BRILLIANT SOLUTIONS FOR COMMERCIAL KITCHENS

Modular Ventilated Ceilings

GIF ActiveVent

COMPANY

Brilliant solutions for commercial kitchens

003

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GIF ActiveVent – Modular Ventilated Ceiling as part of a system

Since its foundation in 1976 GIF ActiveVents´ core area of expertise has been to develop and produce individual modular ventilated ceilings for all kinds of professional kitchens. In doing so we have positioned ourselves at the head of the market.

We are certified according to ISO 9001:2015 and through the implementation of the HACCP-concept put high demands on legal foodstuff requirements. With the production in Freiburg, Germany the patent-protected, area-active GIF Ventilated Ceiling complies with all current standards and regulations, hence is in the position to offer custom-made, high-quality ceiling solutions made in Germany.

The ceiling assembly made out of AISI 304 stainless steel is a completely safe system against flame-breakthrough. The individual components are produced and tested following complex procedures with installations carried out exclusively by experienced GIF-partners, thus guaranteeing a smooth execution and function for a long time to come.

Verband der Fachplaner
GIF ActiveVent GmbH Fördermitglied

FÖRDERMITGLIED FCS

Verband der Küchenleiter/innen in Krankenhäusern und Pflegeeinrichtungen e.V.

Our presence is our strength

Experience, performance, service – from a single source

Our support services begin at the planning stage where air volume calculations, the layout of the kitchen ceiling in CAD and costs are determined.

We further assist you during the preparation stage on the construction site ensuring all necessary services and documentation before, during and after the installation.

- **Solutions for all areas of professional kitchens based on more than 4 decades of experience**
- **Completion of all assignments at the highest quality level**
- **Drafts and implementation plans in CAD quality**
- **Reliable execution of building work including installation on site**

PRODUCTS

The system — customised and flexible

True genius is found in simplicity

A **GIF Ventilated Ceiling** is an area-active wall-to-wall solution including large supply-and extract air fields, lighting and infill panels with a minimum **installation height of only 200 mm**.

In accordance with the VDI 2052 and EN 16282 using the ceiling cavity as pressure chambers allows for the implementation of active zones to the largest possible extent, **either as open or closed system**.
Therefore, the area-wide capture of kitchen fumes together with supplying fresh air across a large supply air zone provide the best possible and ergonomically most beneficial work environment, free from condensation and draughts.

Due to its fully reversible structure the unique modular system offers maximum transparency and hygiene. In compliance with VDI 2052 and EN 16282 each **GIF Active Cassette Ceiling (1)** works like a large aerosol separator across an entire extract air zone.

On their way through the active cassettes the aerosols are separated from the airflow and collected in small registers. When necessary the active cassettes can easily be removed from the ceiling grid, cleaned in the own dishwasher but also be used to supply fresh air. They are hence fully interchangeable and can be placed in each air-zone.

The modular structure allows for all components to easily be cleaned with very little effort and in the most hygienic way possible. The **push-and-pull function of the cassettes** enables their removal from almost any point of the GIF Ventilated Ceiling and without the need of tools or to climp onto kitchen appliances. This unique feature also guarantees for the highest standard of hygiene to be achieved.
Using AISI 304 for all ceiling cassettes ensures long lasting quality, safety against flame breakthrough across the entire surface and is compliant to the EN 16282 or any other safety standards.

Minimal manufacturing tolerances are the basis for maximum degrees of separation (up to 97%).

According to individual kitchen conditions instead of using active cassettes for lower supply air volumes the **GIF supply-air flat cassettes (3)** can be used.
This type of cassette also guarantees an area wide draught-free supply air inlet and is in an uniform shape with the other ceiling components.
Following the characteristics of the GIF supply-air flat cassette the **GIF noise-absorbtion supply-air flat cassette (4)** combines both functions of supplying fresh air and noise absorbtion in one piece.
The unique feature allows for two functions in one cassette and surface resulting in best possible noise reduction.

As part of the existing GIF-ceiling grid **GIF-Restaurant Systems (2)** can also be integrated in order to capture grease, kitchen vapours and steam above kitchen appliances with high emission loads.
GIF-luminaires (5a) fit flush into the GIF Ventilated Ceiling bringing in best possible illumination according to and in line with current regulations.
Equipped with damp-proof luminaires IP54 the GIF lighting is especially attuned for use in professional kitchens.
One unique feature is the connection to supply air for luminaires in extract air zones.
The cool supply air not only prolongs the life span of the electronic control gear inside the luminaire but as it exits the casing also builds an air cushion below the cover, so that rising kitchen smokes are deviated helping protect the cover of the luminaire being soiled by contamination and deposits.

In addition GIF also provides **GIF Special Lighting (5b and 5c: Rail Lighting System, down-lights etc.)** for areas where food is served or for front- and show cooking areas.

For adjacent rooms or corridors we also offer an economic and hygienic solution. Made out of either powder-coated aluminium (color at choice) or AISI 304 this system is especially suitable for areas where no thermic loads or steam is emitted.

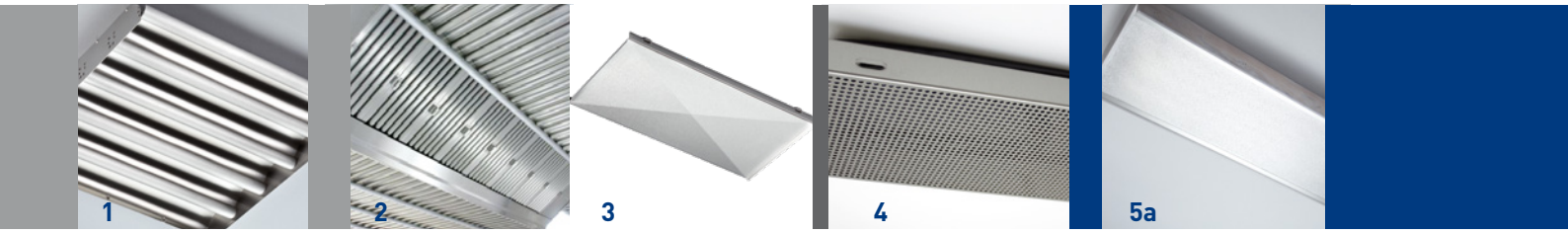
The GIF Flat System Ceiling (6) includes all components necessary for the capture of extract air, bringing in supply air and illumination.

For show cooking we offer a special and well established development, **the GIF Jet Stream Extractor (7)**. Cross-flows mainly occuring in "open" kitchen areas, considerably reduce the efficiency of standard extract canopies. Rising kitchen vapours are "carried away" before reaching the canopy. The GIF Jet Stream Extractor has been especially developed for such areas and for many years has ensured that kitchen vapours are captured in the best possible way, directly above woks or grills. The load of extract air is therefore minimised, staff, guests and employees breathe freely.

Additionally, GIF designs, develops and installs **GIF UV-C(lean) (8)** equipment for aerosol after-treatment. Following aerosol separation any residual grease, which might still remain in the extract air can further be reduced to an absolute minimum. When combined with heat recovery equipment, this results in a highly effective kitchen extract air system. The equipment is produced according to EN 16282-8 and can be installed in ventilated ceilings, jet stream extractors and canopies alike. Retrofitting into existing equipment is also possible. The service life of the high performance UV lamps make this equipment extremely interesting from an economic point of view.

(9) Custom parts such as smoke- and fire detectors, pictograms or loudspeakers can easily be integrated into the GIF-Ventilated Ceiling grid. Thanks to its modular build every **supplementary equipment (10)** can be made part of the ventilated ceiling at any time. On request or if preferred a secondary ceiling between the raw- and GIF-Ventilated Ceiling can be installed, for additional fire protection requirements a stationary fire suppression system be integrated.

The uniform wall-to-wall solution



1 GIF Active Cassette Ceiling
for the capture of extract air and for fresh air supply as modular components for cleaning in the dishwasher

2 GIF Restaurant System
for the concentrated capture of extract air as modular components and cleaning in the dishwasher

3 GIF Supply Air Flat Cassette Ceiling
for fresh air supply as modular components for cleaning in the dishwasher

4 GIF Supply Air Flat Cassette Ceiling - Sound Absorption -
for fresh air supply and sound level reduction as modular components for cleaning in the dishwasher

5 GIF Lighting
5a Luminaire
5b LED Rail Lighting System
5c Downlight

6 GIF Flat-System Ceiling
complete solution for areas without any thermic loads

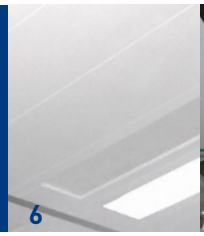
7 GIF Jet Stream Extractor
for show- or front cooking, e.g. above grills and woks

8 GIF UV-C(lean)
for the secondary treatment of extract air

9 GIF custom parts
for example special cassettes for smoke detectors, secondary ceiling

10 Supplementary Equipment
Fire suppression system and air volume control


5c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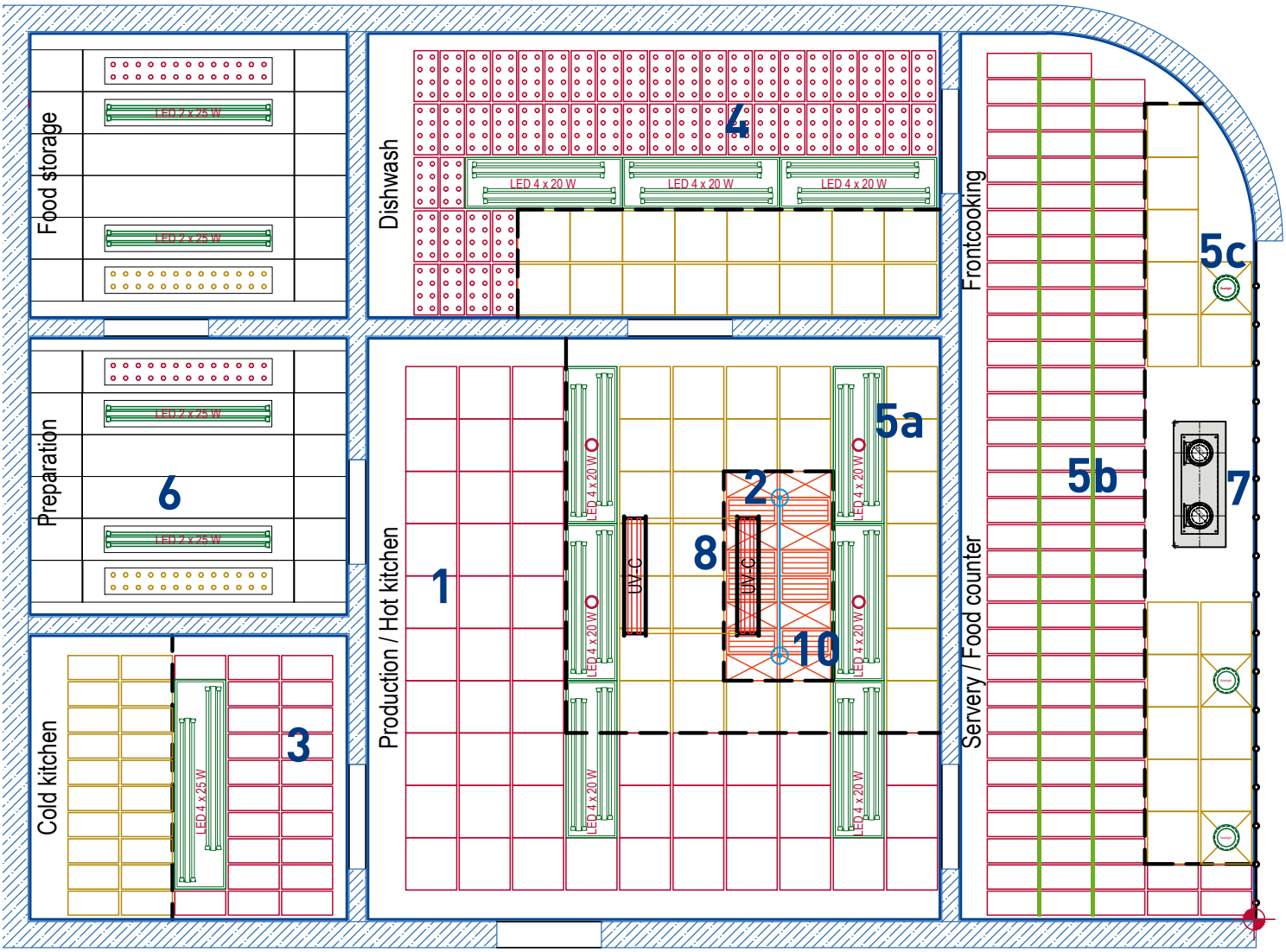
7


8

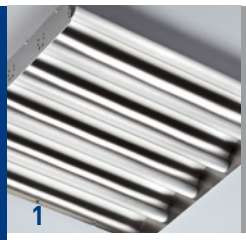

Food storage
LED 2 x 25 W
LED 2 x 25 W
Dishwash
4
LED 4 x 20 W
LED 4 x 20 W
LED 4 x 20 W
Frontcooking
5c
Preparation
6
LED 2 x 25 W
LED 2 x 25 W
Production / Hot kitchen
1
5a
2
8
10
UV-C
UV-C
LED 4 x 20 W
LED 4 x 20 W
LED 4 x 20 W
LED 4 x 20 W
LED 4 x 20 W
5b
7
Servery / Food counter
Cold kitchen
3
LED 4 x 25 W

The products:
Their characteristics and uses

The economic and hygienic solution

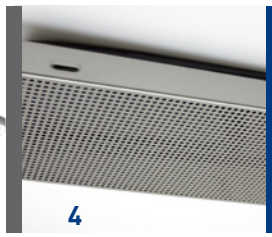
To provide a better overview the following matrix shows the different components with their main areas of use.
All components can be combined individually and in any configuration.

Product component matrix


1

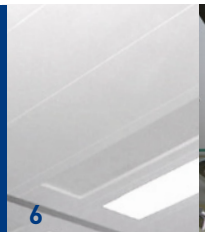

2


3


4


5a

Component Area	1 GIF Active Cassette Ceiling For supply or extract air in modular ceiling grid. Cleaning in own dishwasher.	2 GIF Restaurant System For the capture of extensive extract air loads. Cleaning in own dishwasher.	3 GIF Supply Air Flat Cassette Ceiling To bring in supply air, modular component, cleaning in own dishwasher.	
Production / Hot Kitchen	●	●	●	
Dishwashing zone / Pot wash	●		●	
Food counters / Serveries Show cooking	●	●	●	
Preparation rooms			●	
Adjacent and storage rooms			●	
Corridors, hallways, serving passage-ways			●	



	4 GIF Supply Air Flat Cassette Ceiling - Sound Absorption - For supply of fresh air together with sound absorbtion. Modular component, cleaning in own dishwasher.	**5 GIF Lighting** 5a Luminaire 5b LED Rail Lighting System 5c Downlight			**6 GIF Flat-System Ceiling** in areas without any thermic loads.	**7 GIF Jet Stream Extractor,** in frontcooking areas, e.g. above grills and/ or woks	**8 GIF UV-C(lean)** for the after-treat-ment of extract air
		a	b	c			
	●	●	●				●
	●	●	●				
	●	●	●	●	●	●	●
	●	●	●		●		
		●			●		
	●	●	●	●	●		

Individual solutions for ceilings

Patented Quality – Made in Germany

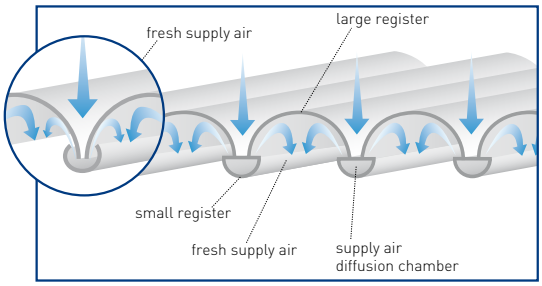
As far as we are concerned, a kitchen contains a lot more than "just" the kitchen zone. We develop system solutions for capturing extract air and supplying fresh air for all areas of a professional kitchen.

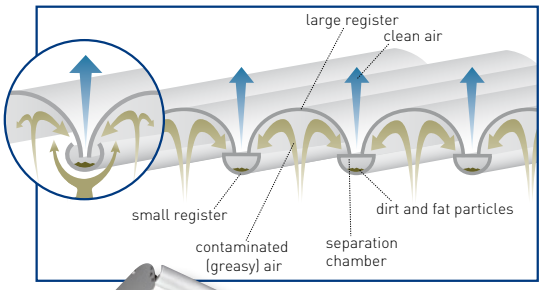
- **Efficient systems in kitchen zones**
- **High-speed air capture**
- **Design solutions for show cooking**
- **Sound absorption in dishwashing zones**
- **Cost-effective and hygienic solutions for preparation areas**

Using the GIF Ventilated Ceiling enables us to offer tailor-made solutions to our customers. Whether you are catering for 120,000 guests or are an individual star-awarded restaurant, we are the reliable partner for professional planners, architects, investors and users alike.

The entire GIF ventilated ceiling is designed as an area-active cassette construction. Each active cassette in the extract air zone works as aerosol-separator and is in accordance to the VDI 2052 and EN 16282. From extract air separated particles are collected in the small registers of the cassette, which can then be cleaned in own dishwasher. Active cassettes can also be used in supply air zones and are hence interchangeable.

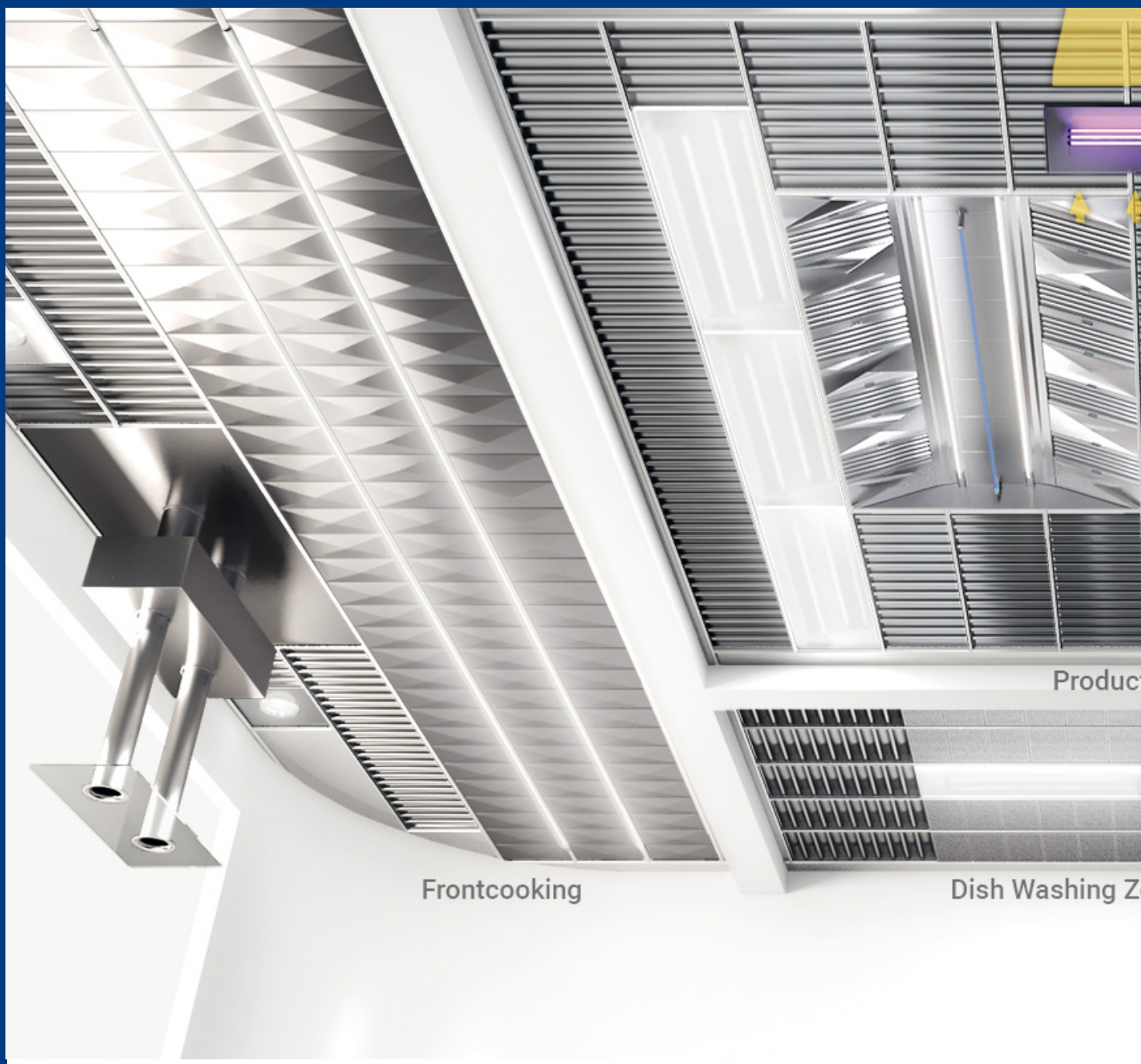
Our proven operation principle





Function-principle of the GIF-Ventilated Ceiling

Complete product range in one example



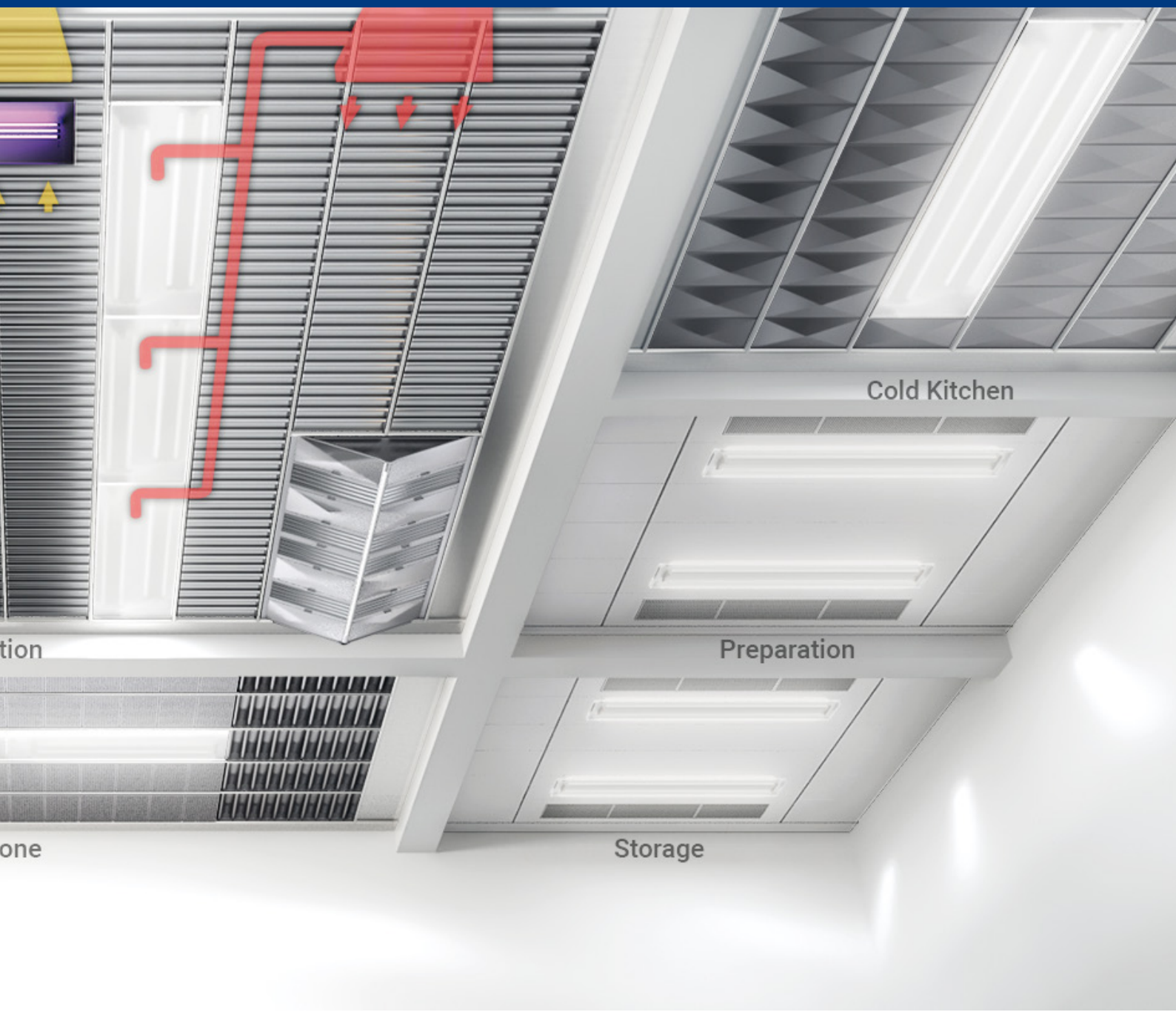
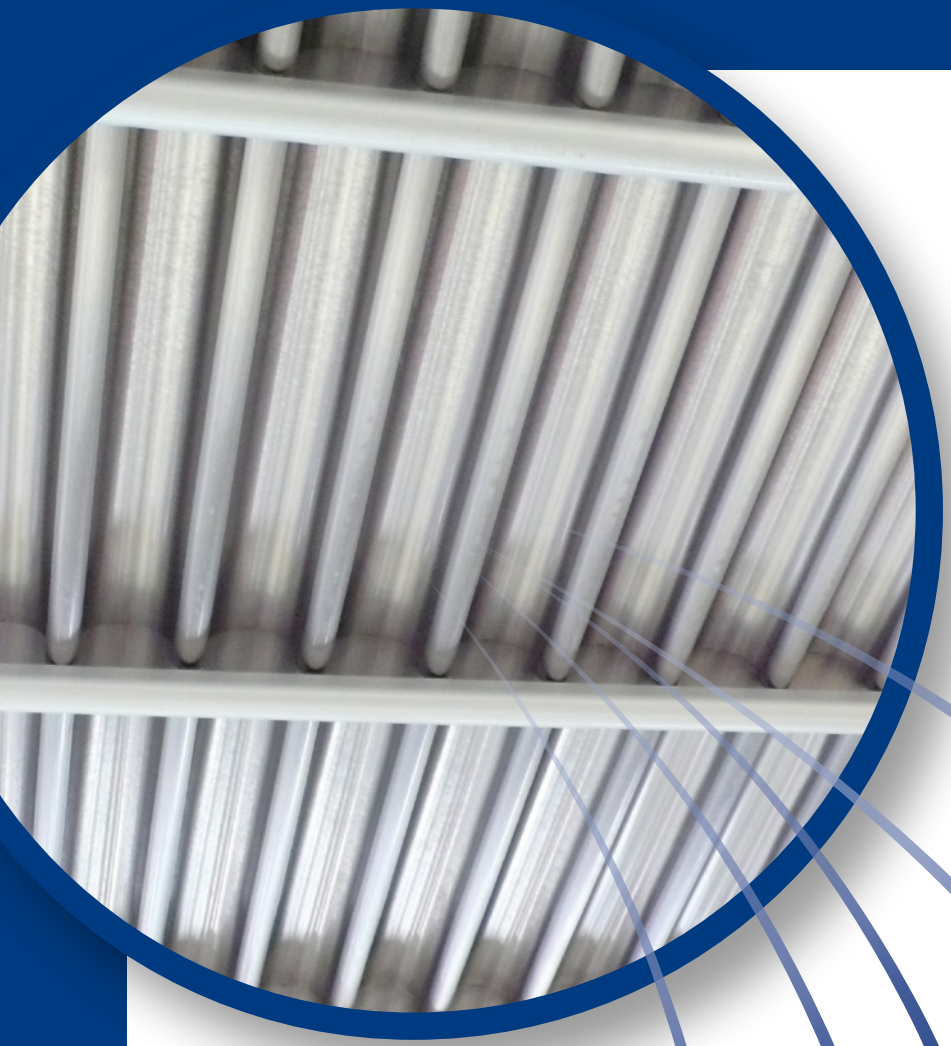

