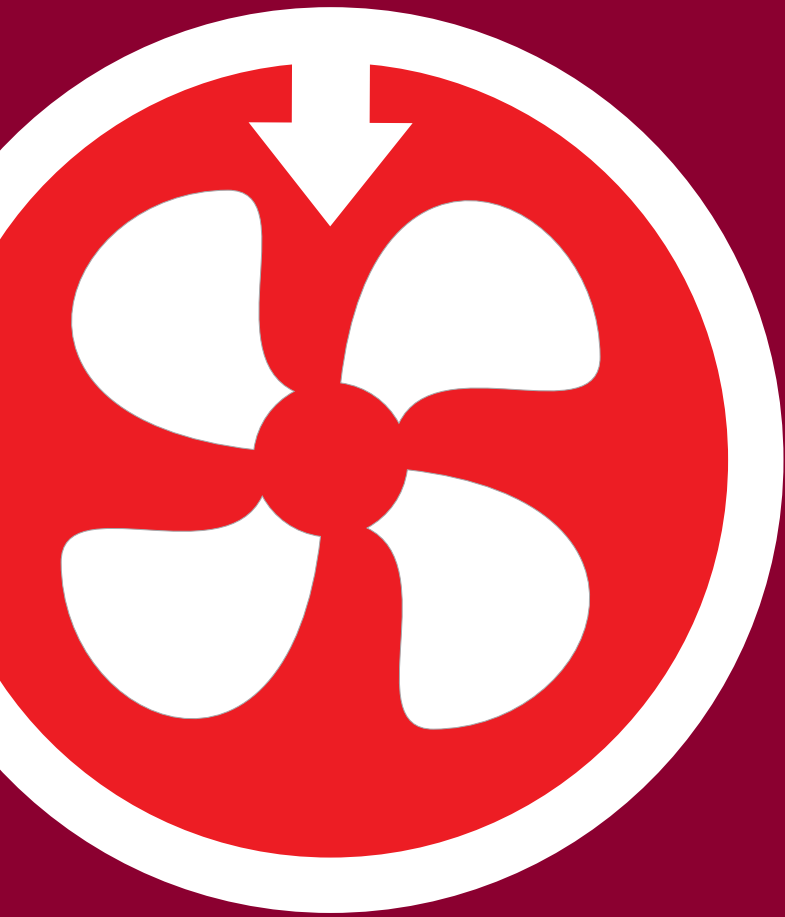
EFTECH has specialised in the reduction of grease and odour problems through the development of advanced patented UV-C & Ozone technology.

EFTECH Cleanstream®UV Technology removes unwanted odours and grease from the extracted airstream – net result?



EFTECH's KPC UV system can be retrofitted into any extraction canopy. Depending on your budget restrictions, we can offer a full filter bed with UV components installed as an option.

Alternatively we can make your canopy "UV ready" by installing some safety features which allow us to implement the system requirements.



Autosense I.C.C. Canopy

By the introduction of the Autosense canopy system, client's will benefit from reduced energy costs and reduced fan/plant requirements.

Air Control Innovation

EFTECH Autosense Controls actively monitor cooking conditions and only deliver airflow as required – net result? Up to 63% savings in energy requirements!

Products

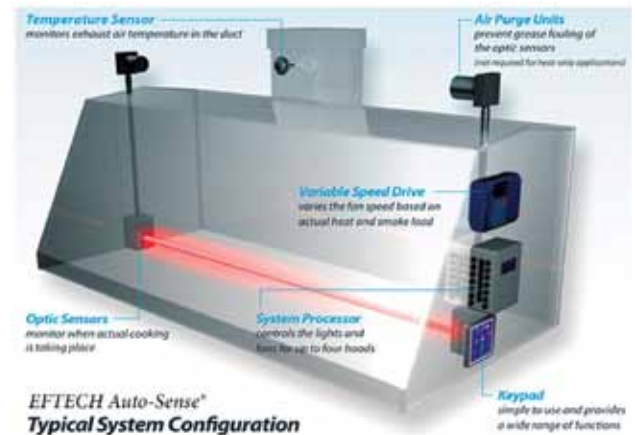
- Autosense Intelligent Control Canopy
- Autosense Bespoke Systems (retro-fit)

Most commercial kitchen hoods operate at 100% capacity all day long, even during idle, non-cooking periods. This costs the Irish food service industry millions in wasted energy every year.

The EFTECH Autosense variable speed drive control system is the only proven solution to this problem.

Using a microprocessor and sensors, the EFTECH Autosense primarily controls the extract to operate at the minimum level necessary, by monitoring conditions in the zone and appropriately varying the speed of the extract fan.