Cold Kitchen
Preparation
Storage

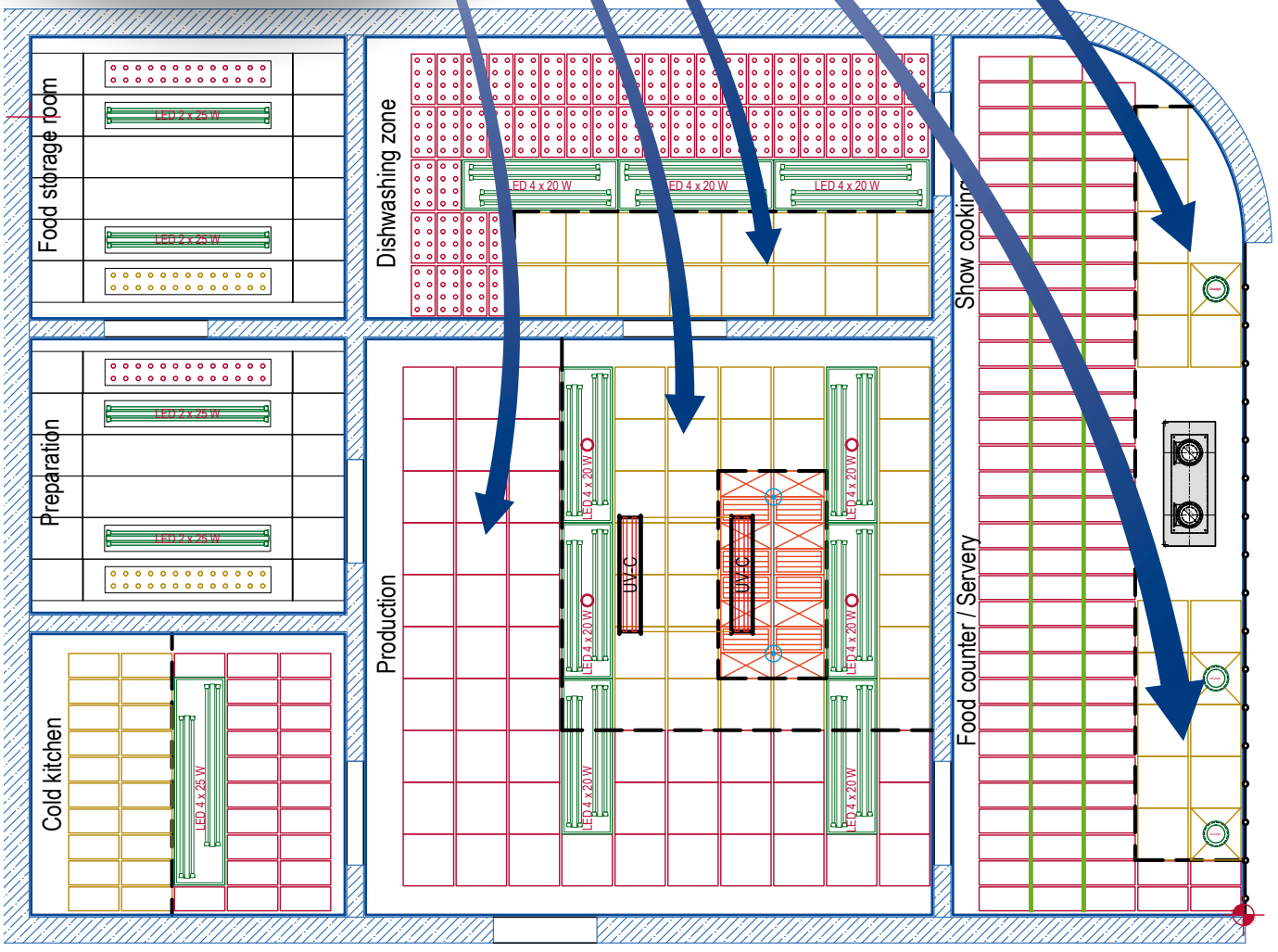
Table of contents Products

GIF ActiveVent

1. GIF Active Cassette Ceiling



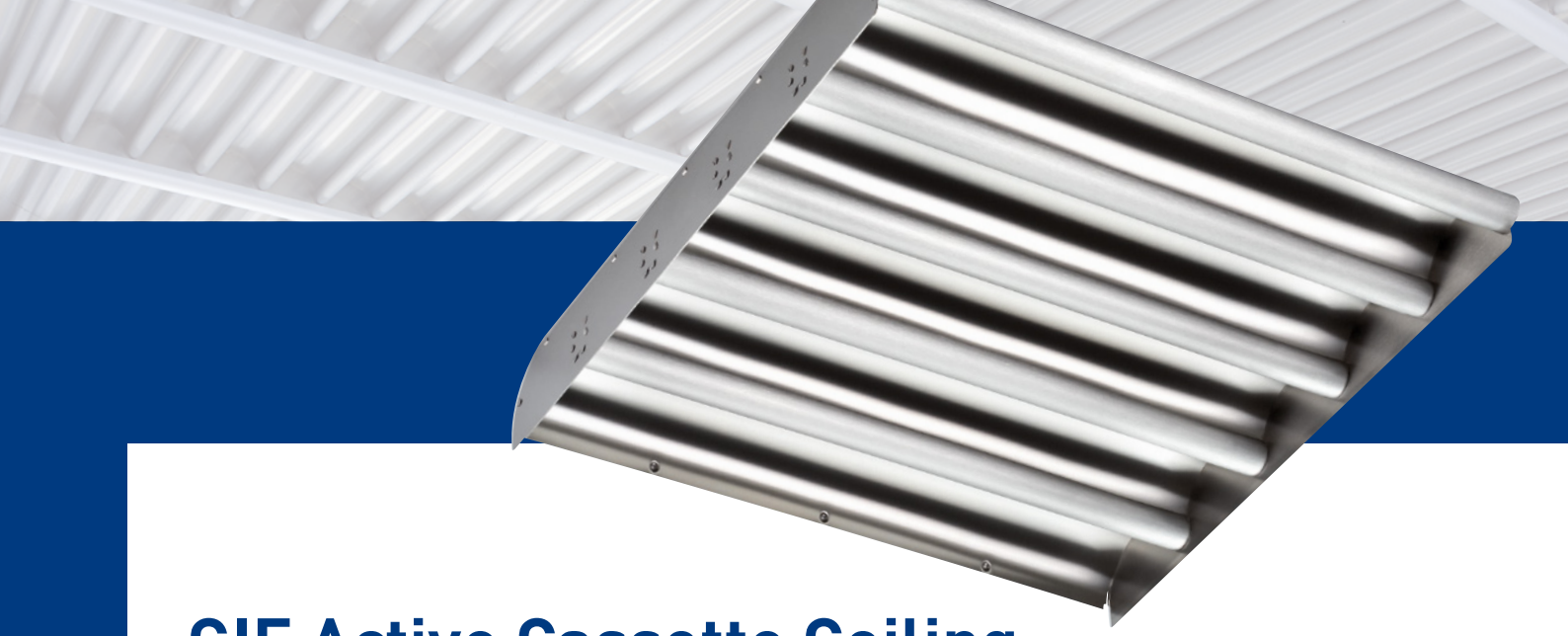
GIF ActiveVent



GIF Active Cassette Ceiling

Production kitchen and dishwashing zone, pot wash, food counters / serveries and show cooking

TU Dresden (Dresden University of Technology)



GIF Active Cassette Ceiling

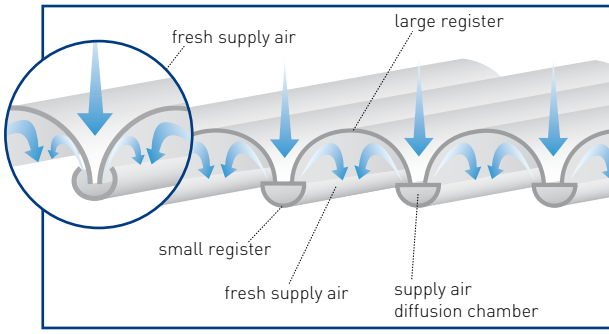
Production kitchen and dishwashing zone, pot wash, food counters / serveries and show cooking

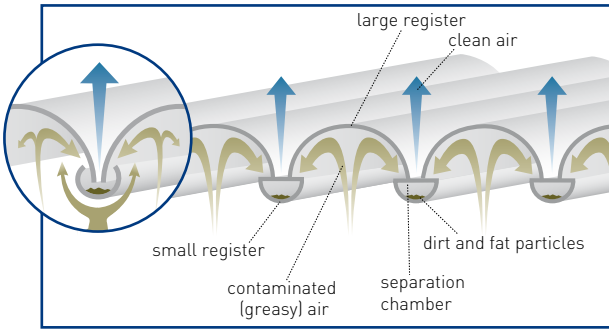
System description

The entire GIF Active Cassette Ceiling is designed as an area-active, modular cassette construction and performs both extract air functions above cooking appliances as well as air supply functions outside the extract air areas.

In an extract-air zone the active cassette is used as an aerosol-separator. Built and conform to VDI 2052 and EN 16282-6 the GIF-Active Cassettes were also successfully tested against flame-breakthrough and hence protect the ceiling void against flame-breakthrough.

GIF Active Cassettes are exclusively made out of stainless steel AISI 304 and by means of tight manufacuring tolerances reach the highest degree of separation (up to 97%). Above the active cassettes the air velocity is so significantly reduced that remaining particles in the airflow sink back on top of the active cassettes due to their own mass inertia (secondary separation).





GIF Active Cassette Ceiling

Production, kitchen and dishwashing zone, pot wash, food counters / serveries and show cooking

All Active Cassettes can easily be removed by pushing or pulling the cassettes within the ceiling grid. From almost any point most of the entire ceiling (up to 98%) can be removed and cleaned in a commercial dishwasher.
Therefore it is no longer necessary to climb onto any kitchen equipment and an impeccable hygienic standard can be achieved.

This unique modular system comes with highest transparency (any point of ceiling void accessible at any time without any tools) and hygiene. It is also fully reversible for future amendments or installation elsewhere.

On the supply side, the GIF Active Cassette Ceiling provides turbulence-free fresh air across the entire supply-air zone, hence here GIF sets an energy efficiency standard. The particular design also allows for high volumes of supply air to have a low inflow velocity, which in turn contributes to a healthy and ergonomic workplace.

Because Active Cassettes can be used in either extract- or supply-air zones they are fully interchangeable.

Facts and advantages

- **Compliant with or exceeding current directives and standards (VDI 2052, VDI 6022, EN 16282) also any necessary inspections in the ceiling void possible without needing any extra inspection panels.**
- **Durable and longlasting material AISI 304**
- **Connected cassettes allow for quick and easy removal or re-insertion**

Smartly solved –
easy to handle

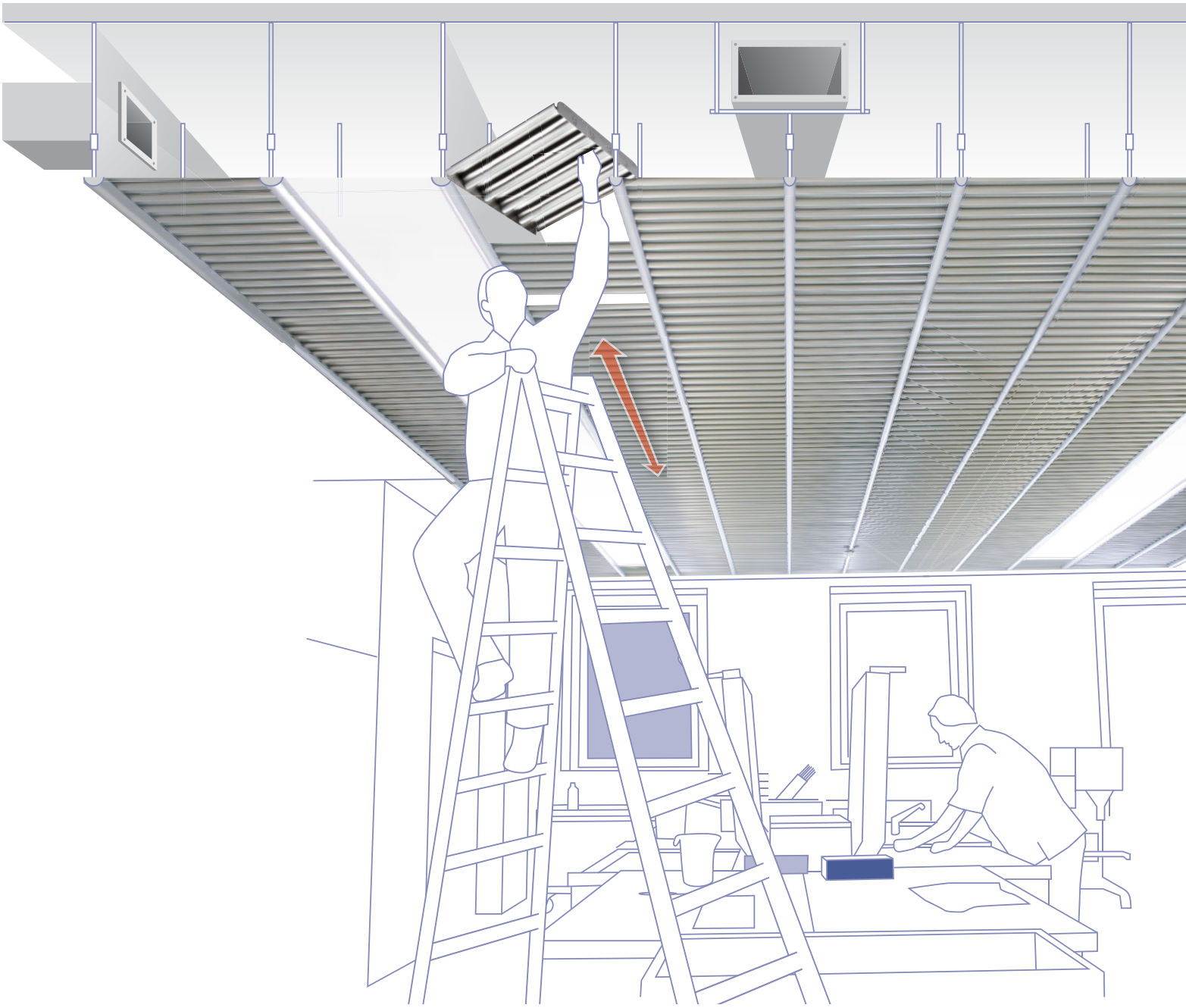
- Economic and hygienic through cleaning in own dishwasher.
  Only 4 pieces per m²
- Active Cassettes can be pushed and pulled in carrier-profiles and are very easy to slide-in or remove without any tools.
- Partial cleaning possible if required
- No need to climb on greasy, hot kitchen appliances (danger of slipping)
- HACCP certified

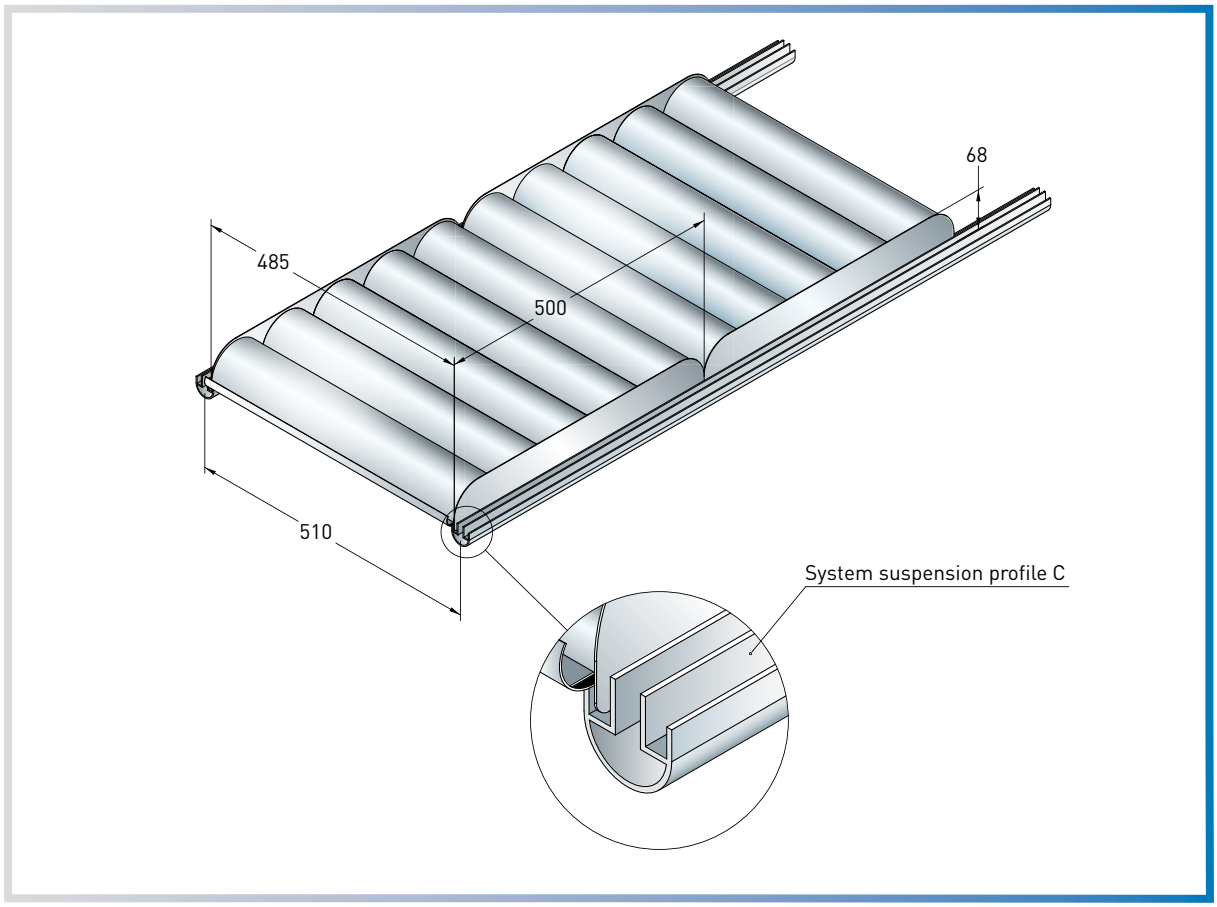
Ventilated ceilings as part of a system

- Modular structure provides flexibility in case of renovation or relocation
- Highest degree of separation due to combined gravity and condensation separators
- Entire ceiling construction certified as flashover-proof according to DIN 18869-5 / EN 16282-6 & TNO (Netherlands)
- Draught-free fresh air supply/laminar outlet according to EN 16282-4
- One level, wall-to-wall solution
- No low hanging components, no impairment of view

- Homogenous capture of extract air
- All components are interchangeable
- Minimum required ceiling void below lowest point of installation only 200 mm
- Continous ventilation of the ceiling cavity, therefore no standing static air, no “dead” areas
- Less necessary air ducts through use of pressure chambers
- Dishwasher compatible, hygienic cleaning results with on site used chemical products.
- Produced according to HACCP standards

- Everything cleaned in the dishwasher is hygienically acceptable. The 4 factors, temperature, chemistry, time and pressure can only be found there in a specified manner = corresponds to tableware cleanliness





Specific technical data

GIF Active Cassette Ceiling **extract air**

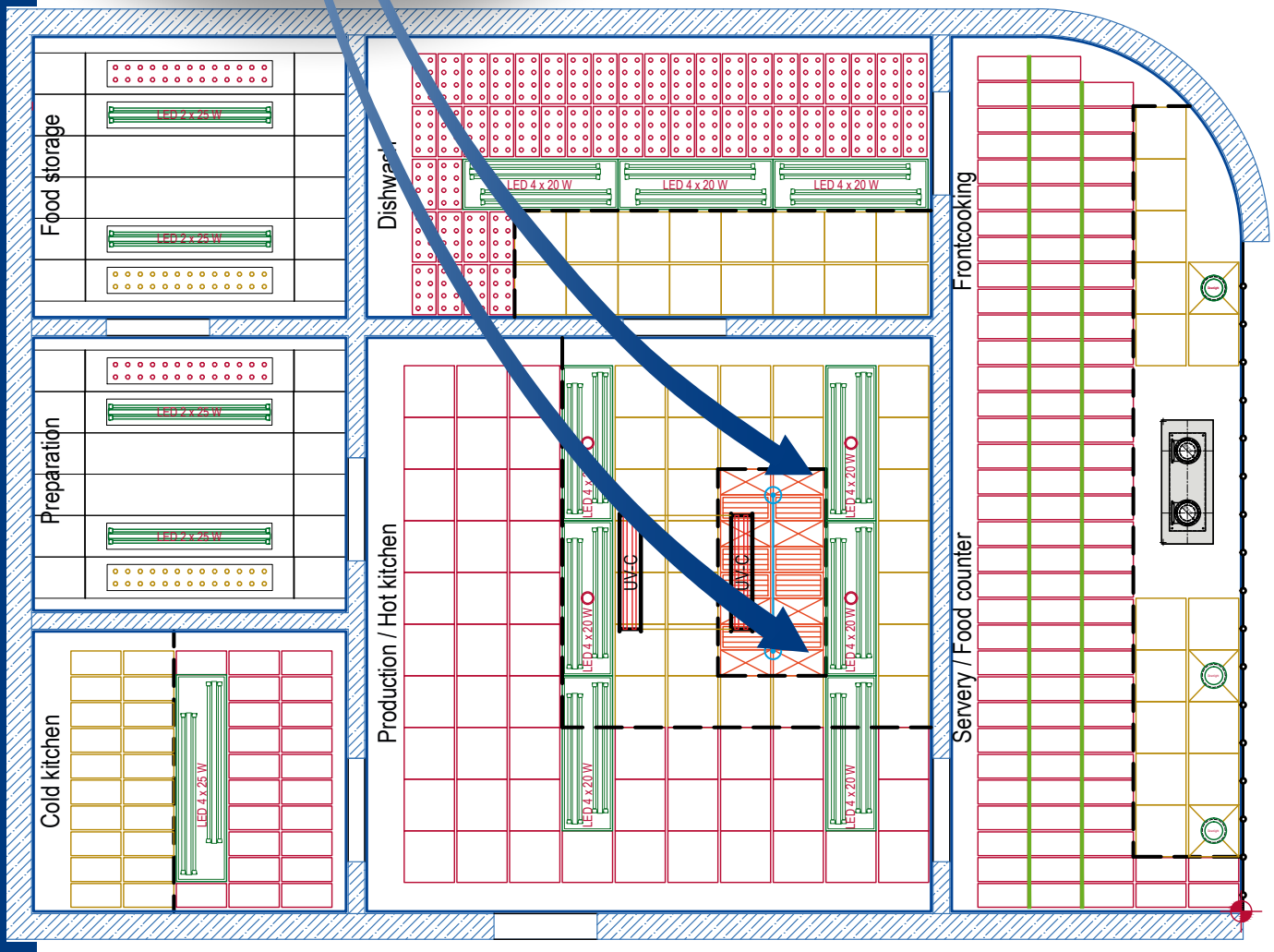
air flow	260-300 m^3/h m^2
dimensions	500x485 mm
pressure drop	20-25 Pa
material/surface	AISI stainless steel material No. 304
weight per m^2 excluding primary suspension grid	10,00 kg
degree of interception	up to 97%

GIF Active Cassette Ceiling **supply air**

air flow	360-500 m^3/h m^2
dimensions	500x485 mm
pressure drop	25-30 Pa
material/surface	AISI 304 stainless steel
weight per m^2 excluding primary suspension grid	10,00 kg
extract flow velocity	less than 0.2 m/sec

2. GIF Restaurant System

GIF ActiveVent



GIF Restaurant System

Production / Hot kitchen, food counter / servery and show cooking

Marienhospital Witten

St. Johannes Hospital Dortmund

GIF Restaurant System

Production / Hot kitchen, food counter / servery and show cooking

System description

The heavy duty separator fits neatly in the GIF-Ceiling grid and is placed above fryers and grill stations to capture up to 2400 m³/h per m² of extract air.

The heavy duty separators (cassettes) are placed into the RS (Restaurant System) at an angle, so that the large amounts of aerosolates are captured, separated and drained into the aerosolate-trough. The trough in turn can be emptied via a drain tap when necessary.
The GIF-RS is available in construction-types of convex or concave shape, where the convex RS protrudes from the ceiling into the room. The concave RS is a later model and development with his separation surface laying inside the ceiling void and the housing of the RS fitting flush with the adjacent ceiling grid. Therefore a restriction of the field of view is avoided.

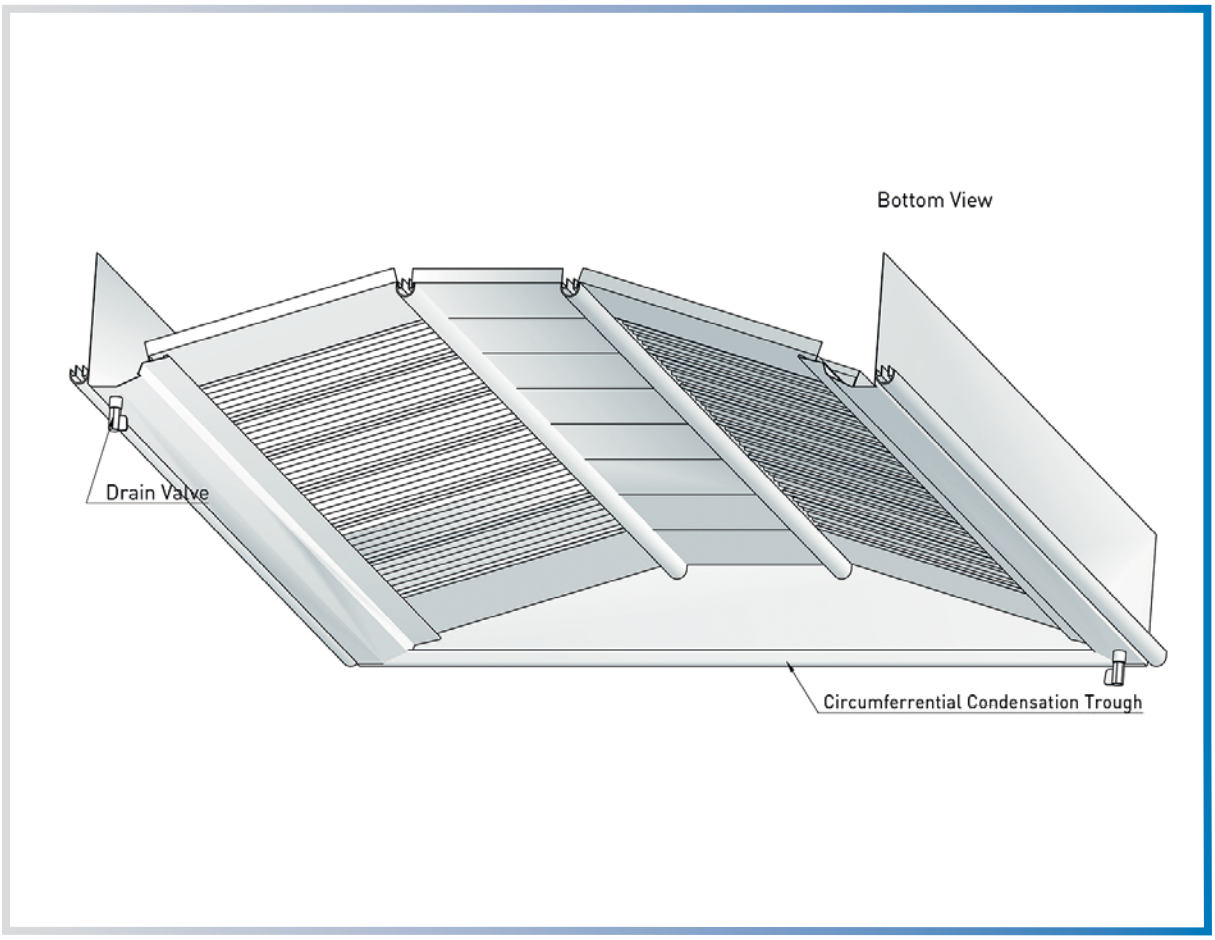
Like all air-handling components the RS is entirely manufactured from AISI 304 with heavy duty separators that can easily be taken out for cleaning in the dishwasher. The trough is equally easy accessible and easy to clean.

Facts and advantages

- **Can be installed in convex or concave shape.**
- **High air flow rates within a small area**
- **Equipped either with active cassettes or with heavy duty separators**
- **Reduced maintenance frequency, increased service life**
- **The LED Rail Lighting System can be integrated in the Concave Restaurant System.**
- **AISI 304 stainless steel material**
- **Hygienic cleaning of the components in the dishwasher**
- **Completely welded finish**
- **Can be easily upgraded due to the modular character**
- **Individual design solutions are possible**

GIF Concave Restaurant System

Production / Hot kitchen, food counters / serveries and show cooking



3-row

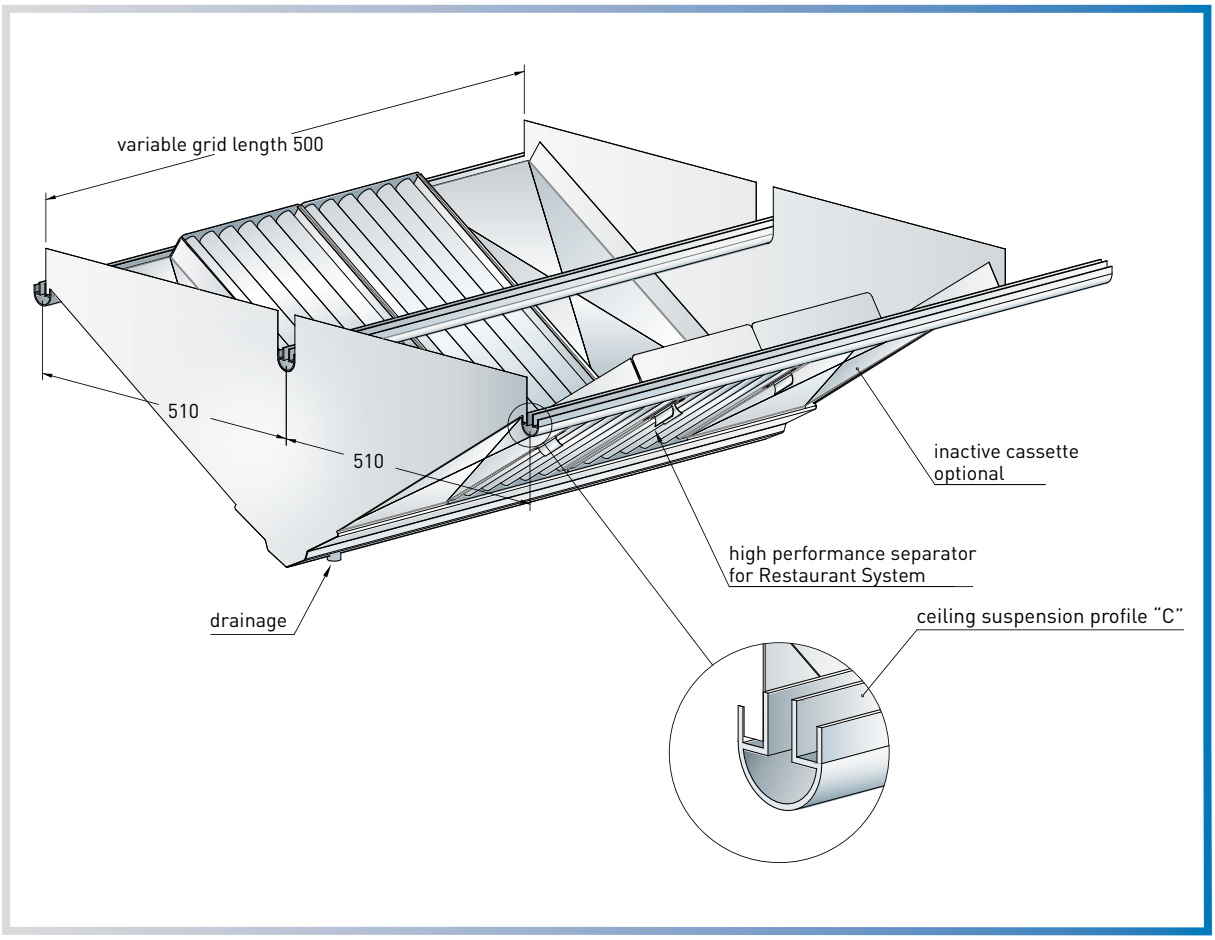
Specific technical data

GIF Restaurant System concave 2- or 3 row

air flow		300-2400 m^3/h m^2
dimensions/length		Depending on requirements however, maximum single length: 3.5 m
pressure drop		30-50 Pa
material/surface		AISI 304 stainless steel
separation efficiency		up to 97%

GIF Restaurant System

Production / Hot kitchen, food counter / servery and show cooking

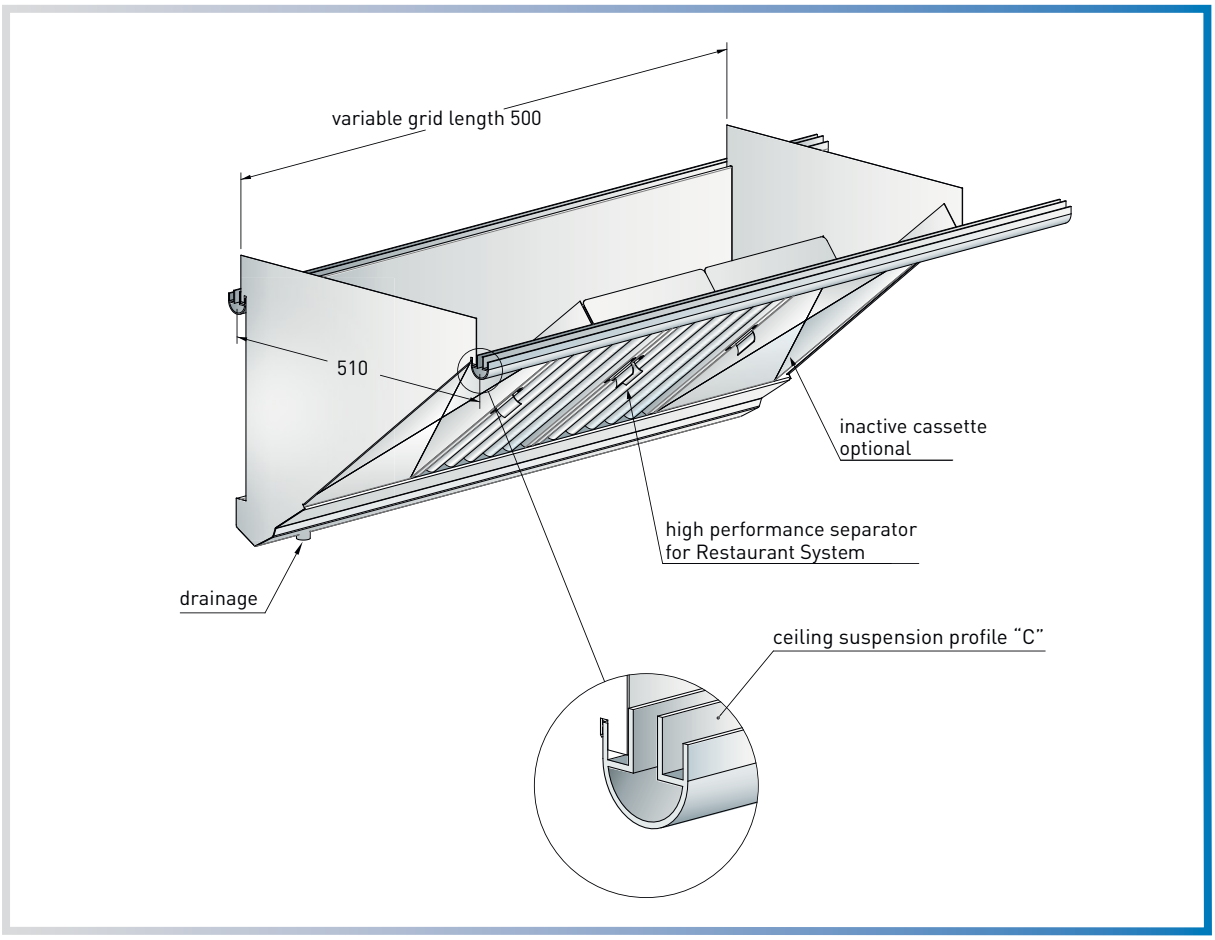


Double-row

Specific technical data

GIF Restaurant System convex 2-row

air flow		300-2400 $m^3/h\ m^2$
dimensions/length		Depending on requirements however, maximum single length: 3 m
pressure drop		30-50 Pa
material/surface		AISI 304 stainless steel
separation efficiency		up to 97%



Single-row

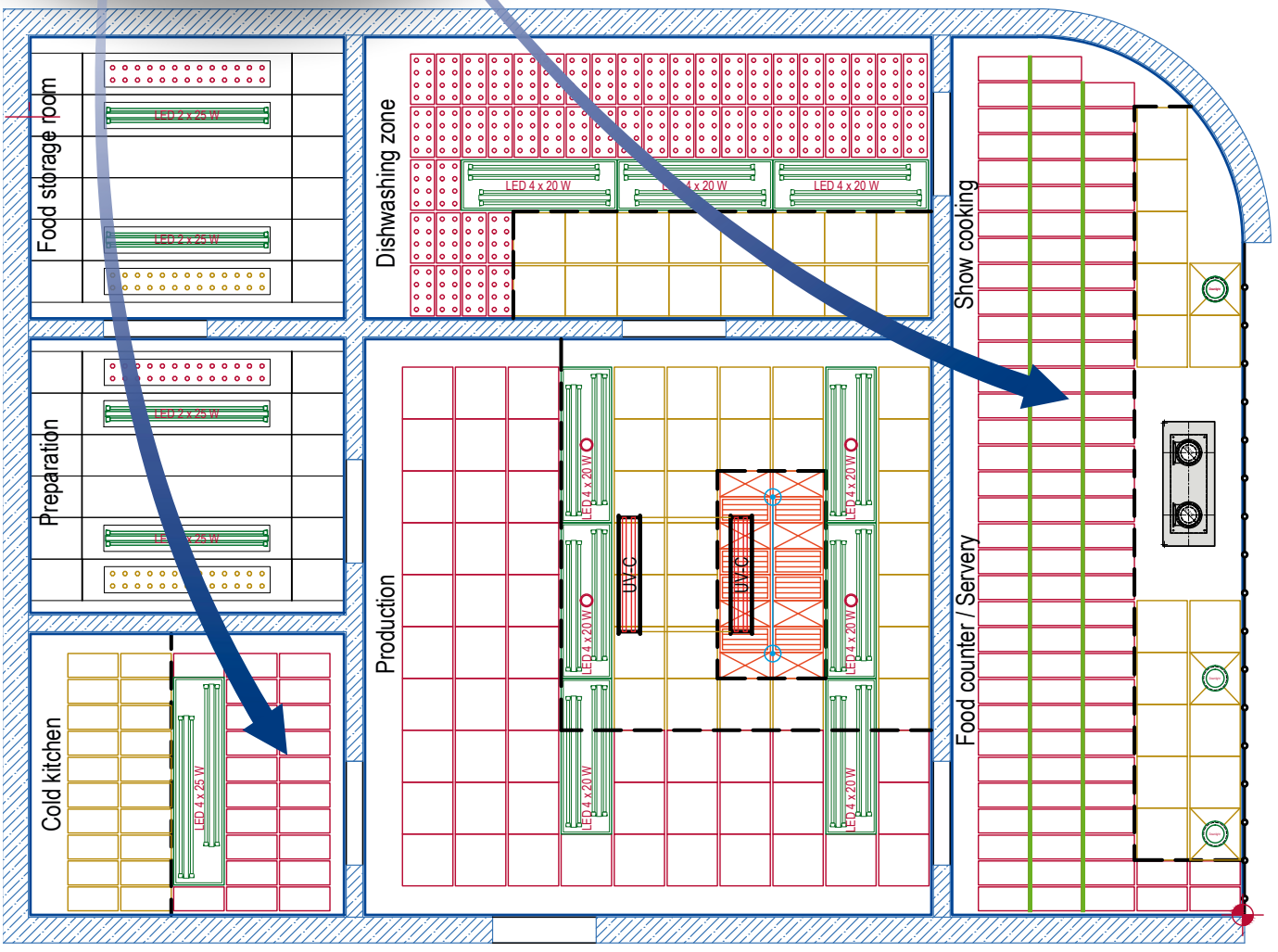
Specific technical data

GIF Restaurant System convex single row

air flow		300-2400 m^3/h m^2
dimensions/length		Depending on requirements however, maximum single length: 3 m
pressure drop		30-50 Pa
material/surface		AISI 304 stainless steel
separation efficiency		up to 97%

3. GIF Fresh Air Supply Flat Cassette Ceiling

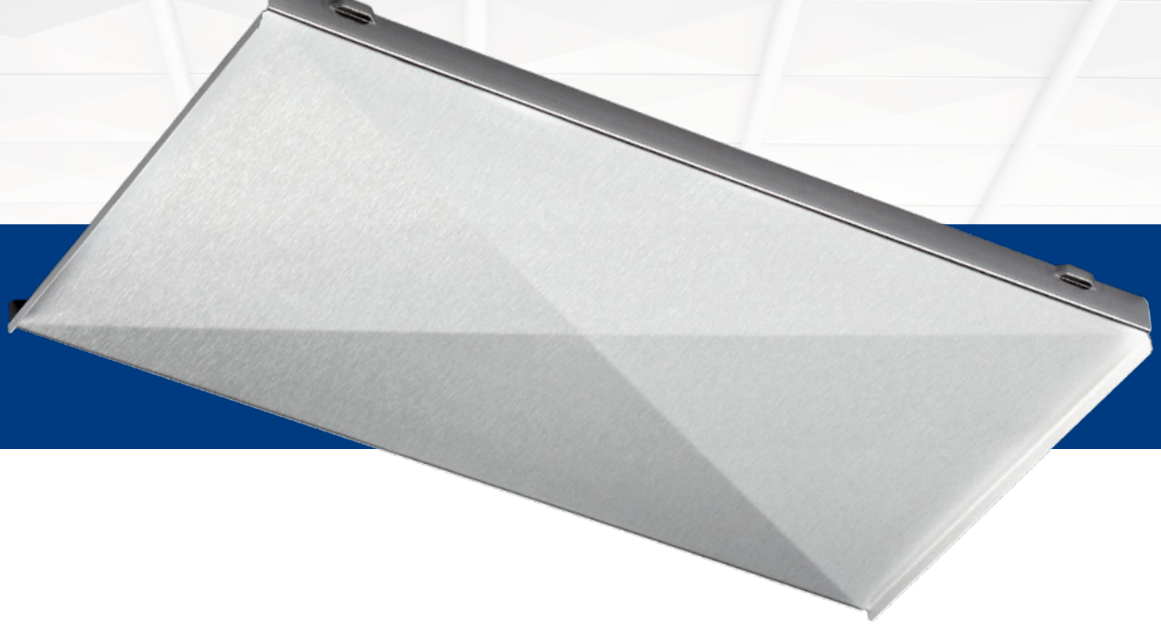
GIF ActiveVent



GIF Supply Air Flat Cassette Ceiling

Production kitchen and dishwashing zone, food counters / serveries, show cooking, preparation rooms, auxiliary and storage rooms as well as corridor areas and waiter thoroughfares

Sparkasse Finanzzentrum Erfurt



GIF Supply Air Flat Cassette Ceiling

Production kitchen and dishwashing zone, food counters / serverys, show cooking, preparation rooms, auxiliary and storage rooms as well as corridor areas and waiter thoroughfares

System description

This ceiling solution can be adapted to individual kitchen conditions and supply fresh air via a broad jet feature at a more cost-effective price. Furthermore, it ensures a large-scale, uniform fresh air supply at lower ventilation rates and, together with the other components, forms a uniform composite ceiling.

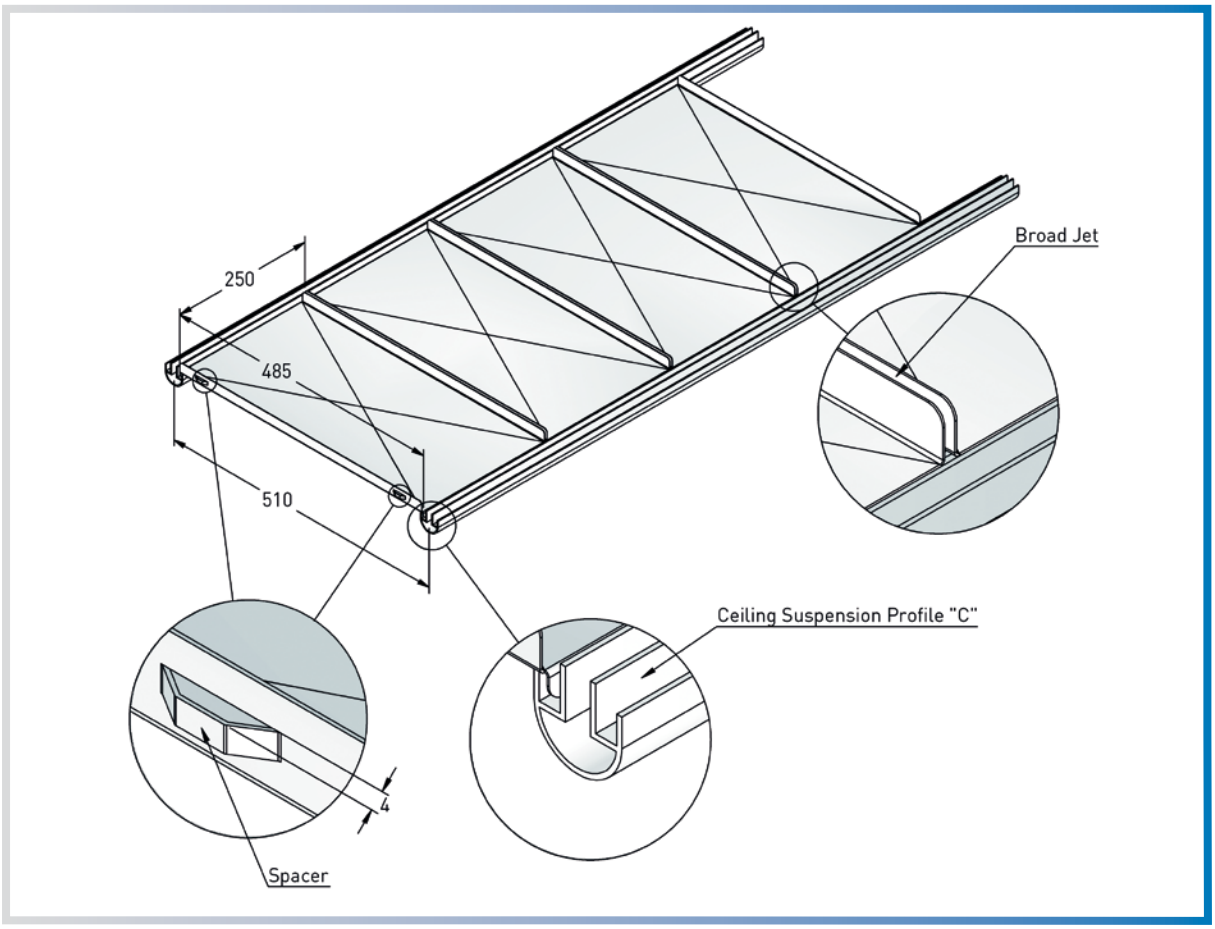
Like all air-handling components, the GIF Supply Air Flat Cassette Ceiling is, as standard, made of AISI 304 stainless steel. On request, it is also possible to have RAL coatings. The components can be pushed along the grid, removed without tools and cleaned in the dishwasher.

Facts and advantages

- **Targeted air supply**
- **Broad jet feature created by integrated spacer**
- **Easily removable for hygienic cleaning in the dishwasher**
- **Can be inspected according to VDI 6022**
- **System-integrated as a uniform modular ceiling**
- **Shallow installation depth**
- **Pressurised open plenum reduces length of duct runs**
- **Colour coatings according to RAL are possible**
- **Can also be used as an extract air component in grease-free auxiliary areas**
- **AISI 304, durable & lasting**

GIF Supply Air Flat Cassette Ceiling

Production kitchen and dishwashing zone, food counters / serveries, show cooking, preparation rooms, auxiliary and storage rooms as well as corridor areas and waiter thoroughfares