The extract fan speeds are controlled by a variable speed drive control system. The system has been installed with over 1000 drives working satisfactorily, 24 hours per day on energy saving systems throughout Ireland the UK and Europe.



Every year in Ireland millions of Euros is wasted on unnecessary energy consumption. It is estimated that potentially 30% of this waste could be saved through electrical means. Within the Industrial Sector savings of approximately 25% could be achieved through motors.



CASE STUDY

EFTECH Autosense control system

“WITH THE AID OF THE **AUTOSENSE SYSTEM, THE OSPREY HOTEL HAS DISCOVERED ANOTHER VALUABLE TOOL IN REDUCING ELECTRICITY COSTS AND THUS COMPLIMENTS EXISTING ENERGY CONSERVATION STRATEGIES AT THE HOTEL”**

— Kieran Maher, Maintenance Manager



Energy Investment for Tesco Ireland

Tesco Ireland role out EFTECH Auto-Sense into their stores in a pledge to reduce their energy consumption and reduce energy costs.

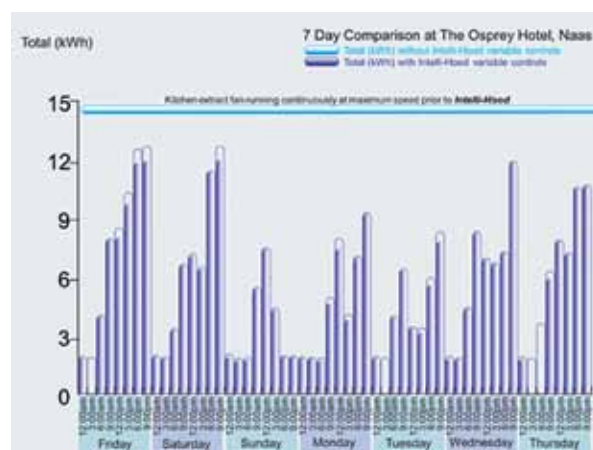
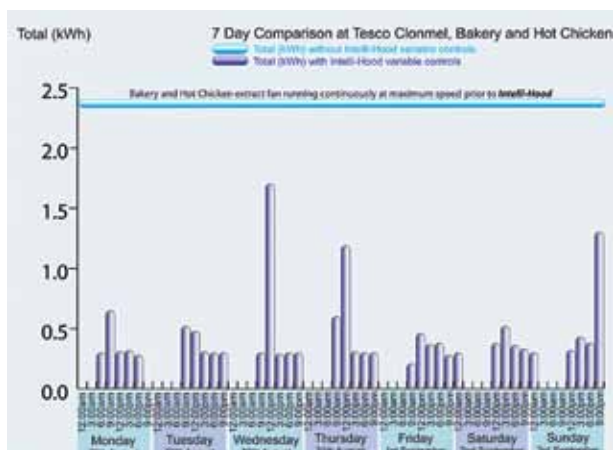
As part of Tesco Ireland's investment in energy saving, they have installed EFTECH Autosense demand based ventilation system into Clonmel as a trial site and are now in the process of rolling it out to more of the portfolio of stores

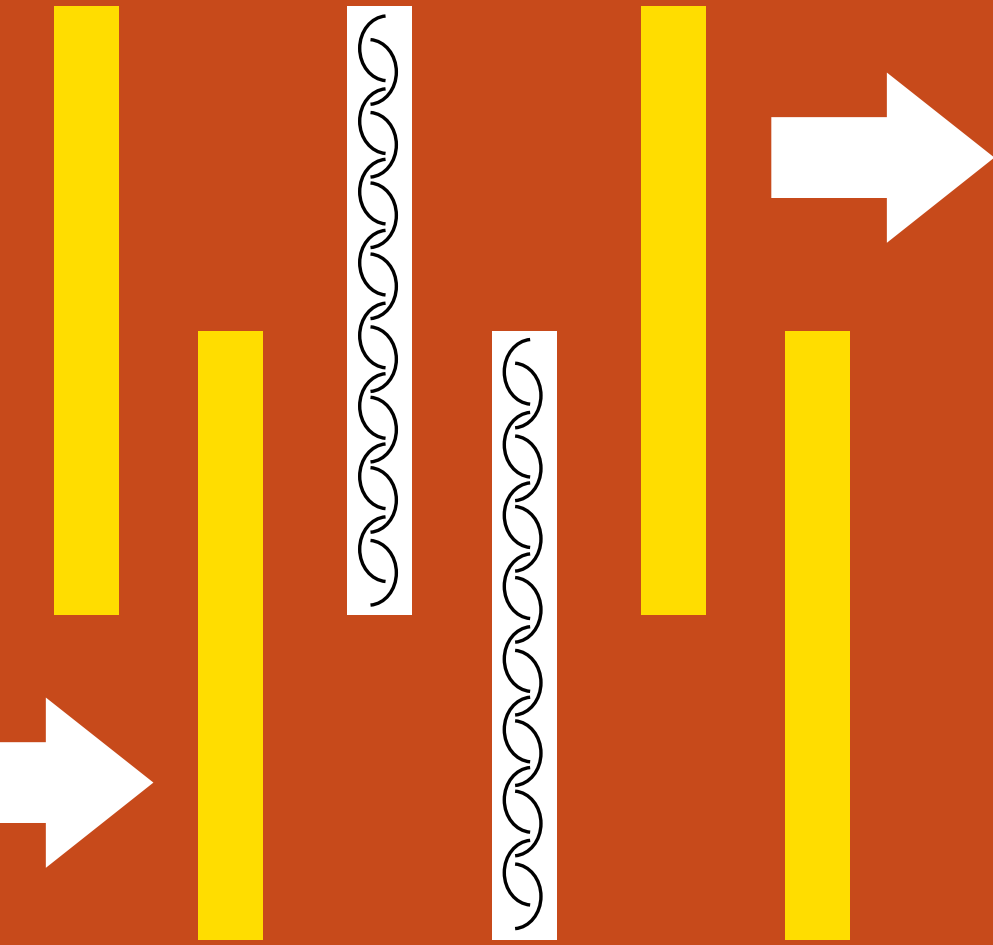
Reducing the fans from running 24 hours a day not only saves you energy consumption from the extract and supply fans but you also make considerable heating and cooling savings. Aside from the consumption reductions made, EFTECH Autosense also reduces the energy cost making it good business sense. The pay back for Tesco Clonmel is 1.51 years which gives them a monetary saving of €9,595 per year

Contemporary Energy Outlook

The Osprey Hotel's forward thinking has not only achieved a fantastic pay back but has also reduced their Carbon Footprint.

The Osprey Hotel is a 4 Star luxury hotel set in the picturesque town of Naas, near Dublin. This independent hotel, spa, restaurant and bar is set in eight acres of land and enjoys easy access to The Curragh Race Course and many golf courses. Intelli-Hood is a demand based ventilation system for commercial kitchens, controlling the extract and supply fans with variable speed drives. Not only does EFTECH Auto-Sense cut the amount of energy wasted by fans running 24 hours a day, but it also makes a noticeable difference on your energy bill. On the extract fan alone The Osprey Hotel has saved €13,441 per year by reducing the fan speed to what is required rather than running constantly at 100%. Add this to the savings also made by the supply fan and conditioned air losses the yearly saving is increased to €20,155 which is 155,038kWh. Thus impressive saving gives the hotel a pay back of just 1.36 years.





Carbon Filtration

Dealing with unwanted odours from commercial kitchens.

EFTECH Carbon Filtering Technology

EFTECH Colour-Active® Carbon Systems remove unwanted odours using advanced colour changing carbon cells to indicate the lifespan of the media –net result? Monitored odour reduction!

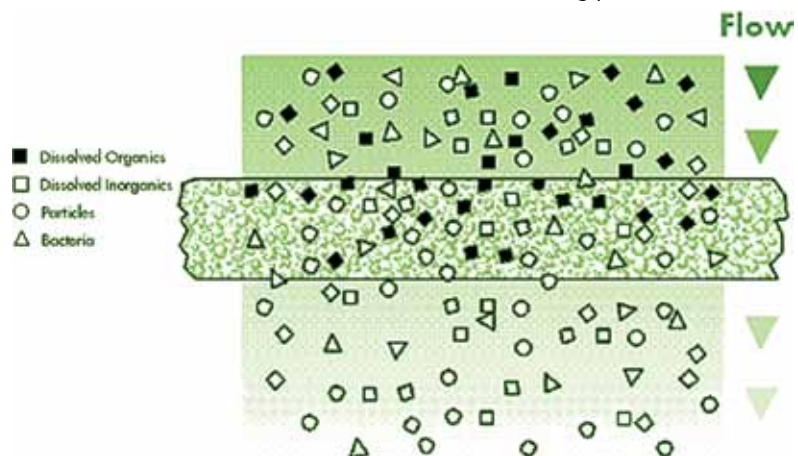
Products

- Inline Carbon Filtration
- Colour Active® carbon units
- Replacement Carbon Media/Cells

How does it work?