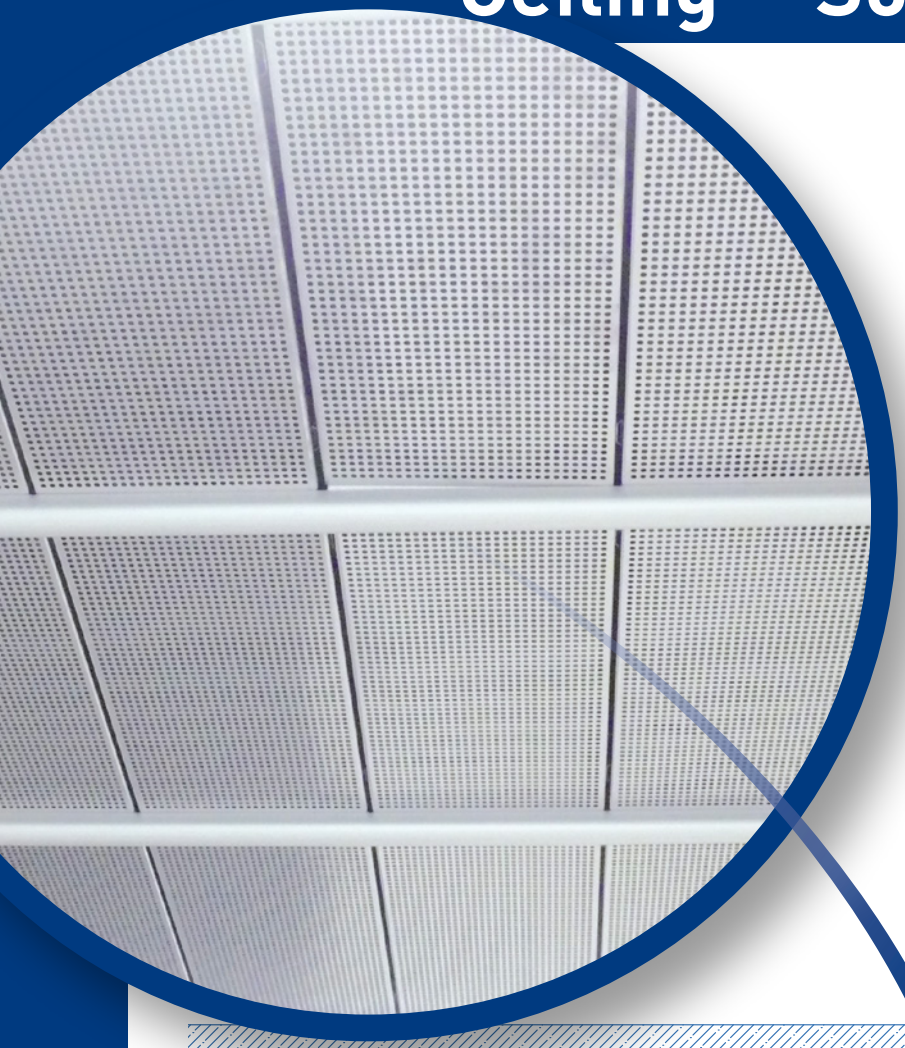


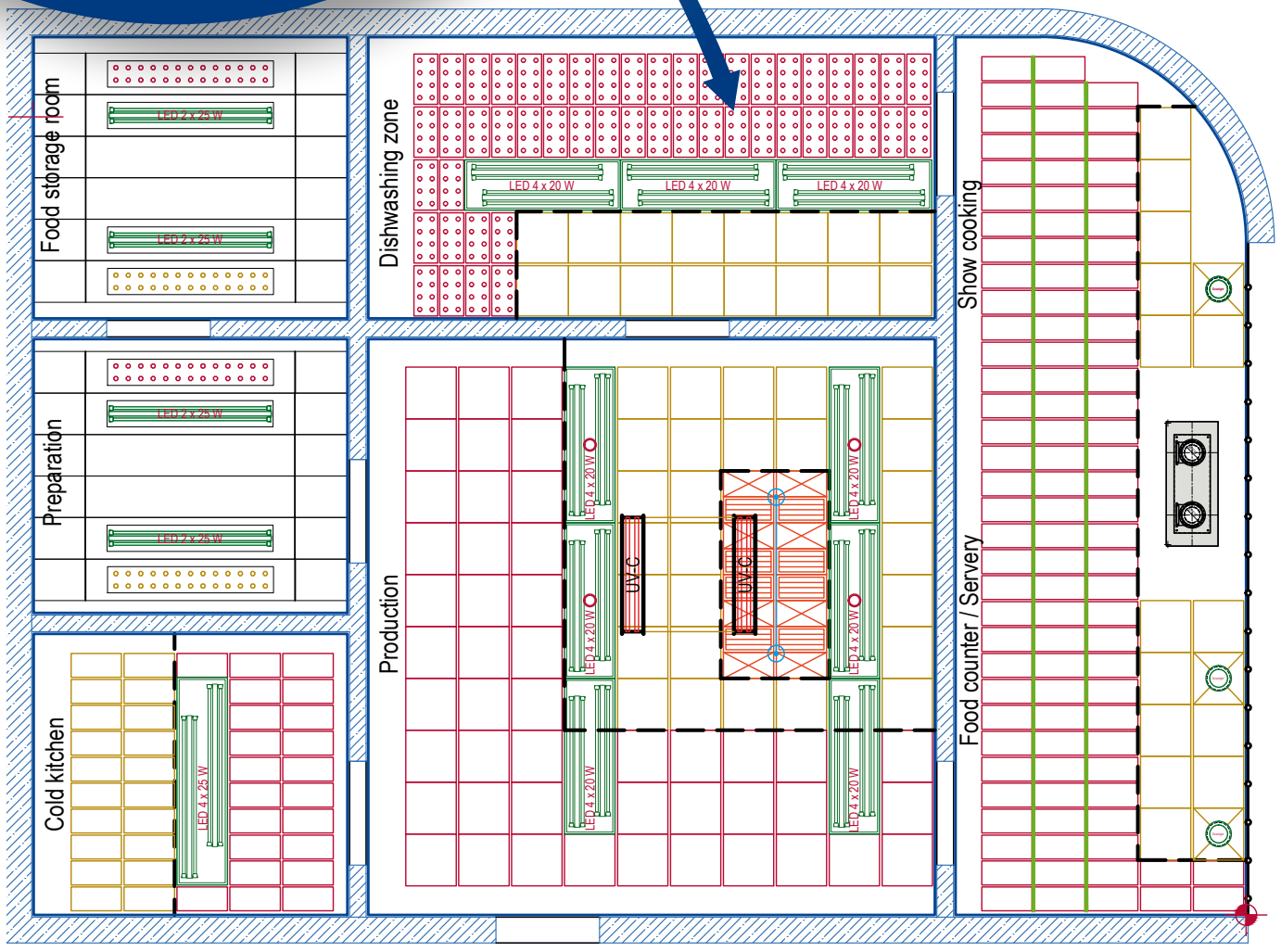
Specific technical data

GIF Supply Air Flat Cassette Ceiling

air flow		max. 160 m³/h m²
dimensions		250 x 485 mm
pressure drop		20 Pa
material		AISI 304 stainless steel
weight per m² excluding suspension grid		7.2 kg

4. GIF Supply Air Flat Cassette Ceiling – Sound Absorption –





GIF Supply Air Flat Cassette Ceiling
— Sound Absorption —

Dishwashing zone, pot wash and preparation rooms as well as corridor areas and waiter thoroughfares

DKV Köln – DKV (German Health Insurance) Cologne

GIF Supply Air Flat Cassette Ceiling – Sound Absorption –

Dishwashing zone, pot wash and preparation rooms as well as corridor areas and waiter thoroughfares

System description

Similar to the GIF Supply Air Flat Cassette this ceiling component has an additional benefit, combining two functions in one cassette.
This cassette not only supplies fresh air into the room but also absorbs sound and noise at the same time.
By use of highly efficient sound-absorbtion material high noise-levels like those in dishwash areas can extensively be reduced.

Like all GIF-ceiling components the GIF Supply Air Flat Cassette - Sound Absorbtion is made out of AISI 304 stainless steel and on request can also be delivered powder coated in a RAL color of choice.

Together with the other components, this system forms a uniform modular ceiling. The components can be removed from the suspension grid for cleaning without the need for tools. To facilitate easy handling and removal, the components can be slid along the suspension grid to a convenient removal point clear of kitchen appliances. This enables quick, efficient and safe cleaning. The removable sound absorption pad (fire material class A) is hygienically encapsulated in a sealed plastic foil, which can simply be taken out separately for cleaning if necessary.

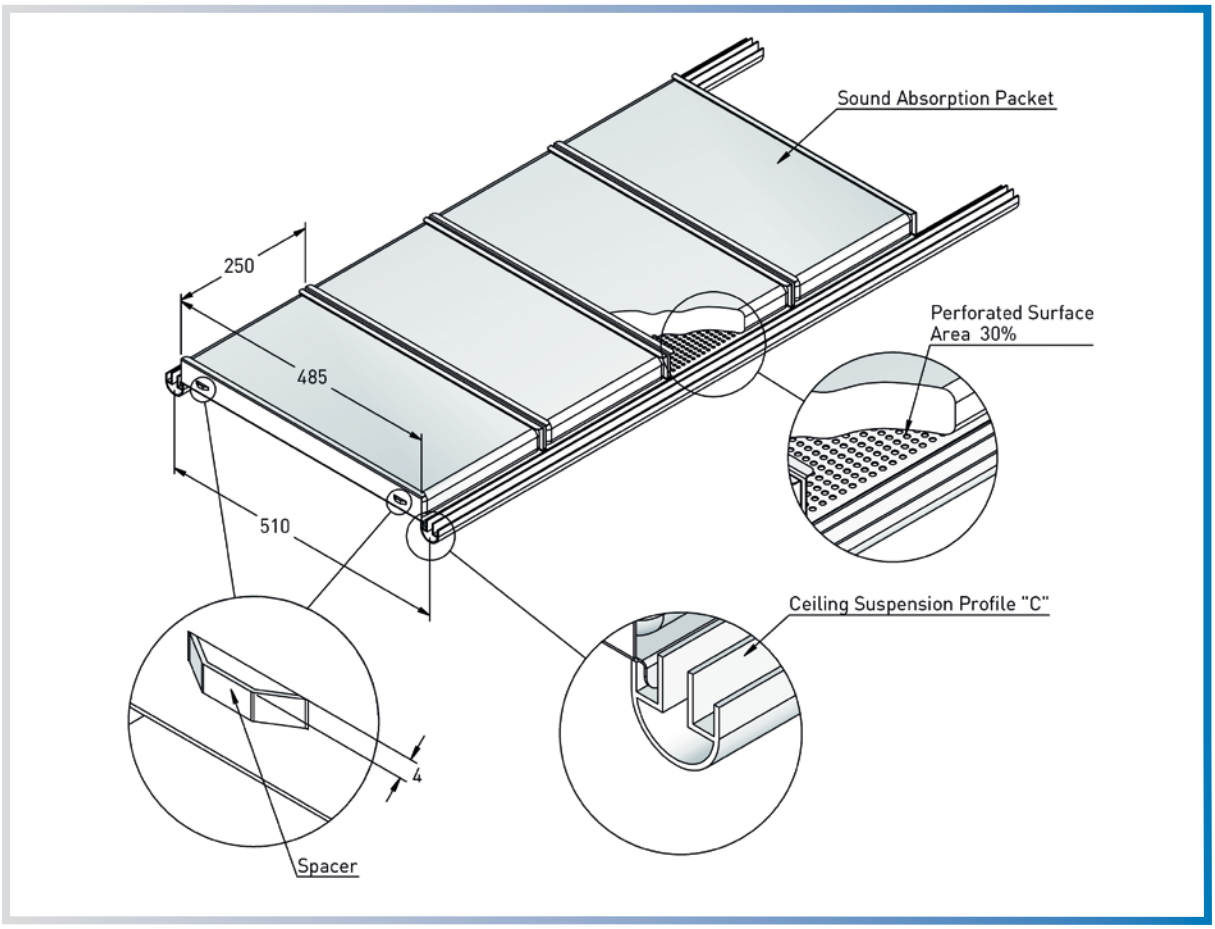
The requirements of VDI 6022 are met and complied with.

Facts and advantages

- **Large areas can be equipped because of the unique combination of fresh air supply and sound reduction at the same time over the same area**
- **Can be used in dishwashing zones, waiter thorough-fares, recreation rooms, etc.**
- **Shallow installation depth**
- **In 2-parts for hygienically acceptable cleaning in the dishwasher**
- **AISI 304 stainless steel material**
- **Sound-Absorption pad can easily be removed and is shrink-wrapped in a vapour-tight foil**

GIF Supply Air Flat Cassette Ceiling – Sound Absorption –

Dishwashing zone, pot wash and preparation rooms as well as corridors and waiter thouroughfares



Specific technical data

GIF Supply Air Flat Cassette Ceiling – Sound Absorption –

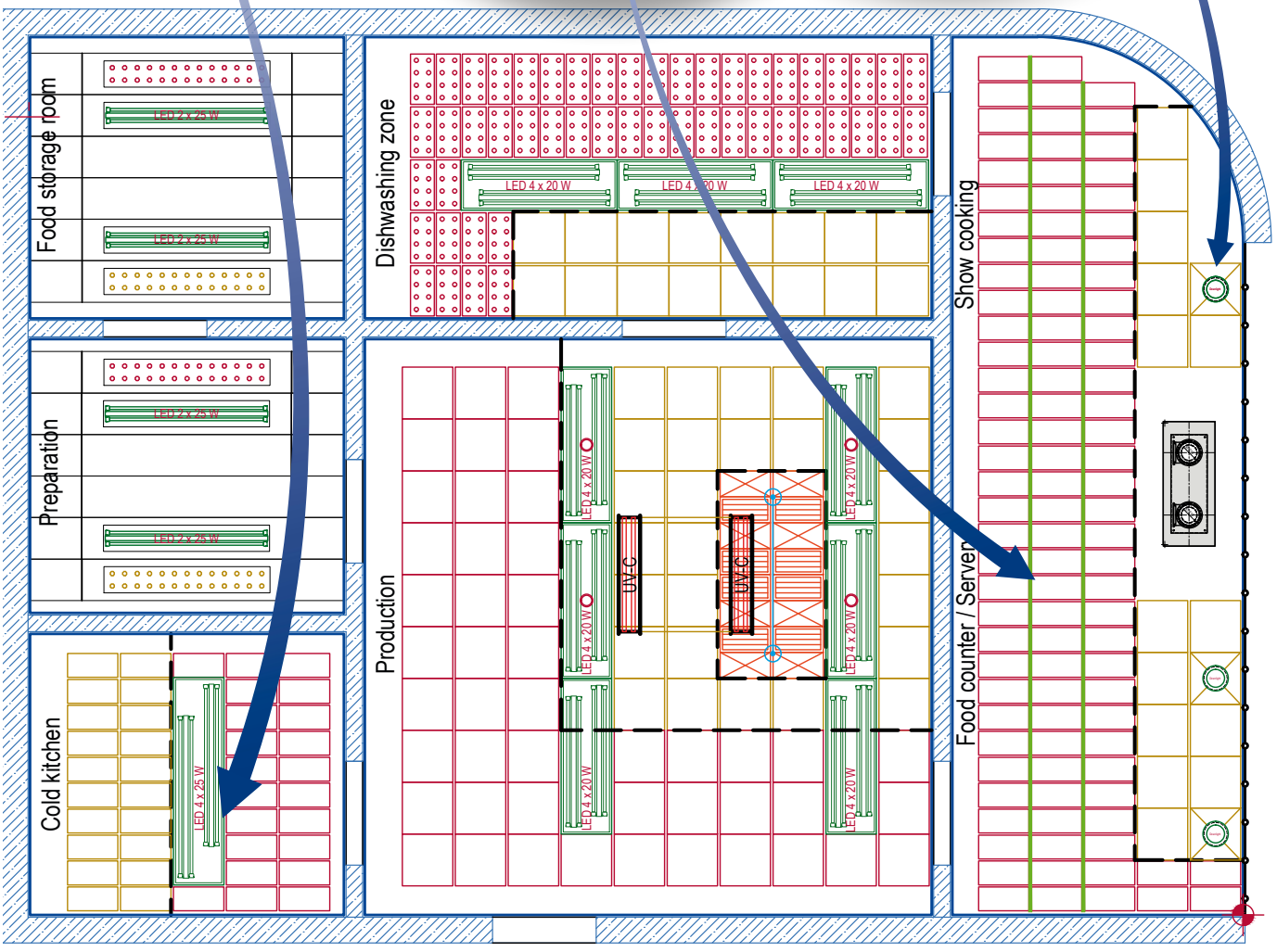
air flow	max. 160 m³/h m²
dimensions	250 x 485 mm
pressure drop	20 Pa
material	AISI 304 stainless steel
weight per m² excluding suspension grid	8 kg
sound-absorbing material	Sound-Absorption material shrink-wrapped into a non-combustible plastic foil

sound absorption coefficient	frequency in Hz	α
see also: Products for noise reduction, TÜV Rheinland Publishing House, ISBN 3-88585-026-5	125	0.40
	250	0.85
	500	0.90
	1000	0.85
	2000	0.85
	4000	0.70

Further information on the reduction of noise levels can be found in the Annex under number 10.25/10.26 Expert Report.

5. GIF Lighting

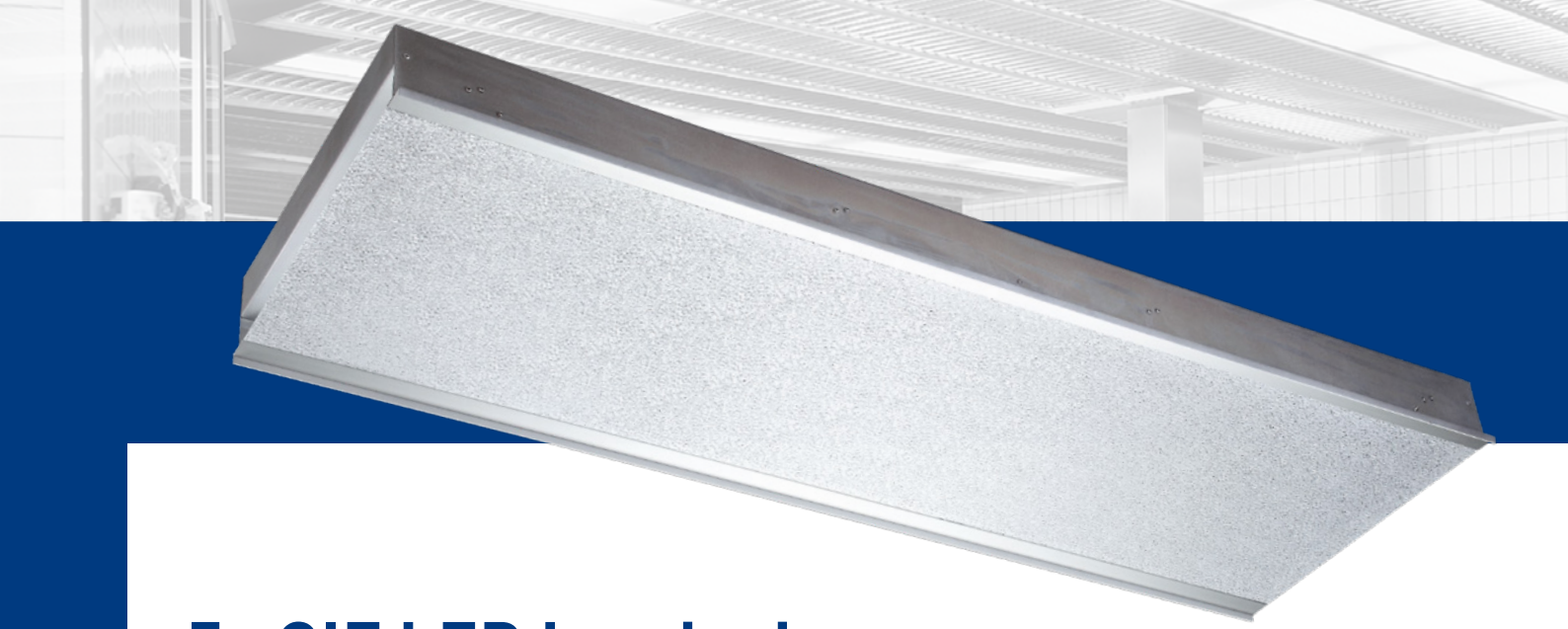
GIF ActiveVent



GIF Lighting

Production kitchen and dishwashing zone, food counters / serveries, show cooking, preparation rooms, auxiliary and storage rooms as well as corridors, circulation areas and waiter thoroughfares

Clinical Centre Gütersloh



5a GIF LED Luminaires

Production kitchen and dishwashing zone, food counters / serveries, show cooking, preparation rooms, auxiliary and storage rooms as well as corridors, circulation areas and waiter thoroughfares

Available also dimmable or DALI compatible

System description

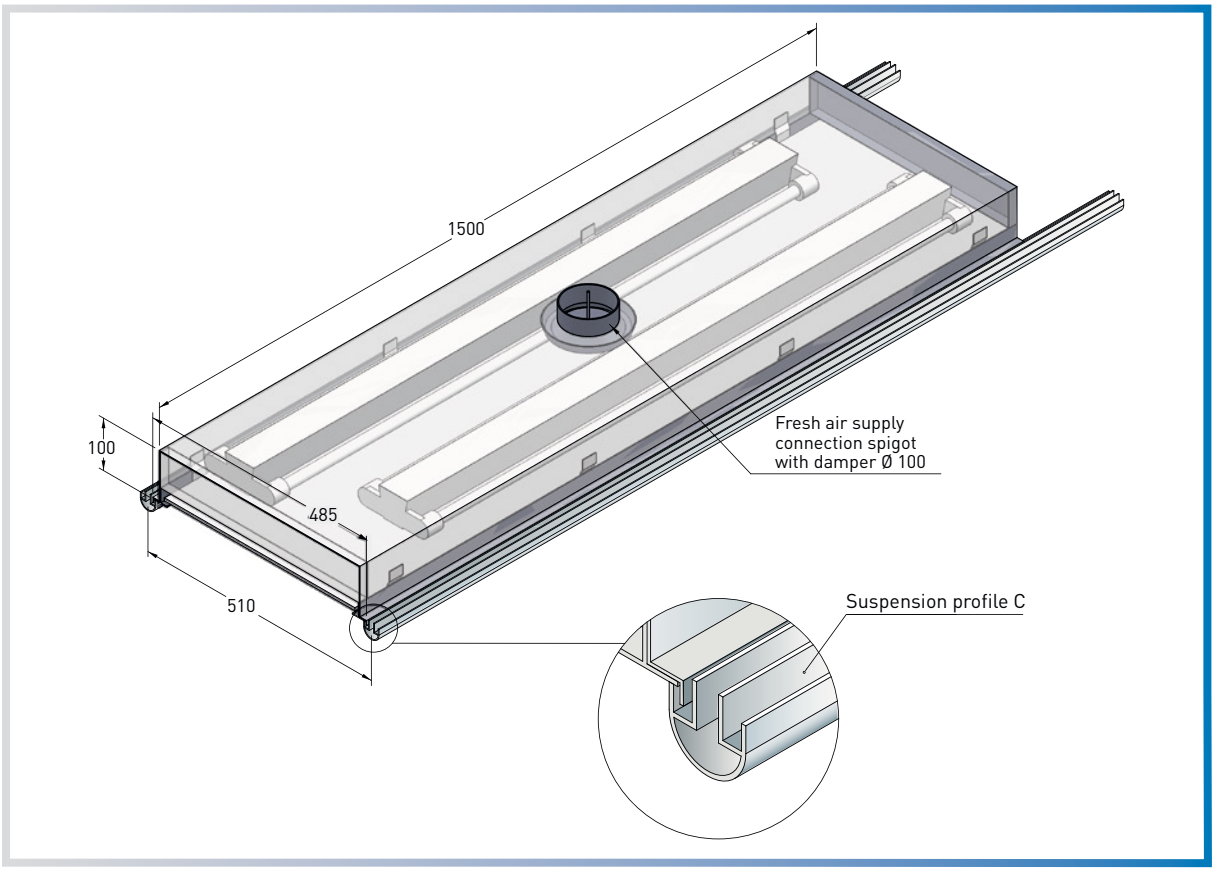
Compliant to German Work Safety Standards (Arbeitsstättenverordnung) GIF-Luminaires fit flush in the ceiling grid and can be placed separately or in a continous line thus creating best possible and shadow-free lighting in the work place.
All GIF Luminaires are moisture proof (at least IP 54) and suitably equipped for professional kitchens. In addition and on request luminaires can also be fitted dimmable or with DALI technology. Another standard is set by the GIF-supply air connection to each luminaire in extract air zones prolonging the life span of the integrated electronic control gear. Two longitudinal vents allow for the cool supply air to exit the casing of the luminaire thus creating an air-cushion below the cover sheet, protecting it from soiling and deposits from any raising smoke or kitchen vapours.
As a result cleaning of cover sheets is therefore much less necessary.

Facts and advantages

- **Best possible lighting through double-sided UV coating of cover sheet**
- **Flush fitting into ceiling grid as part of the ventilated ceiling.**
- **Protection class IP 54 as a minimum**
- **Interior ventilation forms a curtain of fresh air across the underside of the diffusor to avoid contamination or soiling**
- **Cooled Luminaires have extended service life**
- **Lighting in existing systems can be retrofitted**
- **Compatible to DALI or dimmable**

5a GIF LED Luminaires

Production, kitchen and dishwashing zone, pot wash, food counters / serveries, show cooking, preparation rooms, auxiliary and storage rooms as well as corridors, circulation areas and waiter thoroughfares

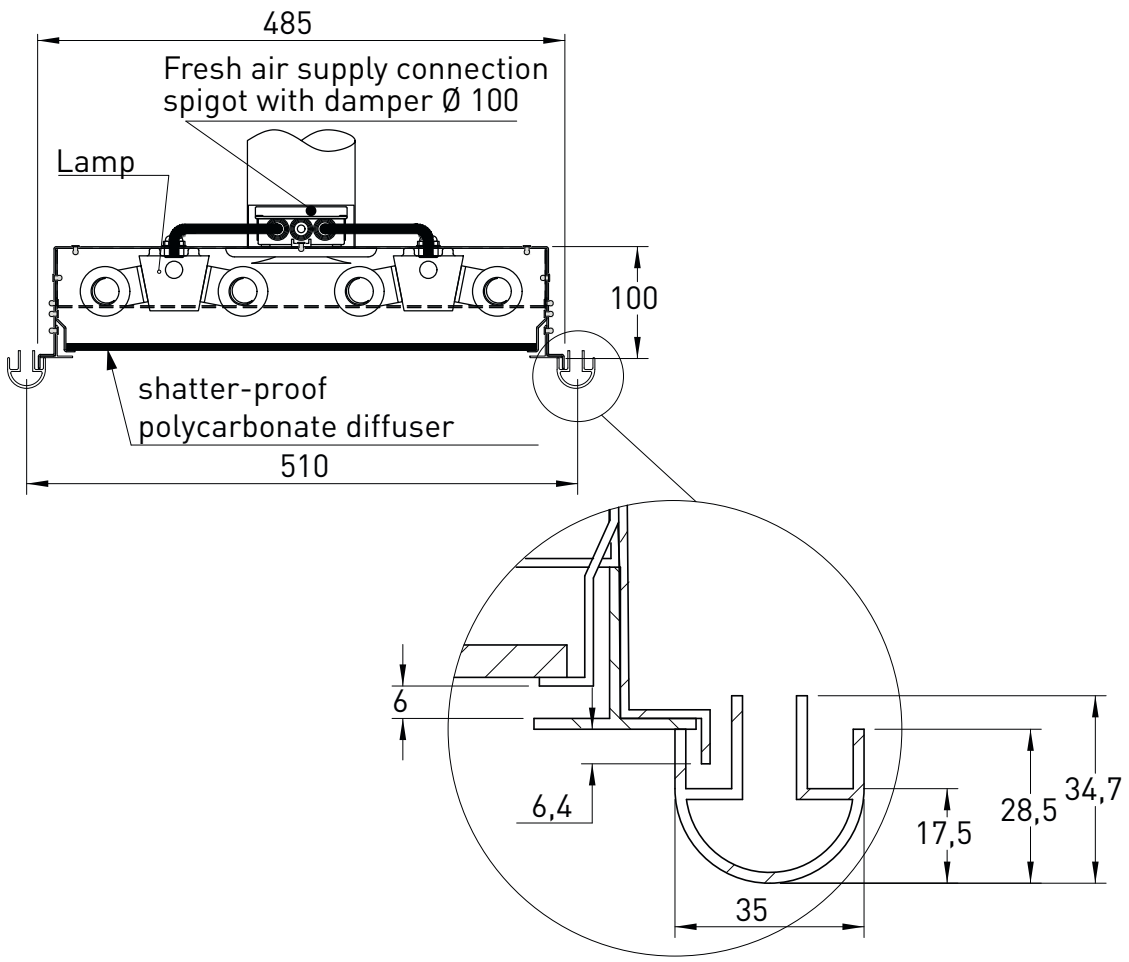


Schematic

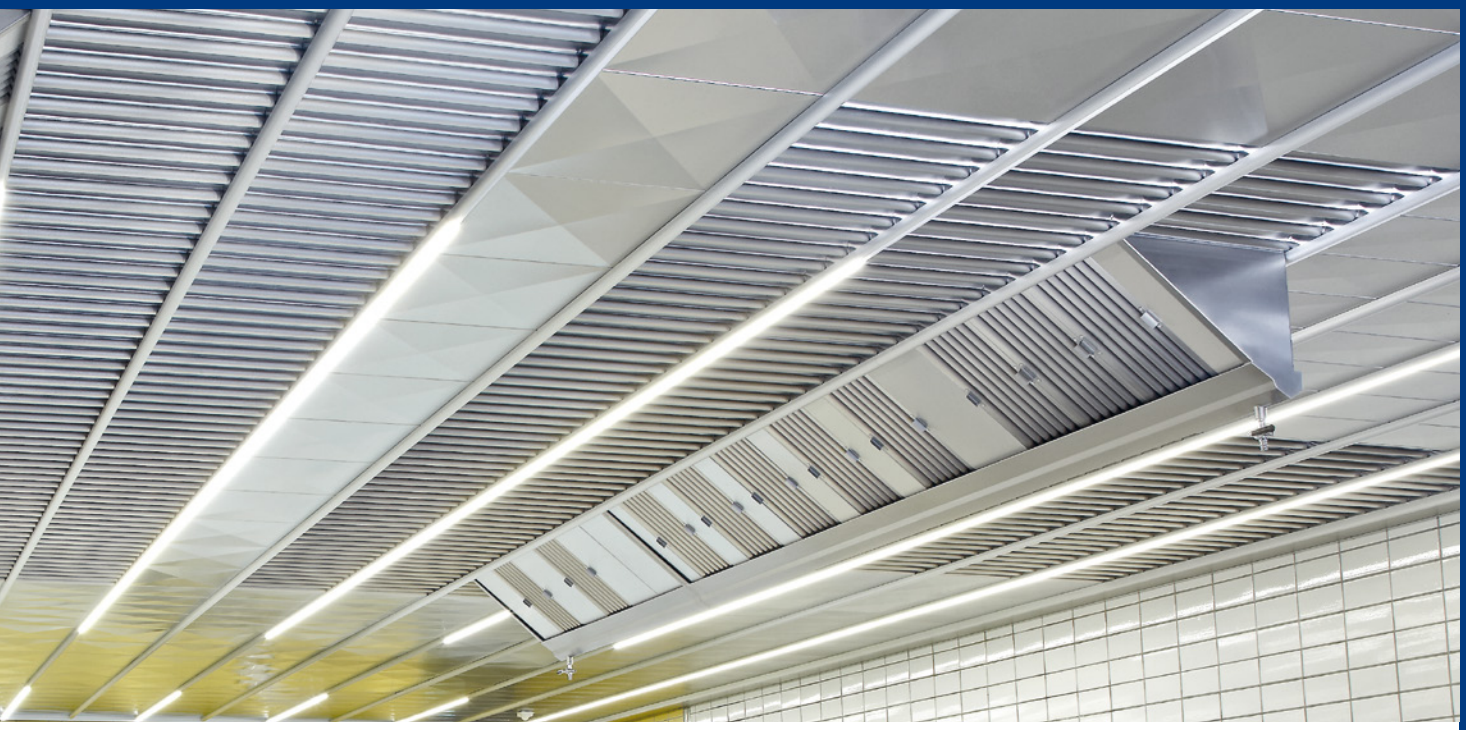
Specific technical data*

5a GIF LED Luminaires	with LED	without LED
type	T8	T8/T5
power/connection values	4x20 Watt 4x24 Watt	4x36 Watt, 4x58 Watt 4x28 Watt, 4x49 Watt
protection class	IP 65	IP 54
Supply air connection	75m³/h (only when used in the extract air area)	75 m³/h (only when used in the extract air area)
dimensions/length	1500/2000 mm	1500/2000 mm

* Data at the time of catalog printing - current data on www.gif-activevent.com



Cross section



Federsee Clinic, Bad Buchau

Juwi AG, Wörrstadt

5b GIF LED Rail Lighting System

Show cooking, Food counters/Serveries, production kitchen, dishwashing zone, preparation rooms, corridors and waiter thoroughfares

Available also dimmable or DALI compatible

Description of the system

The patented GIF LED Rail Lighting System makes possible a particularly homogeneous arrangement of the lighting at almost every work station in the commercial kitchen with a maximum uniform lighting intensity.