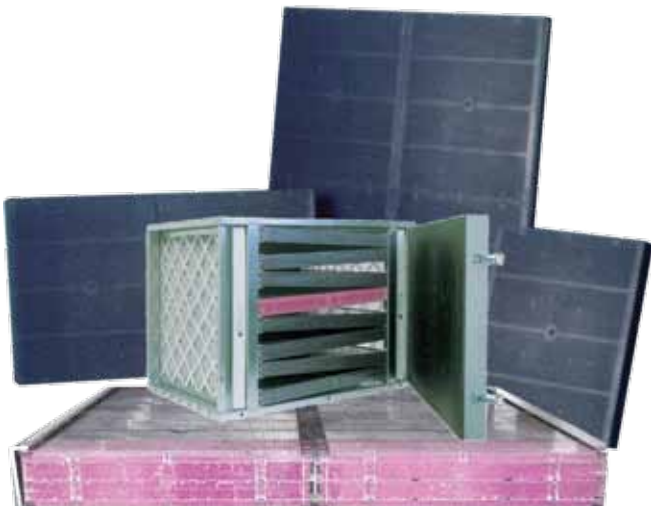
The activated carbon is treated with oxygen, opening up millions of small pores in the carbon. This allows a huge surface area to attract and neutralize the offending odours, gases, and some chemicals or fumes. A chemical reaction occurs which adsorbs the malodorous gases that need removal.

An Activated Carbon Air Filter is ideal for adsorbing gases and odours. They are used in conjunction with EFTECH UVC systems to remove 100% of odours from the cooking process.



Advantages

1. Has a capacity for virtually any vapour contaminant; it will adsorb "some of almost any vapour".
2. Has a large capacity for organic molecules, especially solvents.
3. Will adsorb and retain a wide variety of chemicals at the same time.
4. Works well under a wide range of temperature and humidity conditions.
5. Adsorbs odours and chemicals preferentially to moisture. It is not a desiccant and will release moisture to adsorb chemicals.
6. Can be used as a carrier of one material to attract and hold or react with another material.
7. Is inert and safe to handle and use.





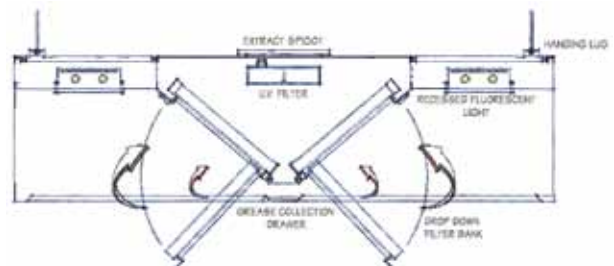
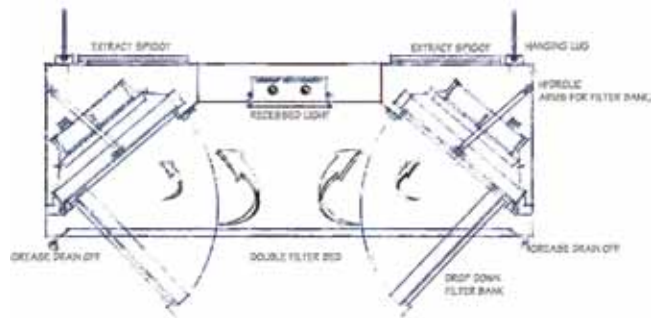
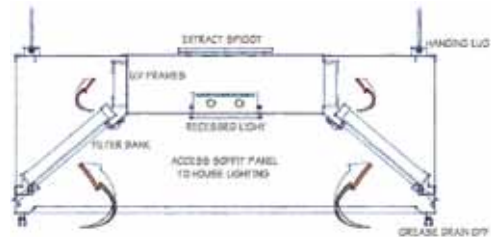
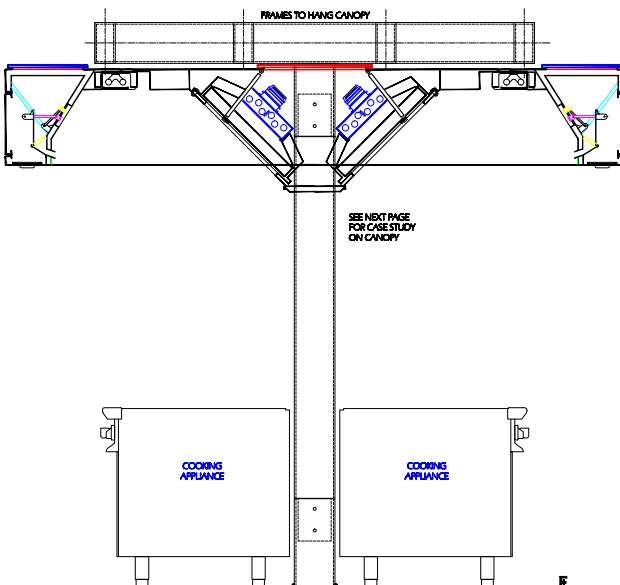
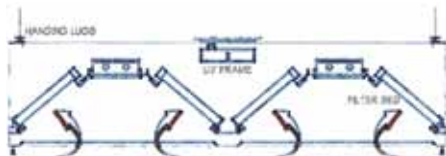
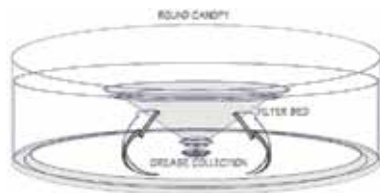
Bespoke Canopies

Custom designed canopies to overcome site restrictions and complications.