The specifications and requirements for the lighting of the work stations in accordance with the regulations applicable to them are therefore fully respected.

The rails have a two-fold function: not only do they support the cassettes of the ventilated ceiling, they also contain the lights themselves and make usual lighting fixtures unnecessary.

As a result the active zones of the ventilated ceiling are increased and less supply air ducts necessary.

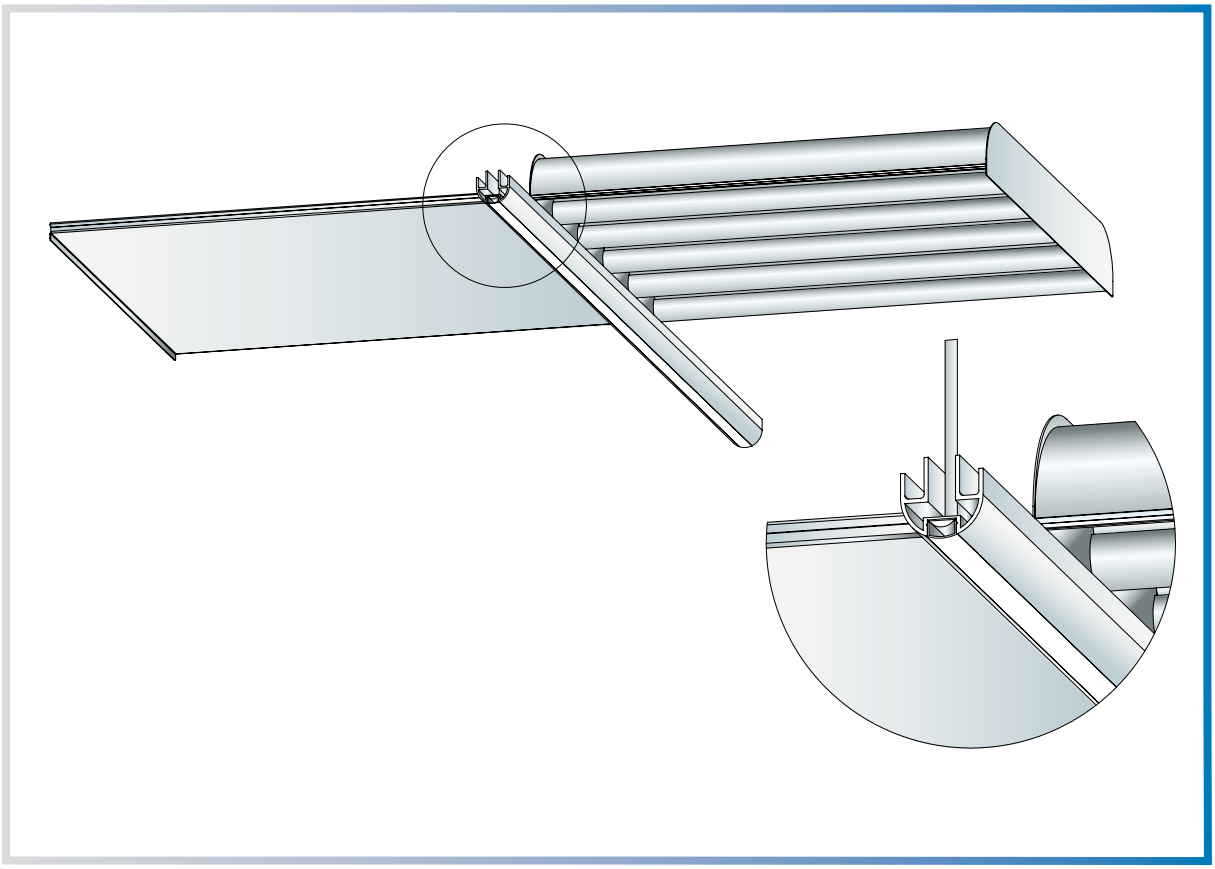
Upon request additional options are available, such as RGB lighting, dimmable or DALI compatible.

Facts and Advantages

- **integrated as part of the ventilated ceiling**
- **long service life of the LEDs of about 50,000 hours**
- **low electricity consumption**
- **protection class IP 66**
- **high luminosity with uniform light distribution**
- **DALI compatible or dimmable options available**
- **Additional RGB lighting can be integrated**

5b GIF LED Rail Lighting System

Show cooking, Food counters/Serveries, production kitchen, dishwashing zone, preparation rooms, corridors and waiter thoroughfares



Specific technical details*

GIF LED Rail Lighting System

Electrical performance		16 W/m resp. 24 W/m
Protection class		IP 66
luminous flux		approx. 1.260 lm/m
Feed		230 V
LED-Band		24 V (incl. transformer)

* Data at the time of catalog printing - current data on www.gif-activevent.com

5c GIF LED Downlight

Food counters / Serveries and show cooking as well as corridors and waiter thoroughfares

Available also dimmable or DALI compatible

System description

Guest areas are of particular importance. Not only do they need to comply to lighting regulations but are equally required to satisfy expectations of the guests to find an aesthetically inviting environment. The tailor made GIF lighting concepts ensure such standard in places such as show cooking, food counters or servery areas.

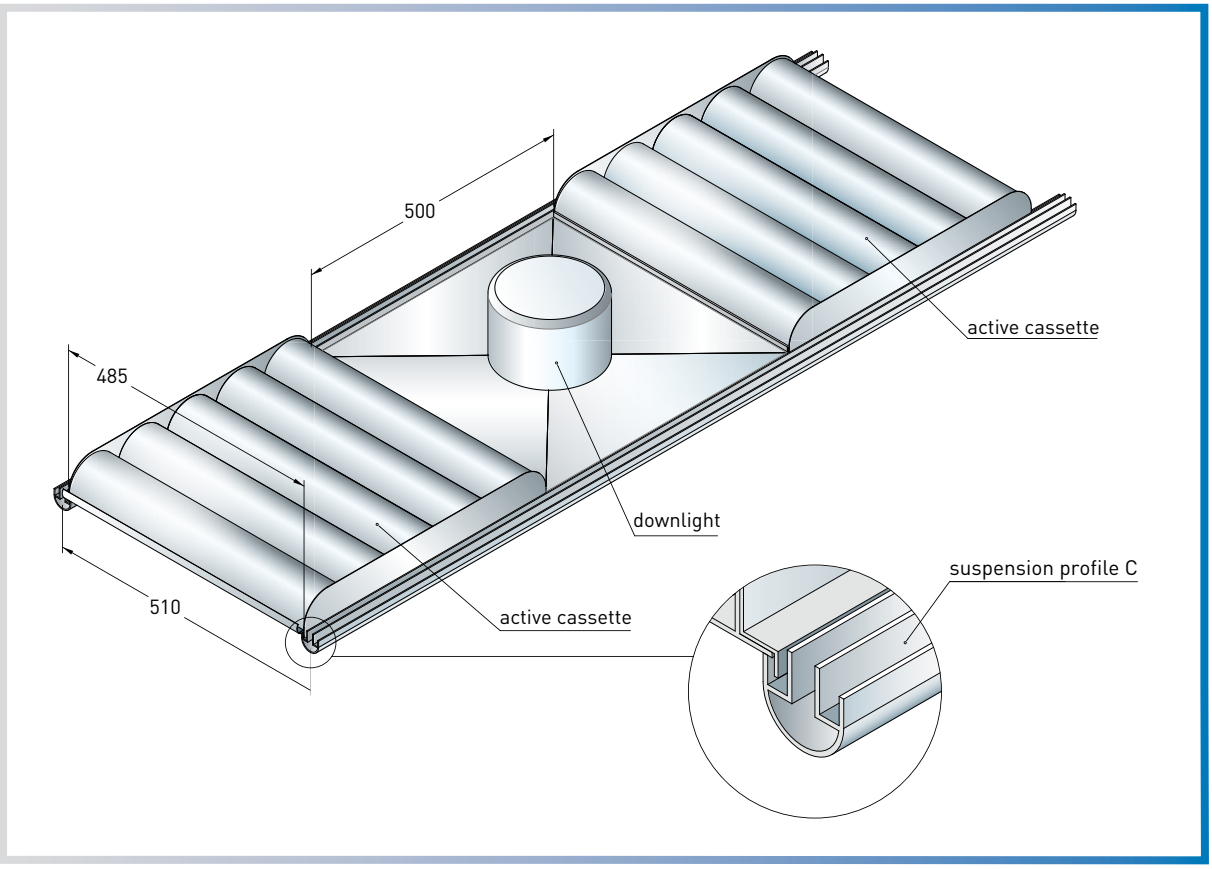
Here as well IP 54 is the minimum standard used, in addition or upon request dimmable or DALI-compatible downlights are also available.

Facts and advantages

- **Integrated as part of the ventilated ceiling**
- **Protection class IP 65**
- **DALI compatible or dimmable options available**
- **Long service life of the LEDS of about 50,000 hours**
- **Control components (Emergency lighting) can also be integrated**

5c GIF LED Downlight

Food counters / Serveries and show cooking as well as corridors and waiter thoroughfares



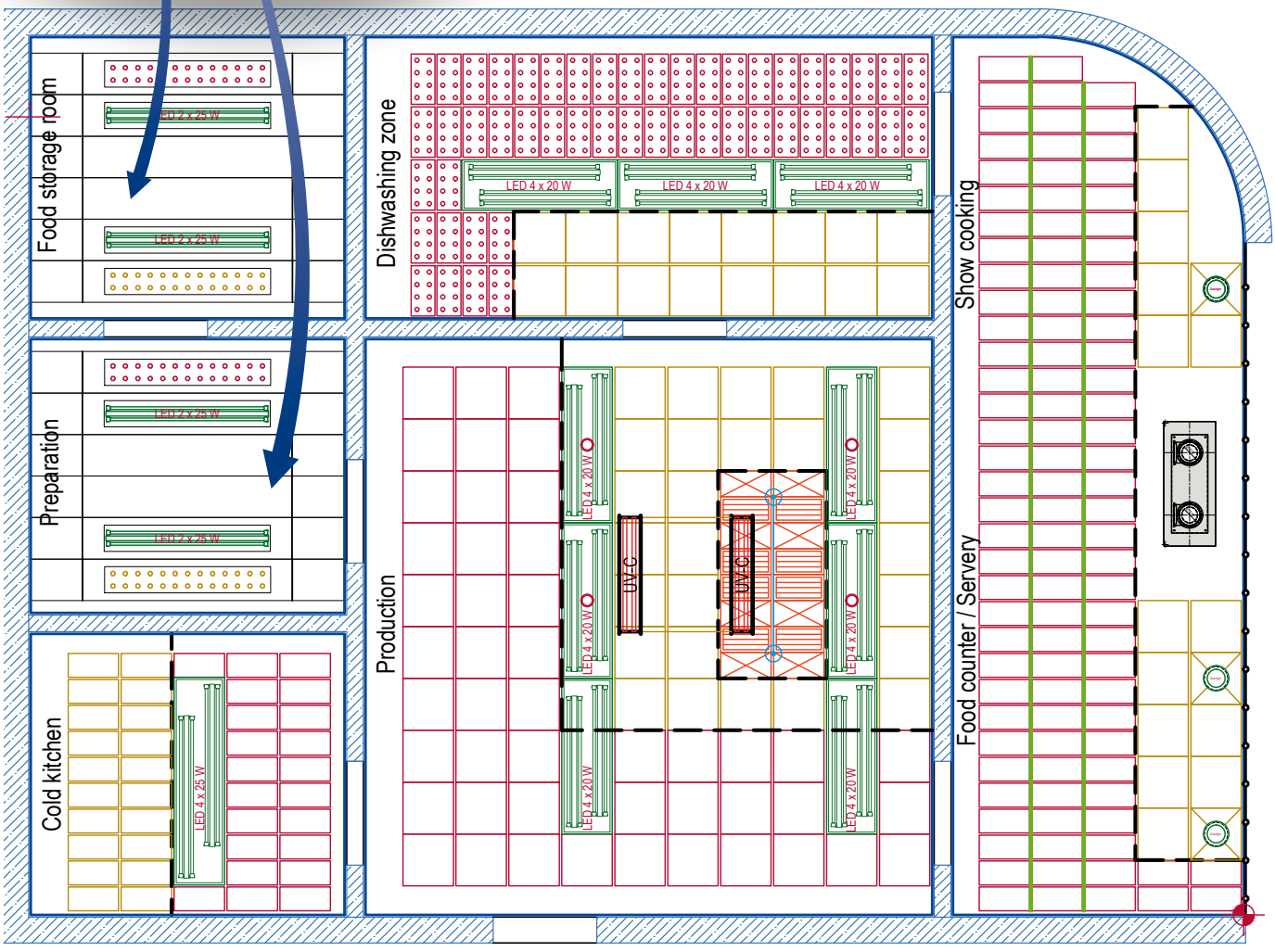
Specific technical data*

5c GIF LED Downlight

Electrical performance	18 Watt
Protection Class	IP 65
Connection	230 V

* Data at the time of catalog printing - current data on www.gif-activevent.com

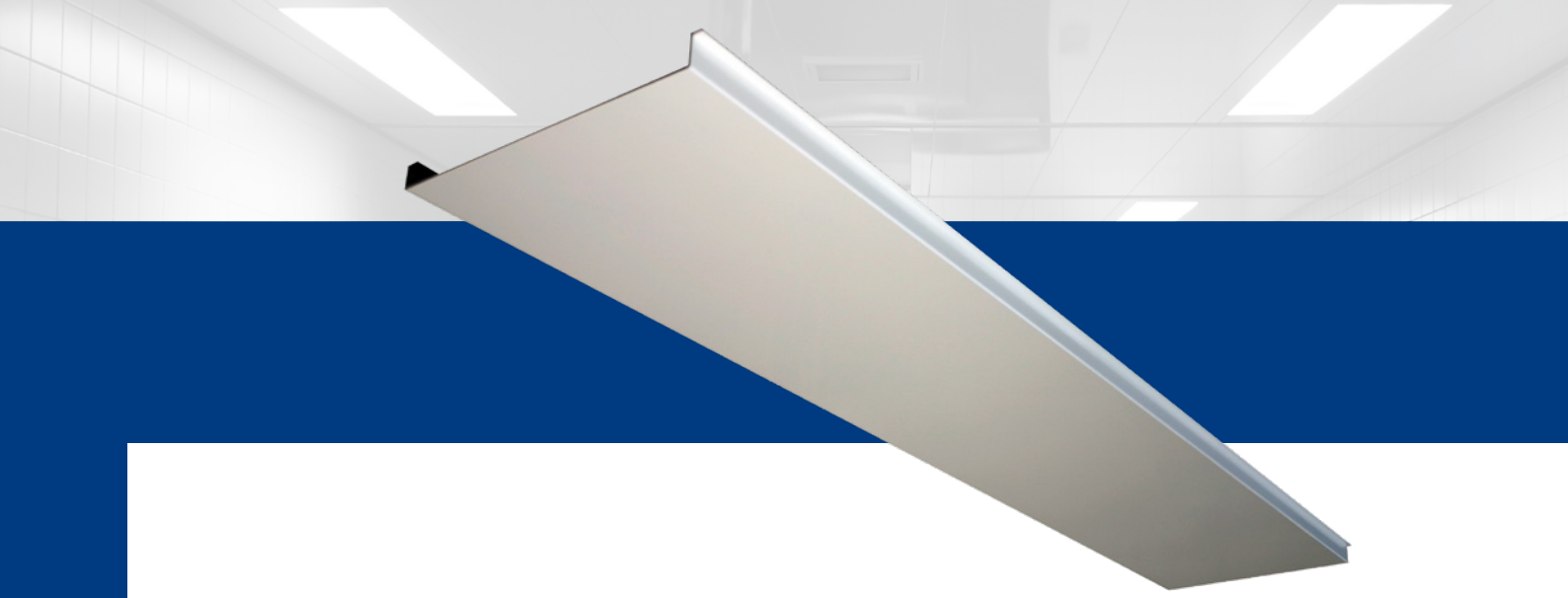
6. GIF Flat System Ceiling



GIF Flat System Ceiling

Food counters / Serveries, show cooking, preparation rooms, auxiliary and storage rooms as well as corridors and waiter thoroughfares

Gastromenü GmbH, Ulm



GIF Flat System Ceiling

Food counters / Serveries, show cooking, preparation rooms, auxiliary and storage rooms as well as corridors and waiter thoroughfares

System description:

Preparation- or storage rooms, adjacent hallways or corridors or any other auxilliary area of a professional kitchen is still subject to rules and regulations such as VDI 2052 regarding hygiene and exchange of air volumes.

The GIF-Flat System Ceiling was especially developed for those areas. With no thermic loads to deal with the ceiling components can be larger and permanently affixed. The Flat System Ceiling can either be produced in aluminium or stainless steel and allows for air volumes to be exchanged, for lighting to be integrated and to cover the entire ceiling from wall to wall.

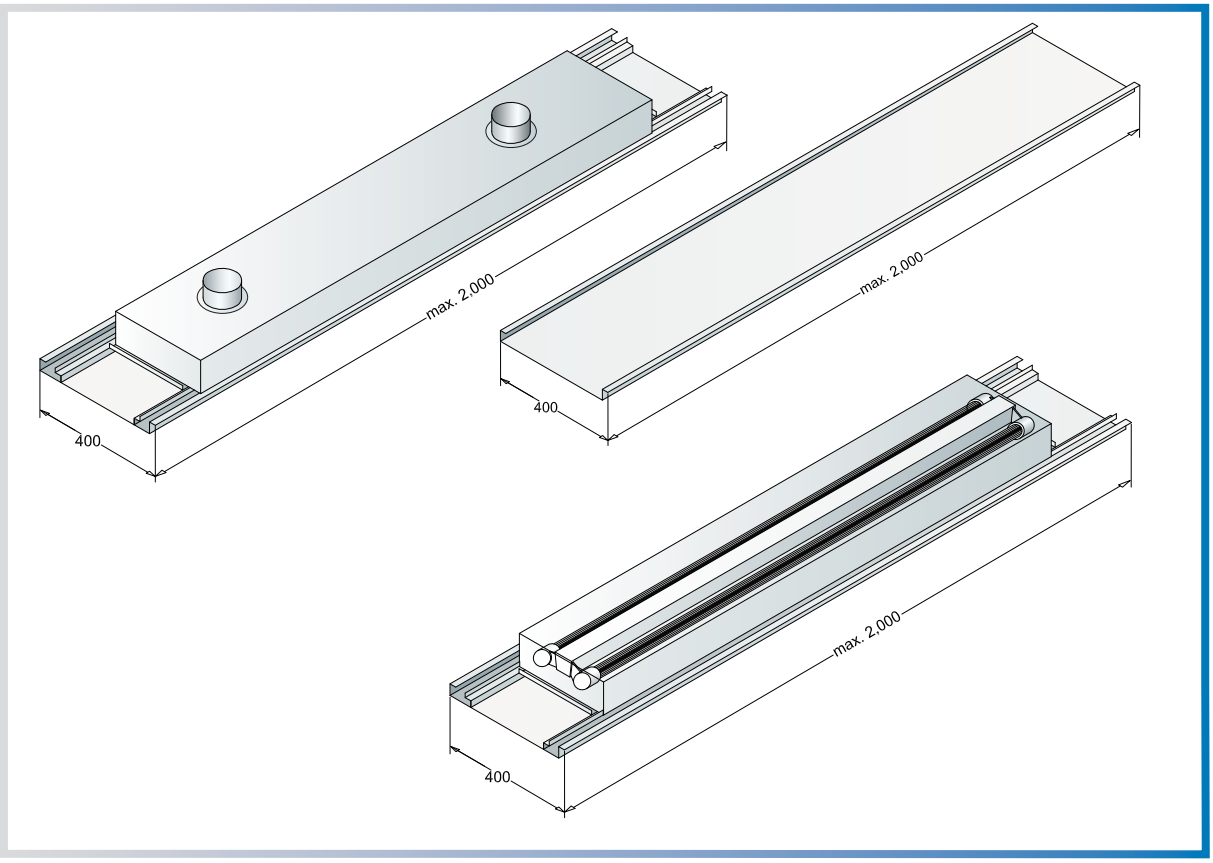
The optional function of sound absorbtion is available as well as powder coating in any RAL color of choice.

Facts and advantages

- **Integrated lighting and ventilation elements**
- **Pressure-proof suspension**
- **Economic, hygienic system for all auxiliary areas**
- **On site installation possible**

GIF Flat System Ceiling

**Food counters / Serveries, show cooking, preparation rooms,
auxiliary and storage rooms as well as corridors and waiter thoroughfares**



Specific technical data*

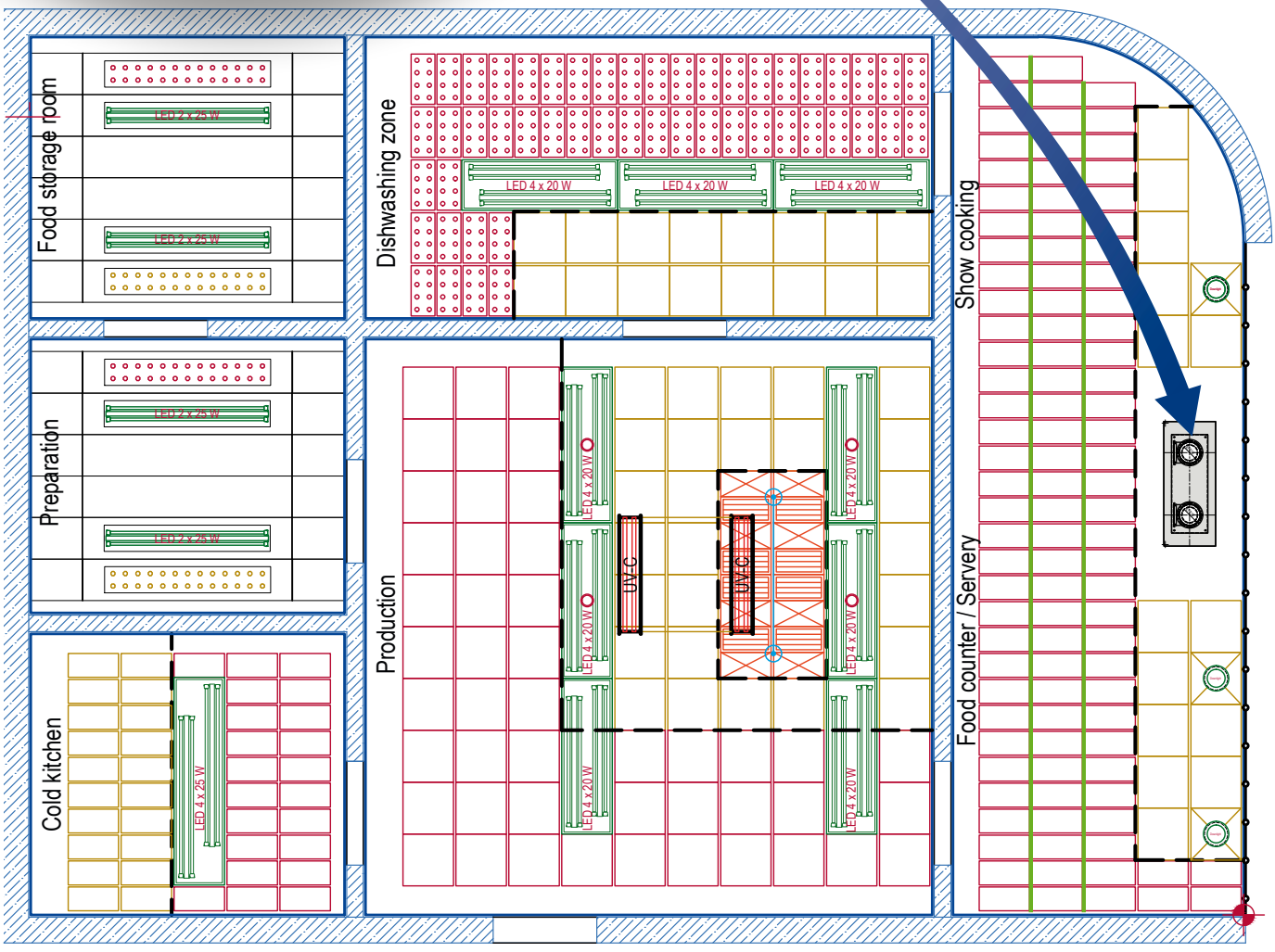
GIF Flat System Ceiling

air flow		500 m³/h per element
dimensions/grid		2000x400 mm
pressure drop		50 Pa
material/surface		powder coating RAL 9010 or any RAL color of choice, optionally AISI 304 stainless steel
lamps		LED T8 2x20 Watt / 2x24 Watt

* Data at the time of catalog printing - current data on www.gif-activevent.com

7. GIF Jet Stream Extractor

GIF ActiveVent



GIF Jet Stream Extractor

Food counters / Serveries and show cooking

County Court Düsseldorf

GIF Jet Stream Extractor

Food counters / Serveries and show cooking

System description:

Front cooking without trouble.

One of the most popular kitchen trends today is front cooking. However, here the challenge is how to get rid of emissions, smoke and steam before they escape into the guest area. Basic standard devices such as hoods just won´t do the trick. Room openings, moving people and transverse air flows often cause grease, smell and toxic particles to be carried outside the geometry of existing hoods and into adjacent areas.

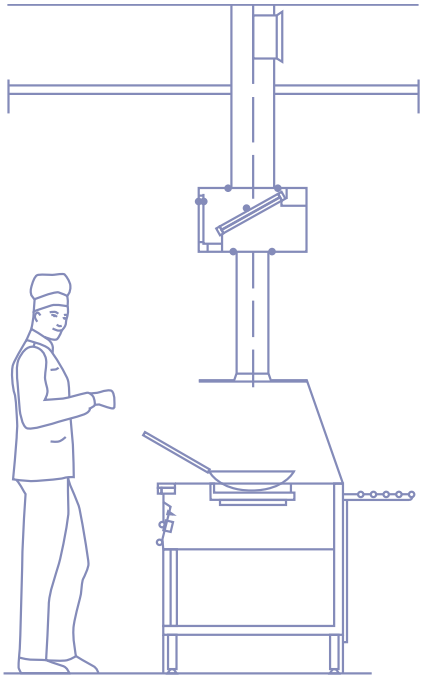
The results of it quickly become apparent as fat deposits attach to any surface available and smells pervade everywhere. As one of the market leaders in kitchen ventilation GIF ActiveVent presents the Jet Stream Extractor, which guarantees perfect ambient air conditions during front cooking operations.

The elegant and sophisticated Jet Stream Extractor is an excellent solution for front cooking. Instead of a hood above the wok or grill, a glass panel with inset stainless steel extraction pipes is installed at chest hight. The GIF Jet Stream Extractor then captures any kitchen smokes directly at the point of emission and is therefore preventing any transverse airflow. Emissions are led away in a tornado-style effect, which in turn ensures that almost no toxic vapours or smells enter the area surrounding it. Thus the GIF Jet Stream Extractor prevents staff and guests from being exposed to harmful kitchen emissions.

GIF Jet Stream Extractor

Food counters / Serveries and show cooking

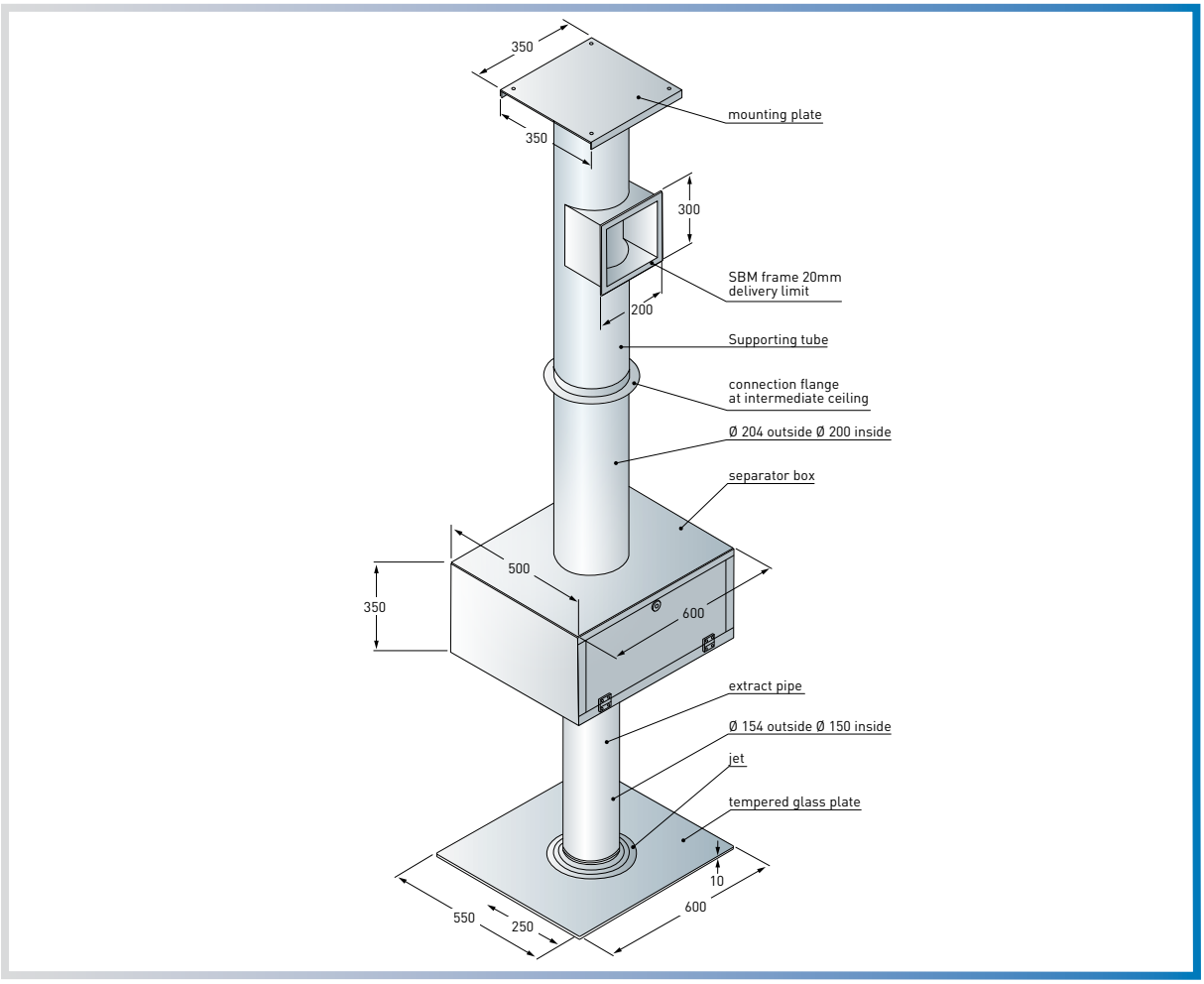
Facts and advantages



- **The immediate capture of cooking emissions directly above cooking and frying appliances results in a capture-efficiency of more than 95%.**
- **Almost no odours, aerosols or harmful substances spread into staff and guest areas**
- **Jet Stream Extractor is particularly suitable for areas in which foreseeable cross-flow makes extraction with conventional systems almost impossible**
- **Adaptable to suit any counter shapes**
- **Certified by trade associations to reduce toxic emissions in the workplace and surroundings.**
- **Integration of lighting and advertising possible**
- **1-2-3 or multiple jet systems available**
- **Insulated design and installation of extraction box in ceiling void enhance further improve the general appearance**
- **Custom-made design solutions are possible**

GIF Jet Stream Extractor

Food counters / Serveries and show cooking



Specific technical data*

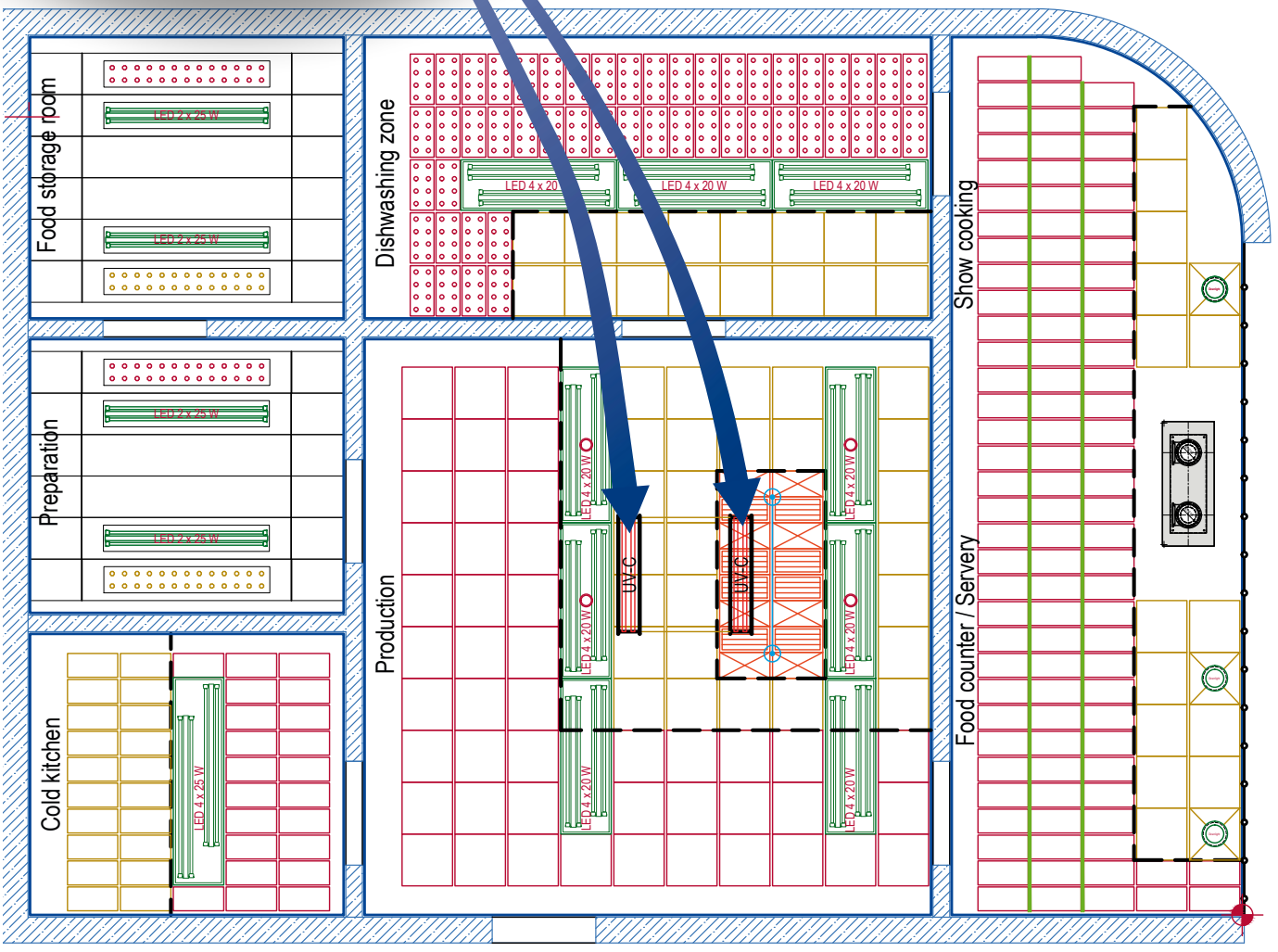
GIF Jet Stream Extractor

air flow per extraction tube		700-900 m^3/h
dimensions of glass		Glass plate and supporting tube length individually adaptable
pressure drop		250 Pa
material / surface		AISI 304 stainless steel, tempered glass 8-10 mm

* Data at the time of catalog printing - current data on www.gif-activevent.com

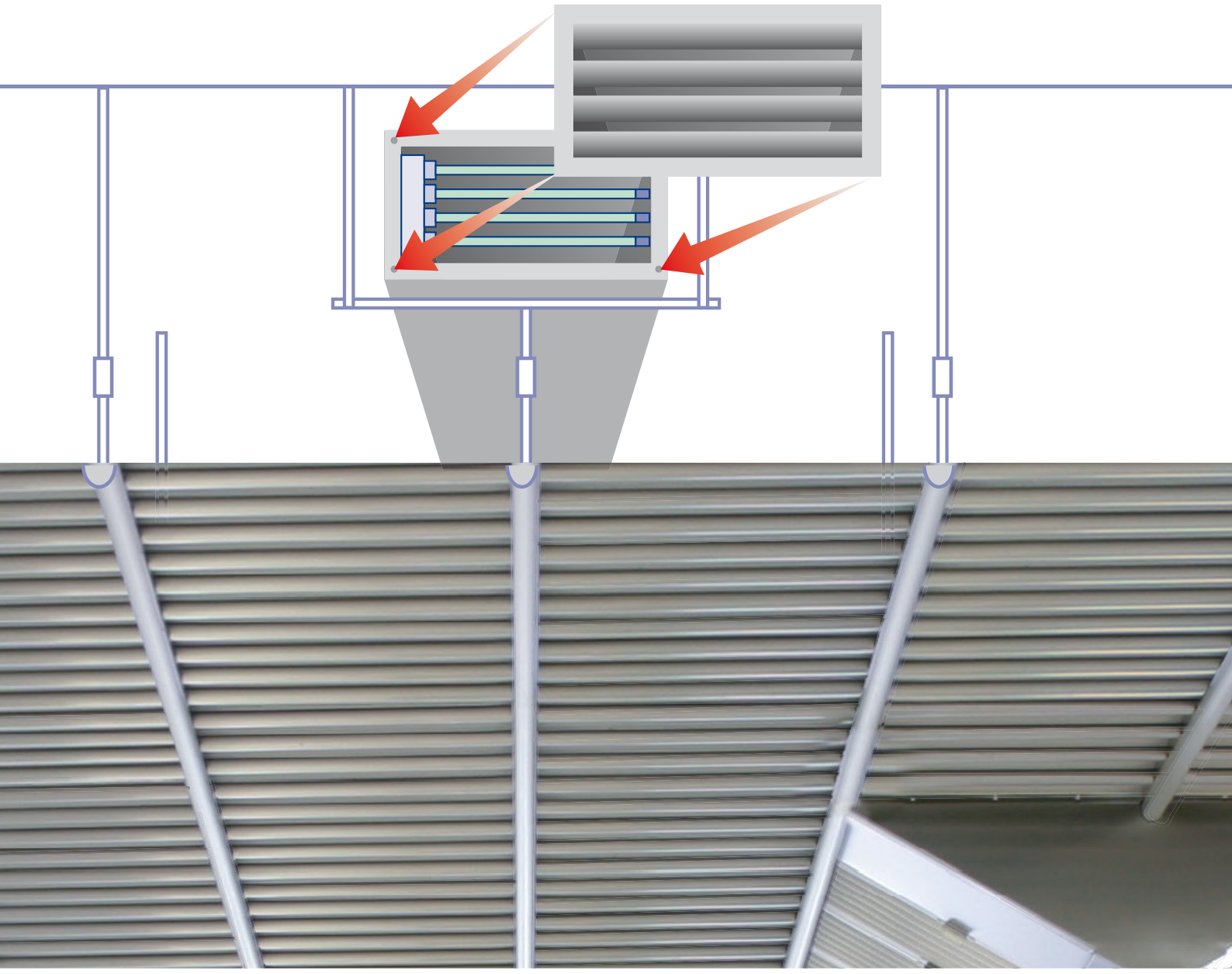
8. GIF UV-C(lean)

GIF ActiveVent



GIF UV-C(lean)

Production / Hot kitchen, food counters / show cooking



UV-C(lean)

GIF UV-C(lean)

Production / Hot kitchen, food counters / show cooking

Problems & dangers through grease deposits in extract air system:

Caused through cooking, frying or roasting considerable amounts of grease particles rise in the thermic airflow. Majority of those grease particles are separated by mechanical aerosol separators used in hoods or ventilated ceilings. However, even the most sophisticated aerosol separators can´t capture 100% of emitted particles.

As a consequence grease deposits in ductwork and other parts of the extract air system occur, which in turn increase their potential fire-load. Hygienic issues such as build up of mould is another problem possible to occur as fat deposits provide a nutrient-rich environment. Finally smells and odours are an unwanted by-product of cooking smokes, which are not only created when frying, roasting or cooking but also by grease deposits inside extract air ducts.

Facts and advantages

- **Reduced fire load in kitchen extract air system**
- **Reduced cleaning costs**
- **Improved hygiene**
- **Conform to EN 16282-8**
- **Heat exchanger remain longer clean**
- **Multiple safety provisions for staff. Several safety devices for personal protection networks**
- **Longer service life of filters in AHU´s (Air Handling Units)**
- **Can also be installed as upgrade set for hoods, duct nets, GIF Ventilated Ceilings and GIF Jet Stream Extractor**
- **Maximum efficiency combined with GIF Ventilated Ceilings**
- **UV-Clean lamp operating time of 10,000 hours with a minimum loss of efficiency**
- **Through high performance per cm² close to no grease deposits on radiators**
- **Reduction of odours in exhaust air**

GIF UV-C(lean)

Production / Hot kitchen, food counters / show cooking

Conventional Cleaning:

The before-mentioned dangers entail extensive and expensive cleaning operations at regular intervals. To locate and remove grease deposits in ducts heavy chemicals, robots and high-pressure cleaners are necessary.
However, the conventional way of cleaning often is in-efficient and results of short duration. Due to the lack of inspection hatches many spots and areas inside the ducts are often inaccessible, the use of aggressive chemicals also take their toll especially on older duct systems.

Through the use of UV-C light the GIF UV-C(lean) System is the solution for the break down of organic grease and oil in kitchen vapours.

Chemically oils and grease are hydrocarbon compounds of which single molecules are made up of multiple carbon atoms. Those are are attached to each other with single- or multiple connections.

1. Through the intensive irradiation with UV-C light greasy surfaces absorb parts of the UV-energy. That causes an energetic state of aggregation of the fat-molecules, which in turn oxidise much faster.

2. Simultaneously the effect of UV-C light on the oxygen-molecules in the air results in ozon, which has an oxidisation-capacity multiple times higher than normal oxygen in the air.
Those two processes cause an instantaneous oxidisation of fat-molecules, a so-called "cold incineration".

Final product of the oxidisation are gaseous, short-chain, organic compounds (e.g. carbon-dioxide), which are carried away in the extract airflow.

Your advantages at a glance:

Fire protection:
Extensive and permanent prevention of fat deposits inside extract air ducts.

Neutralisation of odours:
Considerable reduction of odours in the kitchen extract air.

Cleaning costs:
Almost no cleaning costs for extract air ducts and fans.

Hygiene:
No accumulation of micro organisms and related hygiene problems.

Further system-specific advantages:

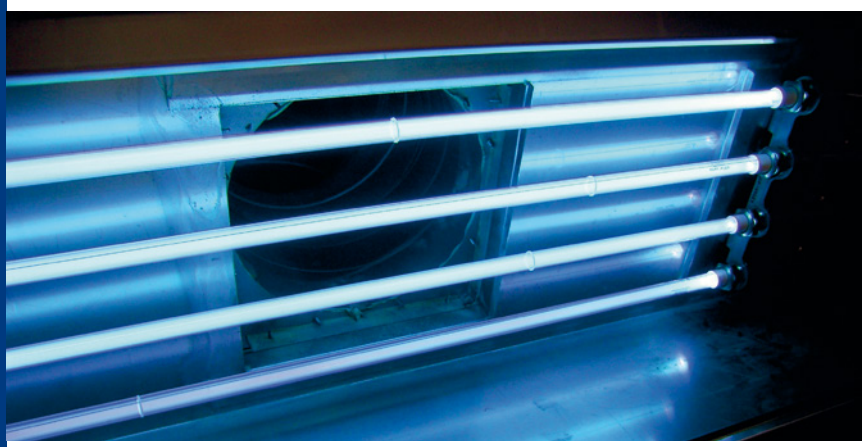
GIF UV-C(lean) Systems are equipped with new generation, high efficiency UV-C radiators, which provide better performance without requiring more space.

Furthermore, GIF´s UV-C(lean) System is designed for operating at very high temperatures without the usual loss of efficiency. As a result it can be fitted into a hood, which is directly above a directly above a grill or deep-fryers.

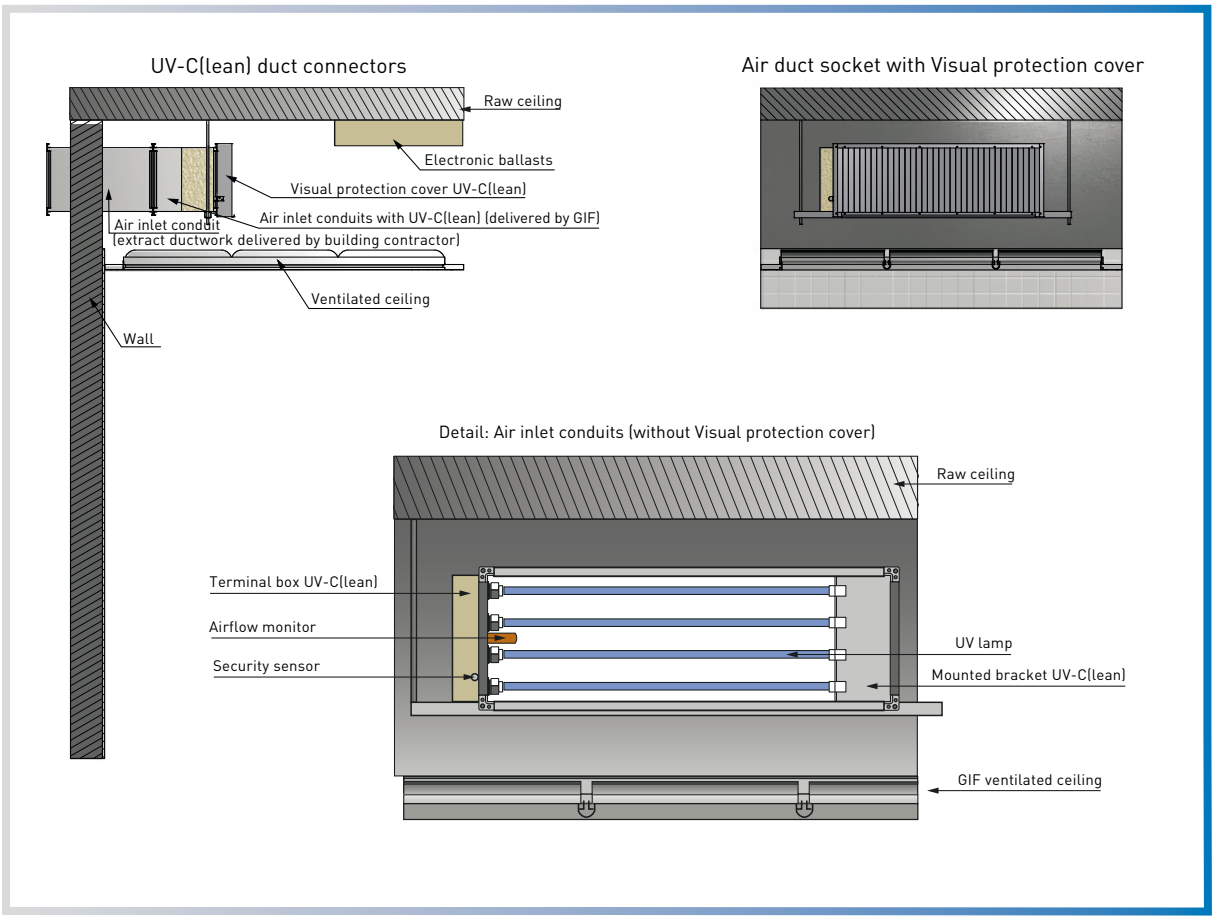
The GIF UV-C(lean) operators´ display can be connected to the existing central building control system.

The GIF UV-C(lean) system can also be extended to cope with higher needs (e.g. increased use of fats or added kitchen equipment).

GIF UV-C(lean) systems are available in almost any size or power output.