Bespoke Canopy

A bespoke canopy requires a little more thought and design attention as sometimes we may need to fit a “square peg into a round hole”. Some sites require site specific designs whether it be due to duct limitations, obstructions, equipment layout requirements etc etc.. Either way we may need to create something a little bit different or special!

Whether it be shape size or appearance EFTECH can manufacture your canopy to any specification, size and budget. We will always have a solution to your problem.



CASE STUDY

Amongst many of the challenges in design that we have faced in the past, the new kitchen and restaurant facility at the Guinness Storehouse in Dublin was one of our most tricky to implement. With the highest footfall of tourists in the country this site also contains listed and protected building structures which cannot be interfered with.

With this in mind we had to create a free standing island canopy incorporating Jetstream and Cleanstream technologies too! A specially constructed steel frame was manufactured to bear the load of the canopy and also enable us to adhere to building restrictions.

Guinness Store House required a little more thought and design attention as sometimes we may need to fit a “square peg into a round hole”.

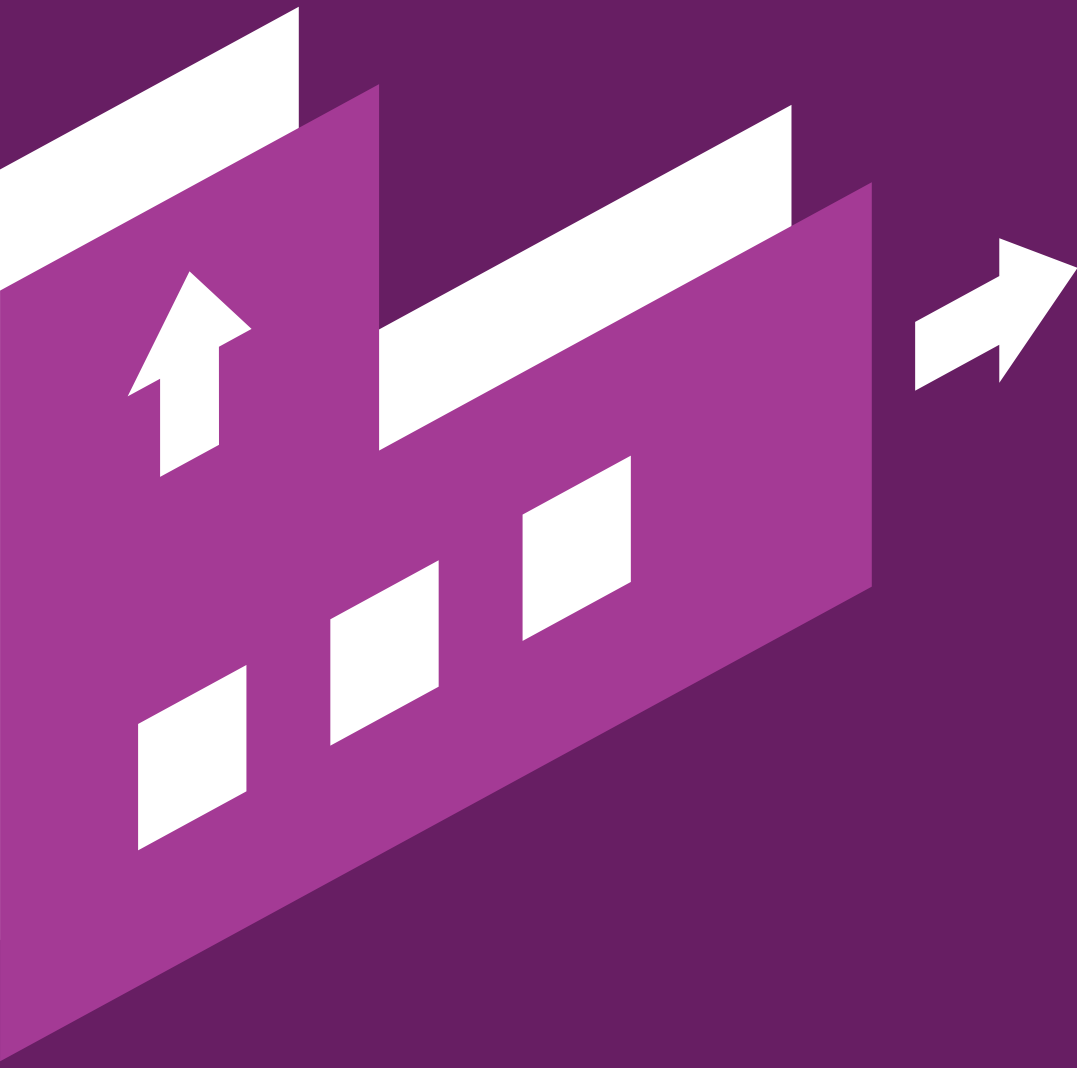


Specially constructed steel frame to house the canopy.



Some sites require site specific designs whether it be due to duct limitations, obstructions, equipment layout requirements etc etc.. Either way we may need to create something a little bit different or special!





Raceways/Service Spines/Ducts

Custom built to suit site service requirements.

Raceways/Service Spines/Ducts

Service distribution units are often used in conjunction with extraction canopies. The canopy may be supported by the spine with the services running through the manifold. As each installation is unique our expertise at EFTECH is invaluable in creating a design which is optimised for each kitchen and your needs.



All Service Voids to suit your needs

An important part of an efficient well planned kitchen is an integral service manifold or service spine.

Within this structure, all of the services required both electrical and mechanical, can be housed to accommodate the kitchen equipment. Apart from the obvious aesthetic improvements to the appearance of the kitchen, this also improves maintenance by grouping services together.

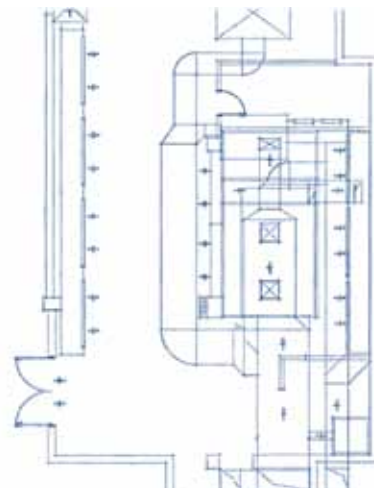


Engineering Tools

To all current engineering standards.

DW/172 Specification for kitchen Ventilation System

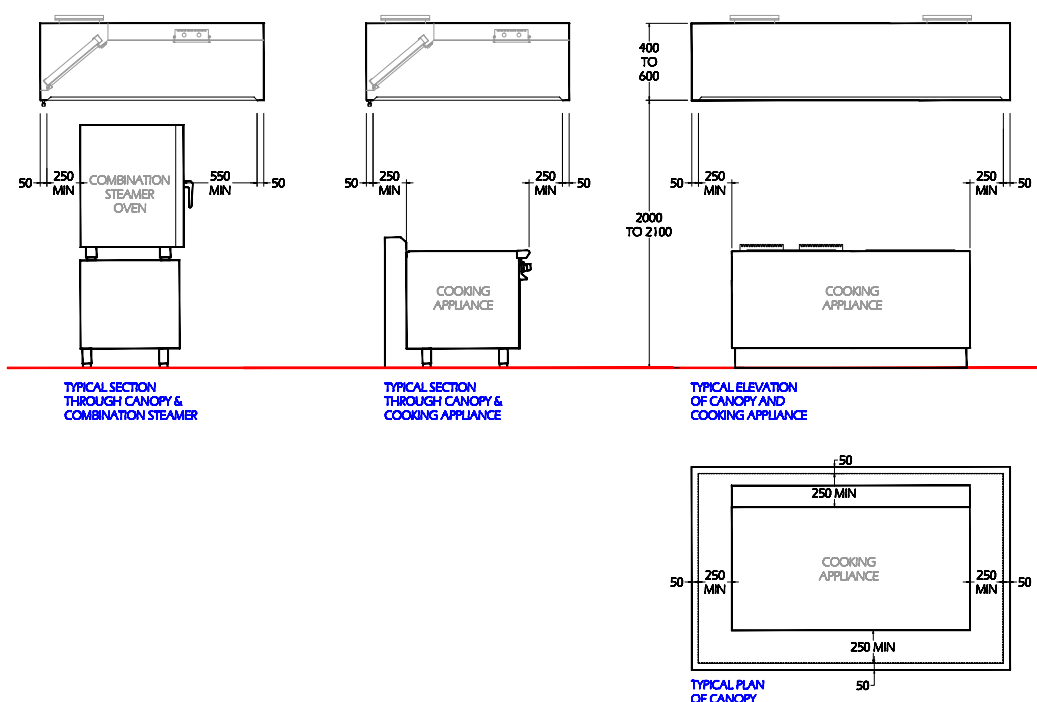
The Thermal Convection Method of calculation should be the only method used. This method follows the procedures covered on CIBSE guide B2. When details of the equipment to be ventilated are known, then each cooking appliance shall be allocated a thermal convection coefficient, which is the recommended volume of air to be extracted in m^3/s per m^2 of surface area of the appliance.