GIF UV-C(lean) System example



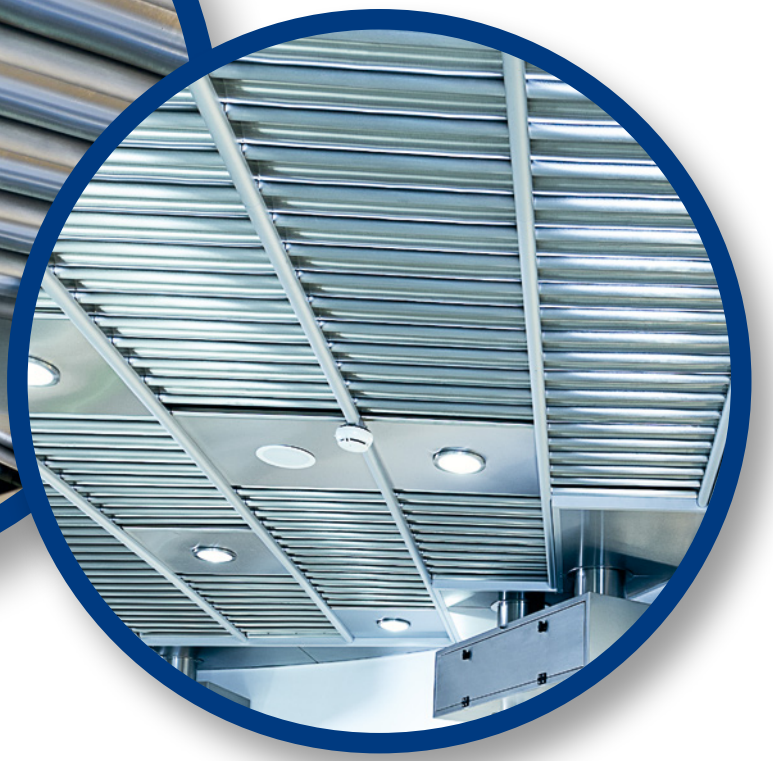
Solution according to project

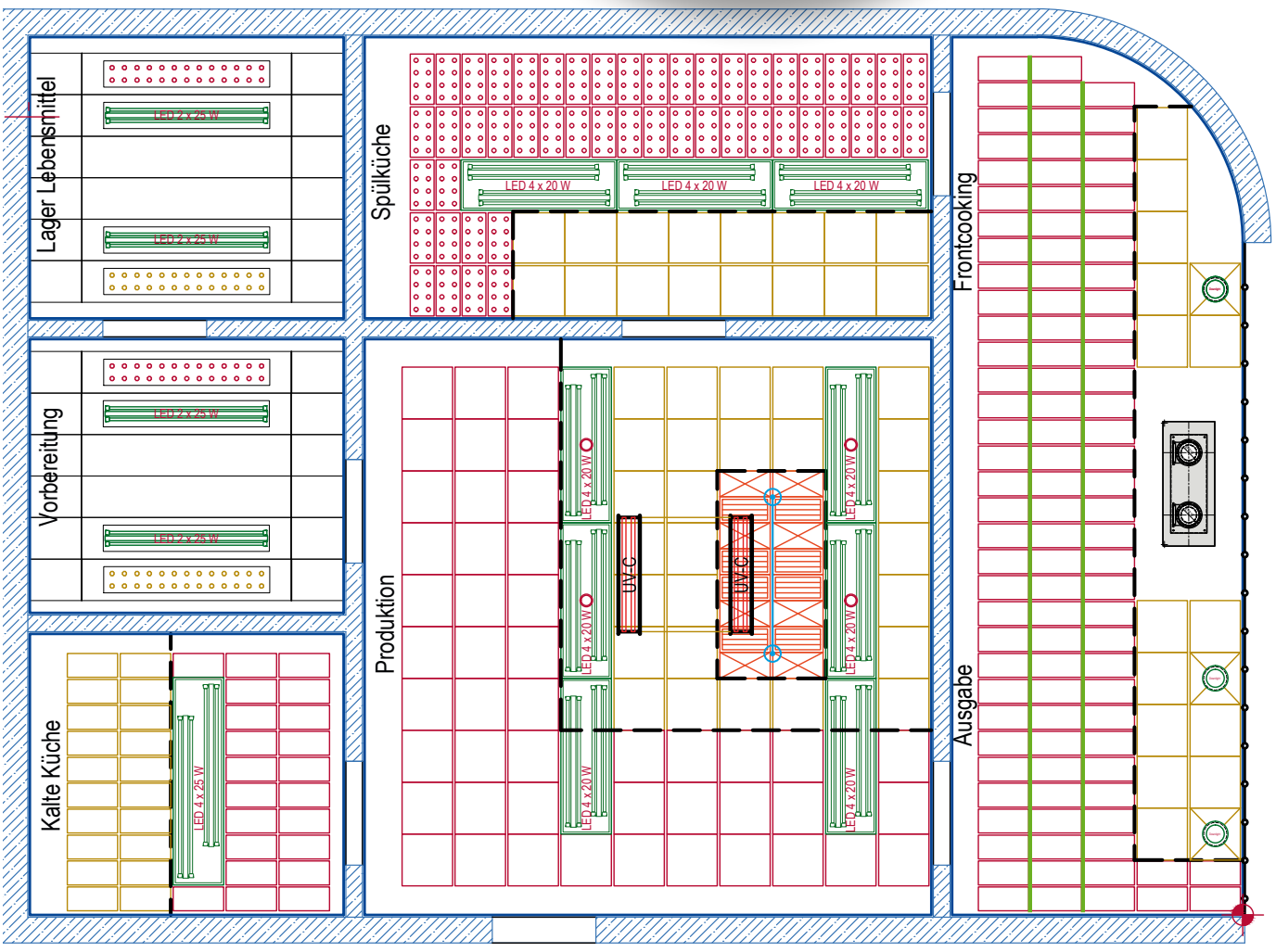
Specific technical data

GIF UV-C(lean)

Performance		130 or 180 Watt per UV-lamp Usage according to individual requirements
Action period / Service life of lamps		10,000 hours

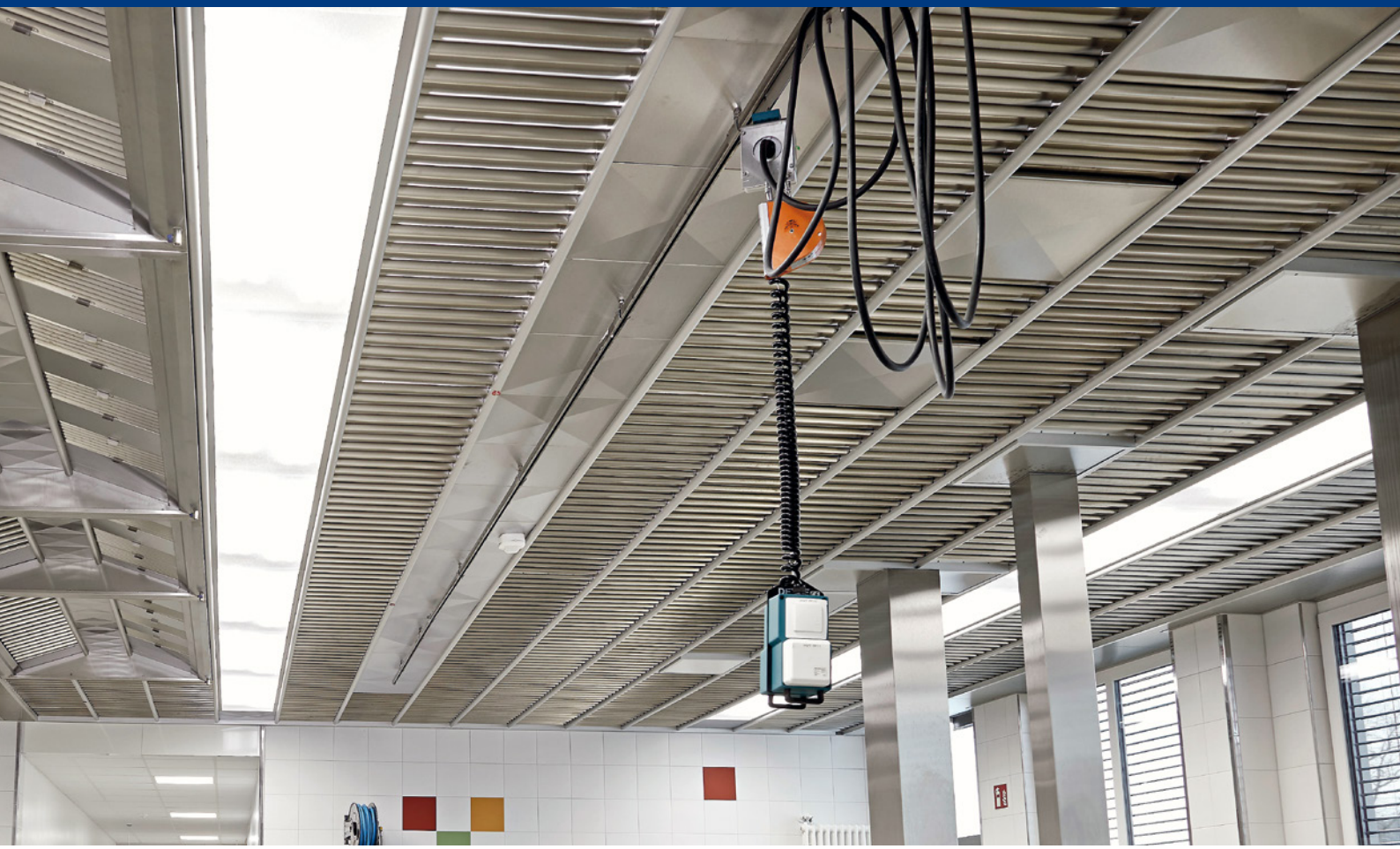
9. GIF custom parts



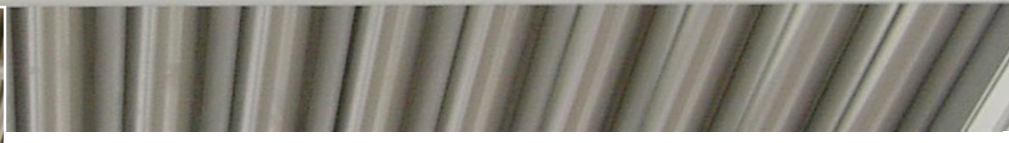


GIF custom parts

e.g. loudspeakers, pictographs, fire and smoke detectors, emergency illumination etc.



DORNAHOF, Altshausen

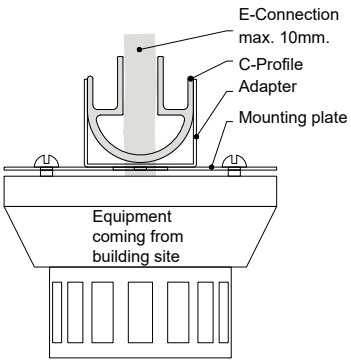


GIF custom parts

e.g. loudspeakers, pictographs, fire and smoke detectors, emergency illumination etc.

GIF features for ceiling fixtures with special function

Building-site supplementary parts such as loudspeakers and sprinkler heads can via a blind cassette be integrated into the GIF-ceiling grid. Other installations like pictographs, fire or smoke detectors can directly be affixed onto the supporting rails (C-Profiles).
For the detectors GIF developed consoles that fit to the supporting rails ensuring the push and pull function.



To maintain the push and pull feature of the ceiling cassettes it is preferable to position heat detectors onto the supporting rails (C-Profiles).

GIF custom parts

e.g. loudspeakers, pictographs, fire and smoke detectors, emergency illumination etc.

Emergency illumination

Based on individual needs and requirements emergency illumination can be installed. It is possible to either use one of the lighting bars inside the luminaires or parts of the LED-Profile illumination to use for emergency illumination. Also possible is the integration of building-site emergency illumination into the GIF-luminaires or an implementation with DALI-compatible GIF-luminaires.

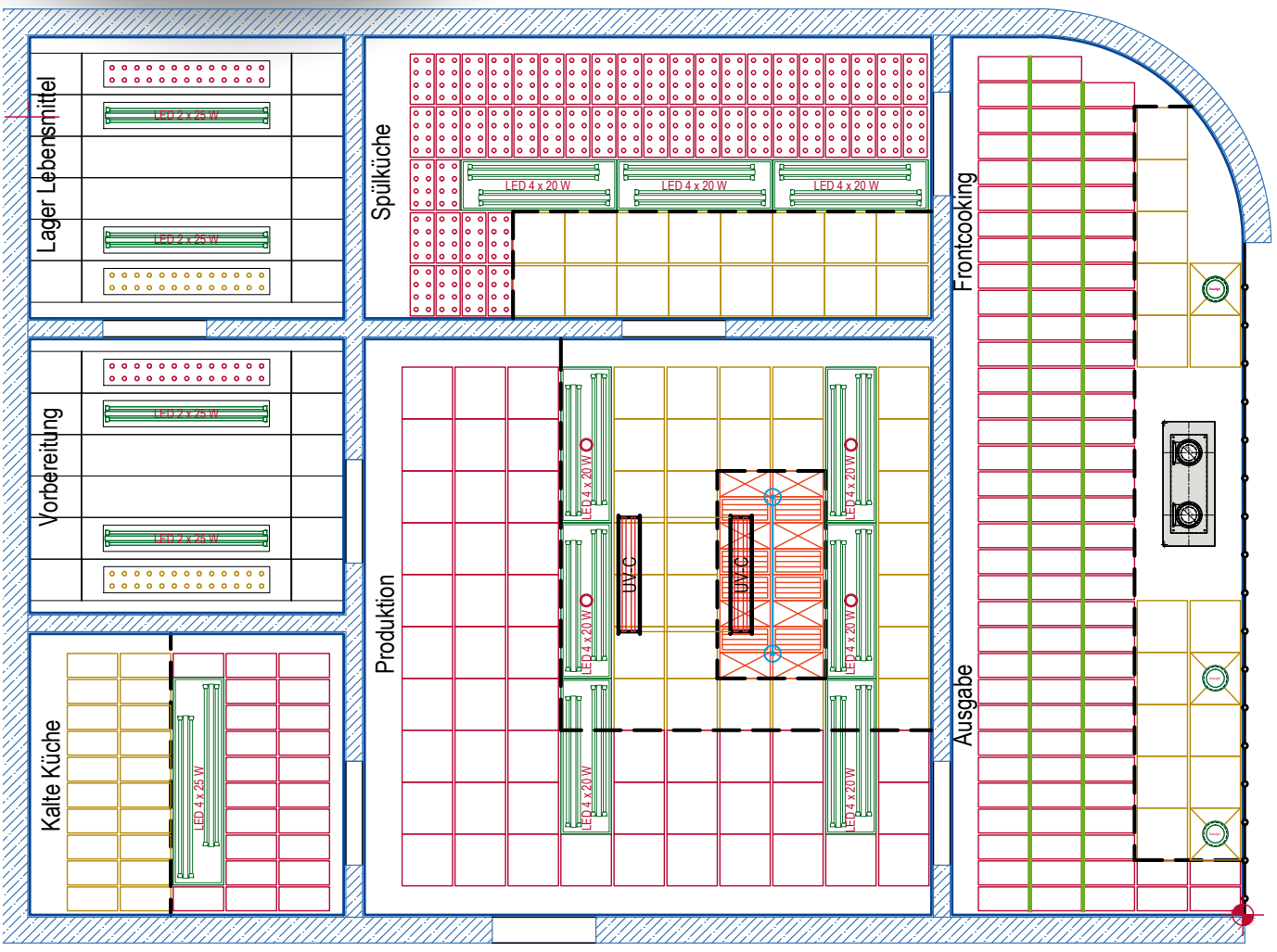
GIF custom parts

e.g. loudspeakers, pictographs, fire and smoke detectors, emergency illumination etc.

Secondary ceiling

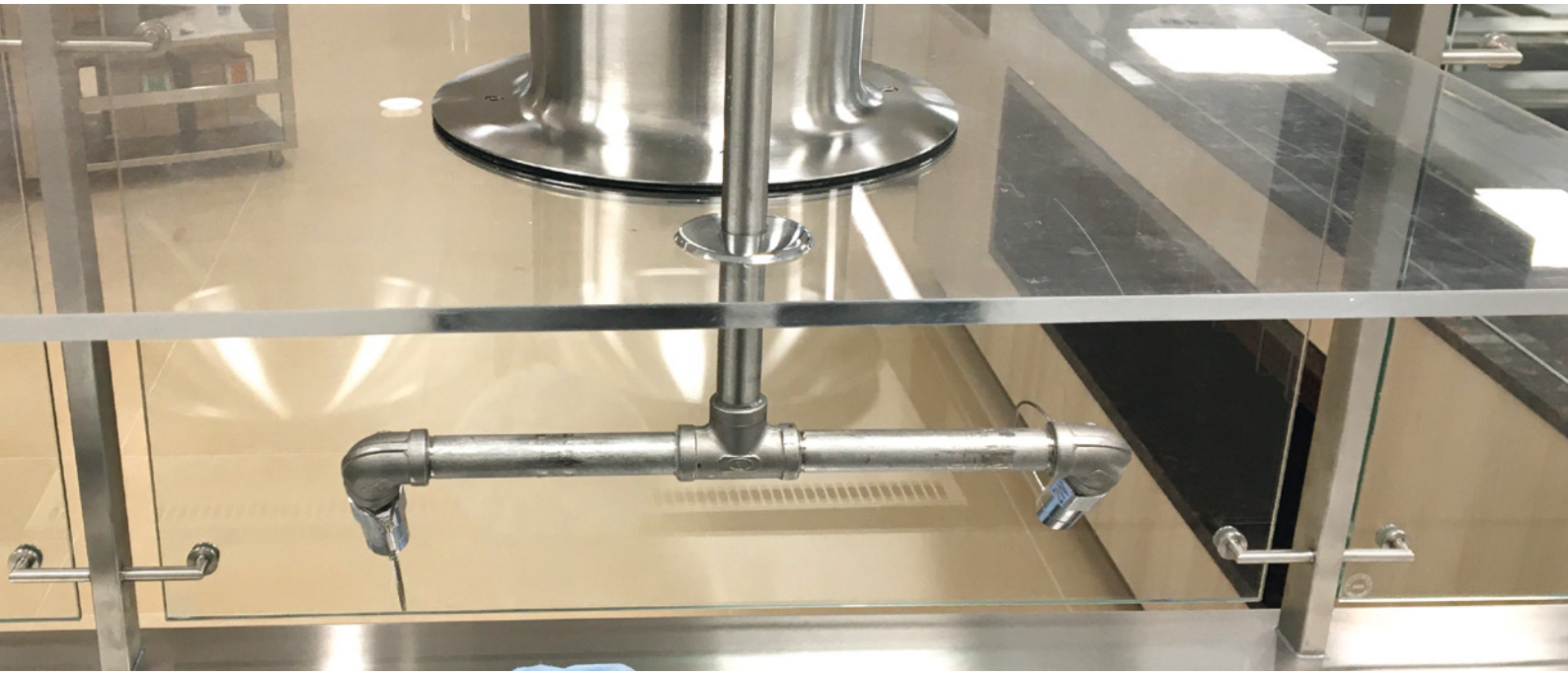
The installation of a secondary ceiling in between the raw/ concrete ceiling and the GIF-ventilated ceiling is possible("closed system" in accordance with EN 16282-3). This kind of installation might become necessary in case of extreme heights of raw-ceiling, dense building-site installations such as pipework, cable trays etc., to comply with national requirements or simply if preferred by user.

10. supplementary features



GIF supplementary features

e.g. fire suppression systems, sprinklers, air volume control etc.



GIF supplementary features

e.g. fire suppression systems, sprinklers, air volume control etc.

Fire-extinguishing system

To comply with additional fire-safety requirements such as EN 16282-7 GIF-ventilated ceilings can also be fitted with stationary fire suppression systems.
With that in place not only kitchen equipment but also the ceiling void and duct mouths are protected.

Stationary fire suppression systems are fitted with potential-free contacts to switch off supply air, shut down power supply for kitchen equipment and if needed to connect to the measurement and control unit of the building.

The layout of the fire suppression system will individually be adapted to cover all kitchen equipment and to allow for any local site requirements.
Thus, life and material assets are protected to the highest possible degree.

GIF supplementary features

e.g. fire suppression systems, sprinklers, air volume control etc.

Examples of Fire-Extinguishing Systems in GIF-Ventilated Ceilings

GIF supplementary features

e.g. fire suppression systems, sprinklers, air volume control etc.

GIF ecoAzur

During cooking operations heat and/or condensation occur.
To capture those critical parameters ecoAZUR monitors kitchen areas and equipment through optical and thermic sensors.
Those sensors automatically adjust and ensure the optimum air volume and temperature, so that only the necessary air volume at the time is used.
During times of less emission air volumes can be reduced to up to 70% of its maximum capacity.

That in turn has a positive impact on the energy consumption also costs for heating or cooling of supply air are reduced.
As a result during ongoing kitchen operations noticeable energy savings can be achieved.

Facts and advantages

- **Needs-based automatically adjusted air volumes and savings during cooking operations**
- **Energy-savings during heating and cooling periods**
- **Sustainable and environmentally friendly due to reduction of emissions**
- **Existing systems can be retro-fitted and individually expanded.**
- **Very easy adjustment of thermic and optical sensors**
- **Measuring units and fittings in stainless steel, therefore**
  - better and easier to clean
  - hygienically uncritical
  - less susceptible to failure
- **Individual setting of the various parameters**
- **Compatible to connect to existing building control system**

GIF supplementary features

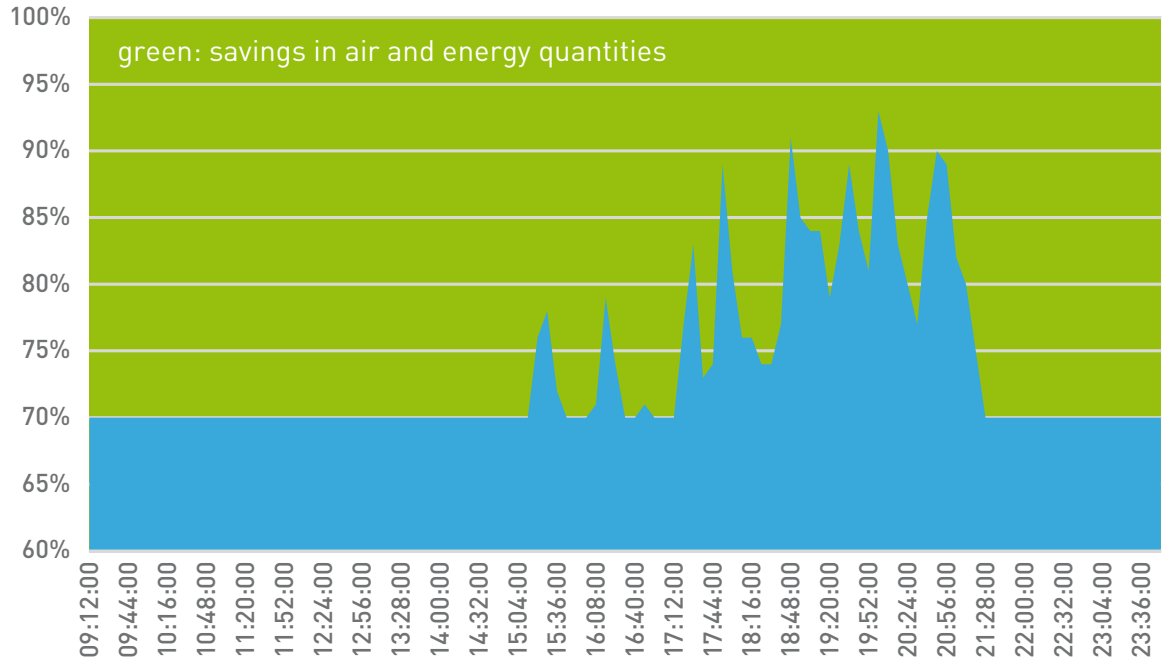
e.g. fire suppression systems, sprinklers, air volume control etc.

Prerequisites and specific information

- **Ventilator or drive/motor with frequency converter**
- **Feedback ecoAzur: the system ecoAzur provides one signal DC 10-0V separately for each control range**
- **Optional collective fault signals can be sent to own central building control system. For that a potential-free make-contact is available**

Example

Exhaust air (example of a restaurant in Kaiserstuhl, Germany)



ANNEX

Table of Contents Annex

11. Expert Reports

Certificates

Expert Reports

Contents certificates and surveys

HACCP INTERNATIONAL

eliminate the hazard - reduce the risk

HACCP INTERNATIONAL FOOD SAFETY PROGRAMME CERTIFICATION

This is to certify that

GIF ActiveVent GmbH

Page 11.1

Demountable Ventilated Ceilings

ACC	GIF Active Cassette Ceiling
RS	GIF Restaurant System
SFCC	GIF Supply Air Flat Cassette Ceiling
SFCC-SA	GIF Supply Air Flat Cassette Ceiling – Sound Absorption
LG	GIF Lighting
FCS	GIF Flat Ceiling System

are certified as food-safe and suitable for food and beverage facilities that operate a

HACCP based Food Safety Programme

noting the conditions of the certification statement

Food Zone Classification: SSZ

in accordance with the standards of HACCP International's Food Safety Certification Systems

HACCP INTERNATIONAL PTY LIMITED A.C.N. 139 366 [illegible] The Common Seal Of

Issued by

Approved

12 April 2019	20 March 2021
Issue Date	Expiry Date

This certificate belongs to HACCP International and must be returned upon demand. All products and services to which this certificate refers are evaluated prior to reissue. To verify certification or conditions, please email certification@haccp-international.com

Issued by the HACCP International Certification office:
No. 3 Ridgewest Building,1 Ridge Street, North Sydney NSW 2060 Australia

Certificate Number
I-PE-621-HG-RG-05

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that

GIF ActiveVent GmbH

Brühlstraße 7, 79112 Freiburg, Germany
Zum Pier 49, 44536 Lünen, Germany

has established and applies
a Quality Management System for

Sales, design and production of
GIF ventilated ceilings in Freiburg.

Sales and design of
GIF ventilated ceilings in Lünen.

An audit was performed, Report No. **70021100**.

Proof has been furnished that the requirements
according to

ISO 9001:2015

are fulfilled.

The certificate is valid from **2018-11-16** until **2021-11-15**.

Certificate Registration No.: **12 100 21003 TMS**.

Product Compliance Management
Munich, 2018-10-22

DAkkS Deutsche Akkreditierungsstelle D-ZM-14143-01-00

TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Ridlerstrasse 65 • 80339 München • Germany
www.tuev-sued.de/certificate-validity-check

TÜV®

Concluding report concerning the micro-biological examination of the raw concrete soffit, airtight partitioning and active cassettes of the GIF Ventilated Ceiling and also of various airborne germ measurements in the production kitchen of the refectory of the Students' Hall, Students' Building, Würzburg on 30.11.10.

Client: Hidria GIF GmbH, Brühlstraße 7, 79112 Freiburg

Objective: The state of hygiene of various structural elements in the GIF Ventilated Ceiling as well as the air quality was to be determined on the basis of micro-biological examinations and optical assessment (extended visual check). According to the manufacturer of the GIF Ventilated Ceiling the individual cassettes of the ventilated ceiling function as grease and condensation separators. Because of the effects of gravitation and condensation the flow of air via separation chamber leads to a build-up of dirt, grease and other floating particles on the inner side of the small register. According to the information provided, the accumulation of dirt in the ceiling cavity is thus avoided.

Description of the property:

Operational details: Refectory of the Students' Hall, Students' Building, Würzburg

Number of meals: approximately 2500 hot meals per day

Date of start of service of kitchen including ventilated ceiling: in year 2000

Volumes of extracted and supply air: (ventilation with nominal volume flow rate in operation): 33600m³ / h

Heights: GIF Kitchen Ventilated Ceiling: 3.0m above FFL, concrete soffit approx. 3.5 above FFL

Cleaning cycles: According to the information received, the cleaning of the kitchen ventilated ceiling is carried out every 3 – 6 months, or more frequently in individual places if necessary. The last cleaning was reported to have been carried out in September 2010.