The prime function of a kitchen canopy is to protect the area surrounding the cooking process from soiled matter and flame to make tolerable and safe the immediate area for people to work in. An air flow shall be created across the cooking process to capture the fumes created, and the by-products of this vapour shall be collected and contained by means of the filters within the canopy, allowing the cleaner air to be discharged.

Quick Reference

1. Internal noise level should be from NR40 - NR50.
2. Average lighting levels of 500 lux at the work surface.
3. Dedicated make up air systems to be 85% maximum, of the extract flow rate.
4. Minimum air change rate of 40 per hour - not to be used as a basis of design of the canopy or ventilated ceiling.



Extract Flow Rates / Velocity

ITEM	QTY.	DESCRIPTION	LENGTH (m)	WIDTH (m)	AREA	COEFFICIENT	FLOWRATE	GAS CoE
		BOILING PAN - HEAVY DUTY			0.000		0.000	0.35
		BRATT PAN - HEAVY DUTY			0.000		0.000	0.55
		BROILER			0.000		0.000	0.75
		CHARGRILL			0.000		0.000	0.95
		COMBI OVEN			0.000		0.000	0.35
		CONVEYOR PIZZA OVEN			0.000		0.000	0.45
		DEEP FAT FRYER - HEAVY DUTY			0.000		0.000	0.50
		FAN ASSISTED CONVECTION OVEN			0.000		0.000	0.38
		GRIDDLE (CHROMIUM)			0.000		0.000	0.45
		GRIDDLE			0.000		0.000	0.30
		INDUCTION HOB/CERAMIC STOVE			0.000		0.000	N/A
		INDUCTION WOK RANGE			0.000		0.000	N/A
		LOW/MED DUTY DEEP FAT FRYER			0.000		0.000	0.45
		LOW/MED DUTY GRILL			0.000		0.000	0.50
		MICROWAVE			0.000		0.000	N/A
		OPEN TOP RANGE AND OVEN			0.000		0.000	0.35
		PASS THROUGH DISHWASHER			0.000		0.000	0.30
		PASTA COOKER			0.000		0.000	0.30
		PASTRY/HIGH OUTPUT BAKERY OVEN			0.000		0.000	0.25
		PIZZA OVEN - SINGLE DECK			0.000		0.000	0.38
		POT/UTENSIL WASHER			0.000		0.000	0.40
		ROTISSERIE			0.000		0.000	0.75
		SALAMANDER			0.000		0.000	0.75
		SERVERY COUNTER			0.000		0.000	0.24
		SOLID TOP OVEN RANGE			0.000		0.000	0.60
		STEAMER/PRESSURE COOKER			0.000		0.000	0.30
		STEAMING/ROASTING OVEN			0.000		0.000	0.35
		TABLE/WORKTOP			0.000		0.000	0.03
		TANDORI OVEN			0.000		0.000	0.35
		TOASTER			0.000		0.000	N/A
		WATER BOILER/STILLS/BEVERAGE UNIT			0.000		0.000	0.25
		WOK RANGE			0.000		0.000	1.10
					THEORETICAL EXTRACT VOLUME		0.000	M3/S
		CANOPY FACTOR	OPEN BOTH ENDS	OPEN ONE END	CLOSED BOTH ENDS			
		LOW LEVEL	1.15	1.10	1.05			
		PASSOVER	1.15	1.10	1.05			
		OVERHEAD WALL	1.25	1.20	1.15			
		OVERHEAD WALL/ISLAND MOUNTED	1.50	1.40	1.30			
		ISLAND	1.35	1.25	1.15			
		CANOPY FACTOR =						
			CANOPY DIMENSIONS		CANOPY AREA			
			LENGTH	WIDTH				
						0.00		
		SPECIFIC EXTRACT FLOW RATE REQUIRED		0.000	M3/S			
		FLOW RATE			M/S			
		NOTES:						
		THEORETICAL EXTRACT VOLUME = SUM OF CALCULATED EQUIPMENT FLOW RATES						
		SPECIFIC EXTRACT FLOW RATE = THEORETICAL EXTRACT VOLUME X CANOPY FACTOR						
		FLOW RATE = SPECIFIC EXTRACT FLOW RATE / CANOPY FACE AREA						

Fire Suppression System

Automatic, pre-engineered fire suppression system.

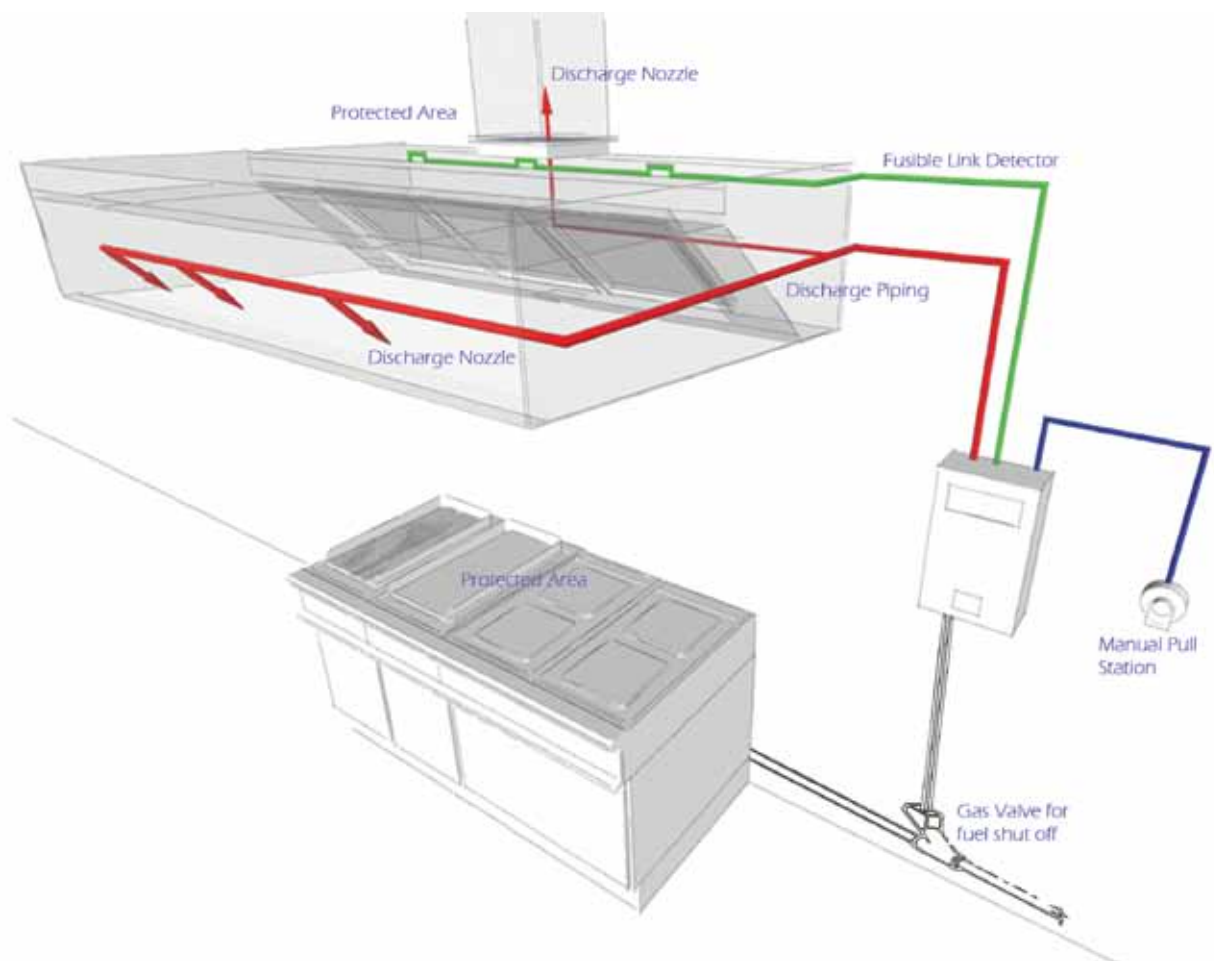
Your Fire Suppression System is of the highest quality

It has been carefully engineered to be reliable, manufactured to exacting standards, proven by over 30 years of service, and custom designed to protect your particular hazard.

The Ansul R-102 Restaurant Fire

Suppression System is an automatic, pre-engineered, fire suppression system designed to protect the following areas associated with cooking equipment; ventilating equipment including hoods, ducts, plenums, and filters; fryers; griddles and range tops; upright, natural charcoal, or chain-type broilers; electric, lava rock, mesquite or gas-radiant char-broilers and woks.

The system is capable of automatic detection and actuation and/or remote manual actuation. Additional equipment is available for mechanical or electrical gas line shut-off applications.





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