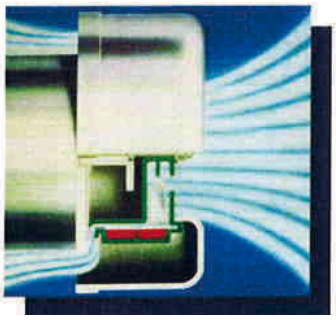
Details of the property: A GIF Kitchen Ventilated Ceiling was installed in the above property in 2000. The GIF Kitchen Ventilated Ceiling functions as an open type of construction with a ceiling pressure chamber in accordance with VDI 2052 and DIN 18869-2 feature B1. The extracted air and the supply air pass via pressure chambers in the ceiling cavity. The pressure chambers are formed by means of aluminium compartments inside the ceiling cavity. The extracted as well as the supply air is realised over structurally identical active cassettes at a modular dimension of 500mm x 500mm. The GIF Kitchen Ventilated Ceiling is fixed to a concrete soffit, which together with the air-tight compartments and the GIF Kitchen Ventilated Ceiling forms the pressure chambers. Besides the air pipes there are additional installations such as electrical cables present in the ceiling cavity. The active cassettes form a completely reversible ventilated ceiling with integrated lighting in all sections.

1. Methods and Results

1.1 Optical assessment (extended visual check)

The optical assessment which was carried out in the framework of an extended visual check in the areas of both extracted and supplied air showed no traces of flaws of hygiene or other possible harmful effects such as dirt, formation of rust, limescale deposits, damage, fibre discharges. As a result of the GIF-ceiling elements being removed immediately beforehand, the ceiling sections were shaped in such a way that they could be clearly and extensively examined. This made the inspection of the parts much easier and no anomalies were found. The assessed surfaces in the ceiling area (raw concrete, air compartments, air passages) were dry and free of deposits and dirt.

1.2 Airborne germ measurements with the help of an air sampler



Illustrations 1+2: Air sampler RCS Principle of measurement

The airborne germ measurements were carried out with an air sampler RCS High Flow from Biotest HYCON by means of repeated determinations. On each occasion 200l of air was collected for the test (Method BAV-IM-5. 4-55). The airborne germ measurements were carried out directly at the air outlet of the supply air passage (entry of air into the supply air pressure chamber – Point 10054152/-53) and also after a length of approx. 11m in the ceiling cavity (Point 10054156/-57). In a similar way measurements were taken at the air outlet inside the kitchen directly beneath the supply air component (active cassette – Point 10054154/-55) as well as at a representative place in the production area near the tilting frying pans at a height of approximately 1m (Point 10054158/-59).

No criticism could be made of the eight airborne germ measurements (repeated determinations at four measuring places) all produced satisfactory results. It should not be forgotten that the assessment “satisfactory” represents the best possible evaluation on the basic scale of “satisfactory”, “acceptable”, “unsatisfactory”. All the tests were below the benchmark of 400KbE (colony forming units) per cubic metre for the aerobic mesophilic germ count and below the benchmark of 1000 KbE per cubic metre for fungus. To arrive at the evaluation benchmarks were used which are valid for sectors dealing with food ready for consumption. At the endpoints of the incoming airflow in particular very small germ counts were recorded (some of which were below the limit of detection), which underline the manufacturer’s specification that the use of the voluminous ceiling cavity for the air-flow does not contravene the hygiene regulations.

1.3 Examination of surrounding areas (surface and swipe sampling)

Surface and swipe sampling were carried out on different elements in the ceiling area as well as on several active cassettes and evaluated (ISO 18593 (2004)): Horizontal procedure for testing techniques of surfaces by means of contact plates and swabs; DIN 10113 (1997); determination of surface germ content on the fixtures and implements in the food area.

The surface and swipe sampling on the raw concrete surfaces, active cassettes (extracted and supply air) together with the air-tight partitions (for the individual positions please see attachment) also produced exclusively satisfactory results. Again it must not be forgotten that the term “satisfactory” represents the best possible result. Enterobacteriaceae (to which also hygiene indicators such as E-coli and disease causing elements such as salmonella also belong) were not found in any of the tests. Seven from ten surface samplings and three from five swipe samplings showed no signs of germ growth. The germ count of covered agars gave no cause for complaint. What should be especially emphasised is that all the tests of active cassettes, which were cleaned before the testing in the on-site multi-tank conveyor dishwashing machine, showed no signs of germ growth. These results satisfy almost entirely the regulations concerning materials with direct food contact of DIN 10516 (Food hygiene – cleaning and disinfection) and demonstrate the possibility of cleaning the GIF ceiling elements simply and effectively. Moreover, the removal and reinstallation of the ceiling elements do not require any technical aids and can be integrated without difficulty in the operational cleaning processes.

2. Summary of Assessment

During the course of the tests described above it was shown that in the production kitchen of the refectory in the Students’ Hall in the Students’ Building in Würzburg while the GIF-kitchen ventilated ceiling was in use and during the air-supply feed over the ceiling pressurised chamber there was no additional germ-pollution caused by germs as set out in VDI 6022 Sheet 3, Point 3.3 or any other adverse effects found at the time the expert assessment was written on 30.11.10.

(signed) Dipl. LM-Ing. Dr. rer. Biol. Vet. Christian Kaiser

REPORT CONCERNS ORIENTATING INVESTIGATION ON THE BEHAVIOUR UNDER FIRE CONDITIONS (CHIP PAN FIRE) OF A FILTER VENTILATED CEILING CONSISTING OF MIVIKO FILTER CASSETTES (MAKE: STAINLESS-STEEL)

Reportno.: B-84-178(E)
Orderno. : 00.65.6.0084/017

IBBC

Instituut TNO voor Bouwmaterialen en Bouwconstructies
Bezoekadres: Lange Kleiweg 5, Rijswijk (ZH)
postbus 49 2600 AA Delft
tel. 015-138222 Telex 38270 IBBC NL
centrum voor brandveiligheid

INSTITUTE TNO FOR BUILDING MATERIALS AND BUILDING STRUCTURES

NETHERLANDS ORGANIZATION FOR APPLIED SCIENTIFIC RESEARCH

LANGE KLEIWEG 5
COMPLEX PLASPOELPOLDER
RIJSWIJK (Z-H)

P.O. BOX 49, DELFT, THE NETHERLANDS
TEL. 015 - 138222 TELEX 33567

REPORT

Nr. B-84-178(E)
Orderno.: 00.65.6.0084/017
Date : April 1984

Re: AN ORIENTATING INVESTIGATION ON THE BEHAVIOUR UNDER FIRE CONDITIONS (CHIP PAN FIRE) OF A FILTER VENTILATED CEILING CONSISTING OF MIVIKO FILTER CASSETTES (MAKE: STAINLESS-STEEL)

Author: J. Dekker

To: Miviko B.V.
Leigraafseweg 2
6983 BP DOESBURG

This report has been compiled in April 1984.
If it has to be used after a period of time, it is advisable to contact the Technical Centre for Fire Prevention TNO, to check whether the usefulness of the contents has remained unaltered.
This report contains 6 pages + 1 drawing.

Subject : Ceiling consisting of Miviko filter cassettes (make: stainless-steel).

Investigated for : Behaviour under fire.

Sponsor : Miviko B.V.
Leigraafseweg 2
6983 BP DOESBURG

Date of experiment : February 20th, 1984.

Purpose and aim of the investigation : False ceilings such as under investigation are used in kitchens of hotels, hospitals, nursing homes, barracks, etc., among others.
This suspended false ceiling is built out of filter cassettes of stainless steel, resting upon aluminium ceiling sections. The construction of the cassette ceilings is such that exhaust air extraction occurs over the whole surface area through slots in the cassettes.
According to the supplier, the cassettes are so constructed that they also act as grease collecting filters. In this way, it should be possible to avoid grease and other such deposits from accumulating on the bottom surface of the floor above, from which it is suspended, as well as the connecting air transmission ducts, ventilators, etc. In case of a fire under the ceiling, (such as chip pan fire), the spread of fire via the enclosed gap above the ceiling could be avoided due to this.
In order to obtain more information on this question, an orientating investigation is carried out, where a practical situation of chip pan fire under a Miviko ceiling under air suction is simulated.

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The investigated structure : In an industrial space in Almere, a test ceiling was built, suspended from the soffit of the floor above, made up of flat steel panels. The surface area of this false ceiling and adjacent floor were about 3m x 3 m. The whole structure rested upon 4 steel columns, built up with corrugated steel plate. The height of the gap between the false ceiling and the floor above was about 0.3 m. The false ceiling was 3.05 m above the lower floor. The sides of the 0.3 m void were enclosed with steel plating. Over a height of 1.16 m below the ceiling, aluminium plate was provided against the sides of the column.

On the top of the floor above the false ceiling, a layer of rock wool provided, so that heat loss from the 0.3 m void via this floor was limited as much as possible.

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In the centre of this topping, a 400 mm diameter air extraction duct was constructed. A ventilator was fitted to this duct. The false ceiling consisted of 36 cassettes, make stainless-steel 50 x 48 x 7 cm. The cassettes came from an existing false ceiling in a kitchen. The false ceiling was in use for several years. The cassettes were therefore deposited with a thin layer of grease, especially around the air suction slots. The cassettes were placed upon aluminium ceiling rails that were suspended from the top floor at centre to centre distances of 0.5 m by means of ceiling hangers. Four ceiling hangers were used for each ceiling rail. Along the sides of the floor, the cassettes were placed upon an aluminium frieze.

- For further details, see appended drawing no. 1 -.

Method of testing : In the centre of the room under the ceiling, a deep frying pan measuring 0.5 x 0.36 x 0.1 m was placed. The distance between the bottom of the pan to the soffit of the false ceiling was 3.05 - 0.8 = 2.25 m. The frying pan was than filled with 9 litres of deep frying fat, so that the pan was filled with fat up to a height of 0.05 m. The air suction through each cassette was set at approx. 65 m^3/hr, which is according to the sponsor an average value for a kitchen exhaustion. The total air suction of the ceiling amounted to approx. 36 x 65 ≃ 2500 m^3/hr. During the test, temperatures were measured by means of 11 thermocouples at different locations. The thermocouples (tk) were provided as follows:

Page 11.11

tk 1,2,3 and 4	in the 0.3 high void at a distance of 0.1 m under the soffit of the floor.
tk 5	in the air duct, at approximately 2 m distance from the air duct opening in the floor.
tk 6	at 0.1 m distance below the false ceiling and directly above the centre of the deep frying pan.
tk 7	at a distance of 0.5 m under the ceiling and directly above the centre of the deep frying pan.
tk 8 and 9	in an individual suction slot of a cassette place above the middle of the deep frying pan.
tk 10	in the centre of the air duct at the junction with the floor.
tk 11	in the deep frying pan.

Finaly, visual observations were made on the behaviour of the false ceiling and in the 0.3 m void between the top floor and false ceiling. The fat was heated by means of a propane burner until self-ignition of the frying fat occurred.

Observations : At 0 minutes, self-ignition of the frying fat occurred at a temperature of 372°C in the fat. After 1 minute, the flames were about 1.2 m high. The underpressure in the 0.3 m gap was observed to be 4 Pa. During the whole duration of the test, this suction pressure remained fairly constant at 4 - 5 Pa.
After 2 minutes, the flames had reached a height of 1 m above the deep frying pan. The 0.3 void became gradually filled with smoke.
After 2.5 minutes, the length of the flames increased. The distance between the top of the flames to the underside of the false ceiling was about 0.5 m.
After 5 minutes, the distance became about 0.2 m. The 0.3 m gap was completely filled with smoke.
After 7 minutes the void was still filled with smoke.
After 10 minutes, the distance from the top of the flames to the underside of the false ceiling was about 0.5 m. A temperature of 480°C was measured by tk 11 at that moment.
After 15 minutes, a temperature of 130°C was measured on the outside of the air duct.
After 17 minutes, the length of the flames began to reduce. The distance of the top of the flames from the false ceiling became about 1 m.
After 18 minutes, a temperature of about 700°C was measured by tk 11.

After 20.5 minutes, it was decided to end the test in agreement with the sponsor. This decision was influenced by the fact that the temperature both below and above the false ceiling began to fall.
During the whole duration of the heating, no flames were observed in the 0.3 m ceiling void. The highest temperature observed in this void was 127°C, while under the false ceiling it was 205°C. The deformations in the ceiling were hardly noticeable.

The measured temperatures are summarized in Table I.

Table I

Page 11.13

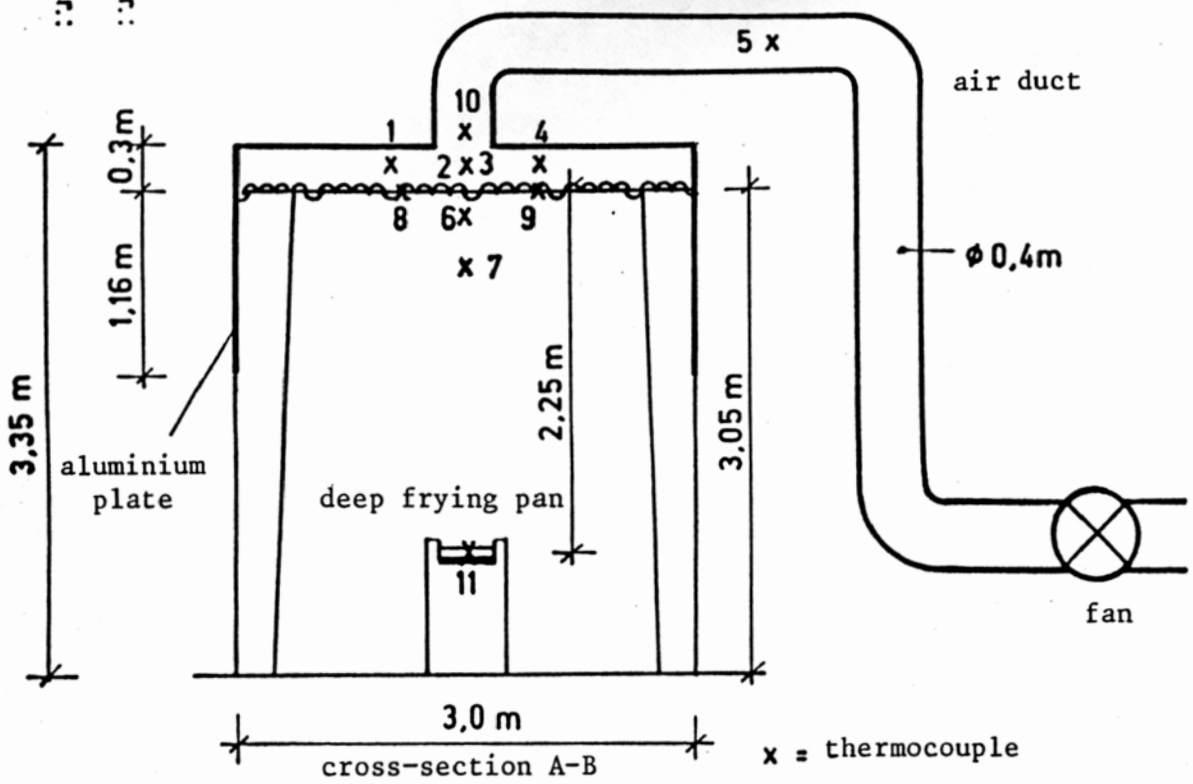
Duration of heating in minutes	Measured temperatures in °C									
	under the false ceiling		in the 0.3 m gap				in the air duct		in an individual suction slot of a cassette	
	tk 6	tk 7	tk 1	tk 2	tk 3	tk 4	tk 5	tk 10	tk 8	tk 9
0	15	15	15	15	15	15	15	15	15	15
5	200	180	120	110	115	125	110	140	110	-
10	140	125	125	100	105	127	65	125	-	140
15	140	150	98	80	88	110	-	110	105	90
18	140	115	95	75	85	100	-	105	-	-

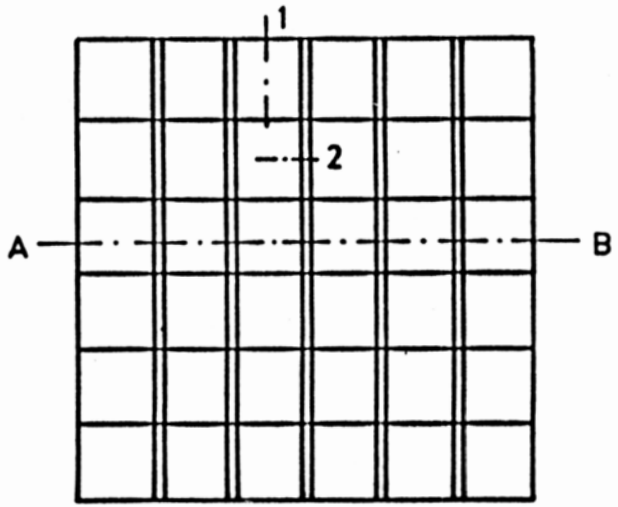
Summary and conclusions : An orientating investigation has been carried out on the behaviour of a filter ventilated ceiling, consisting of Miviko filter cassettes (make: stainless-steel) when subjected to a fire (chip pan fire).

The ceiling, with measurements of 3 m x 3 m and a suspended height of 0.3 m was provided under a floor made of non combustible materials. The suction in the ceiling was set at 65 m^3/hr. per cassette.
Fat in a deep frying pan, placed 2.25 m below the ceiling, was heated up to self ignition. The soffit of the false ceiling was exposed to heat for a duration of 20.5 minutes. Under the circumstances in the test - false ceiling suspended under a floor of non combustible material and with a distance between the false ceiling and deep frying pan of 2.25 m - no collapse of the ceiling or spread of the fire in the 0.3 m gap was observed.

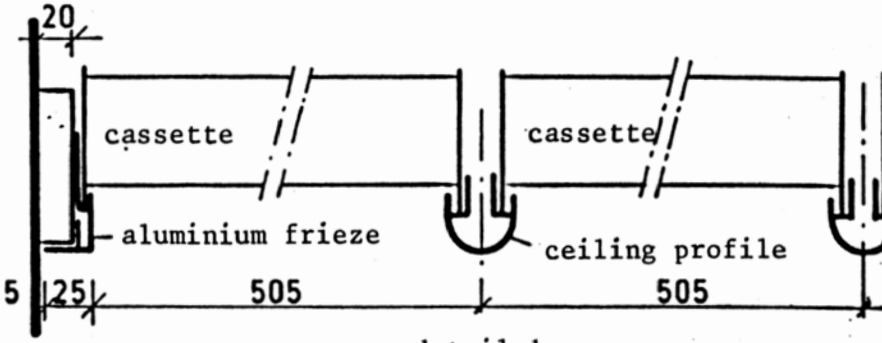
Technical Centre for Fire Prevention TNO,

J. Dekker A.F.R. Harms

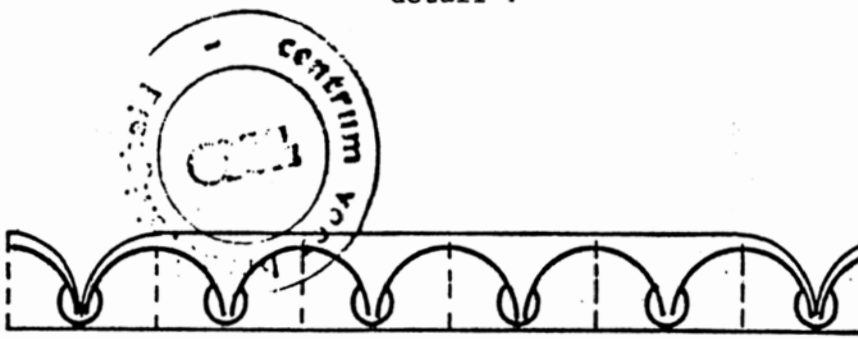




underside view of false ceiling



detail 1



cassette

detail 2

TEST SET UP FOR FILTER VENTILATED CEILING

DRAWING NO. 1

[TÜV logo]

Technical Report No. 713112606/5
Rev. 1
dated 16th June 2020

Client:	GIF ActiveVent GmbH Mr. Volker Eckmann Brühlstraße 7 79112 Freiburg Germany
Production site:	GIF ActiveVent GmbH Brühlstraße 7 79112 Freiburg Germany
Monitored object:	Product: Aerosol separator of classification F-1 pursuant to DIN EN 16282-6:2020 Type: Active cassette
Test specification:	DIN EN 16282-6:2020 Section 8.2
Function of survey:	Testing of flame penetration
Test result:	The test results show that the presented products meet the flame penetration requirements. The validity of this test report is limited to a maximum of 10 years. Reference date is the date of the test report 713112606/5 Rev. O dated 25th July 2017.

Page 11.16

Author:
Dipl.-Ing. Frank Feihle
Date of issue: 16 JUN 2020

Phone: +49(0)69 408968-120
Fax: +49(0)69 408968-129

Email: frank.feihle@tuev-sued.de
TÜV®

TÜV
TÜV SÜD Product Service GmbH
Frankfurt Branch
Daimlerstrasse 40
60314 Frankfurt
Germany

1 Description of device

1.1. Function

Declaration of manufacturer regarding the normal use:
designated position of operation: horizontal

Declaration of manufacturer regarding the reasonably foreseeable misuse:
not specified

1.2 Consideration of the foreseeable misuse

☒ not applicable

☐ covered by the specified standard

☐ covered by the following comment

☐ covered by the enclosed hazard analysis

1.3. Technical data

Type	Position of operation	Year of manufacture	Material	Dimensions (w x h x d in mm)	Air volume (m^3/h)
Active cassette	Horizontal	2017	CNS 1.4301	485 x 75 x 500	65-75

Page 11.17

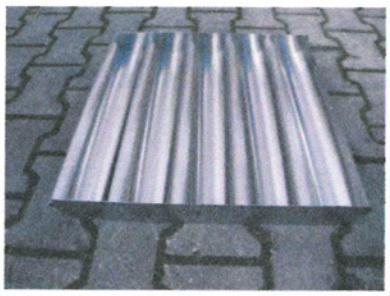


Figure 1

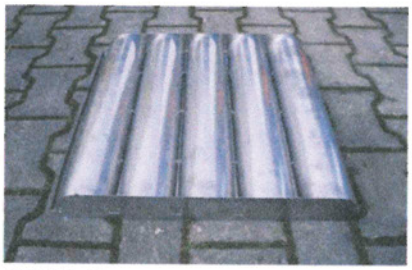


Figure 2

2 Order

2.1 Date of order, sign of client

10th July 2017, Mr. Anton Unterhuber

Author:
Dipl.-Ing. Frank Feihle
Date of issue: 16 JUN 2020

Phone: +49(0)69 408968-120
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Email: frank.feihle@tuev-sued.de
TÜV®

TÜV
TÜV SÜD Product Service GmbH
Frankfurt Branch
Daimlerstrasse 40
60314 Frankfurt
Germany

2.2 Entry of test sample, place

13th July 2017, Nicolausstraße 5, D-94447 Plattling (Germany)

2.3 Test date

13th July 2017

2.4 Place of test

The test was carried out on a test bench, the owners of which are members of the "Ventilation systems and fire protection in commercial kitchens" department of the industrial association HKI in Frankfurt. At the time of the test, the test bench was in DE-94447 Plattling, Nicolausstrasse 5

2.5 Deviations or exceptions of testing procedure

None

3 Test results

The flame penetration test was carried out on two identical test samples.

3.1 Positive rest results

Page 11.18

Type of filter:	Active cassette
Designated position of operation:	horizontal
Installation position for the measuring:	horizontal
Year of manufacture:	2017
Material:	1.4301
Air volume flow:	75 m^3/h
Dimensions:	48.5 cm x 7.5 cm x 50 cm
Dimensions of the pass through:	48 cm x 49 cm
Approach velocity:	0.09 m/sec.
Marking:	none
Specific air resistance before flame impingement:	6.3 Pa (first test sample)
Specific air resistance after flame impingement:	8.1 Pa (first test sample)
Specific air resistance before flame impingement:	6.7 Pa (second test sample)
Specific air resistance after flame impingement:	8.3 Pa (second test sample)

Author:
Dipl.-Ing. Frank Feihle
Date of issue: 16 JUN 2020

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TÜV®

TÜV
TÜV SÜD Product Service GmbH
Frankfurt Branch
Daimlerstrasse 40
60314 Frankfurt
Germany

Result:
There were no flames detectable behind the separator within the testing period of one minute. The separator stayed intact during the complete testing period.

3.2 Items that do not match the test specification

None

4 Remark

The validity of this test report is limited to a maximum of 10 years. The reference date is the date of the technical report 713112606/5 Rev. 0 of 25th July 2017.
This revision 1 of the technical report was created because the FprEN16282-6:2017 standard was replaced by DIN EN 16282-6:2020. Section 8.2 of this standard was the test specification for the test and is unchanged.

5 Documentation

The following documents were provided by the separator manufacturer:

- Dimensioned drawings
- Installation and operating instructions

6 Summary

The test results show that the presented products meet the flame penetration requirements.

TÜV SÜD Product Service GmbH
Test Report reviewed
[Signature]
By order
Dipl.-Ing. Horst Kristen
PS-CFO-STO-F

TÜV SÜD Product Service GmbH
Tester
[Signature]
By order
Dipl.-Ing. Frank Feihle
POS-COM-I-EXS

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Daimlerstrasse 40
60314 Frankfurt
Germany

I, Robert Avery Grey, sworn German-English translator appointed by the Frankfurt Regional Court, hereby certify that the above translation is accurate and complete.

Frankfurt am Main, Germany, 21st August 2020

Certified translation from the German

GARRISON ADMINISTRATION OF WALLDÜRN
IV 2.2.010 file number: 45- 01- 11

Walldürn, 23 October 1995
Federal forces trunk dialing number 5726
Telephone (06282) 5 11 (EXT)
Fax (06282) 5 11 / 4 95
Clerk in charge: H. Gremminger

Gesellschaft für Ing. Projekte GIF mbH
Brühlstr. 7
79112 Freiburg-Opfingen

Dear Sirs,

Damage caused by fire in the mess kitchen
Building No. 11 - Nibelungen Barracks Walldürn

Page 11.20

On 25 October 1993, a deep-frying pan, rated capacity 28 KW, caught fire in the mess kitchen in building No. 11 in the Nibelungen barracks Walldürn.

A ventilation ceiling with modular grid dimensions 500/500 mm, "make GIF" is installed above the cooking appliances.

The fire caused damage to several coffers as a result of burning fat. Nevertheless, the suspension device has not been damaged by the fire and withstood fire exposure for about 40 - 50 minutes.

By order
(signature illegible)
(Gremminger)

Mailing address: P.B.O. 1431 , 74726 Walldürn
Office: Waldstrasse 6 , 74731 Walldürn

I hereby certify that the above text is a true and correct translation of the original German document/certified copy submitted:

Freiburg, dated: - 8 MAR 2001

(Sworn translator)

PETER J. SPÄTH, B.A.
Sworn translator and interpreter (English) for the courts of Baden-Württemberg (Germany)
ELSÄSSER STR. 43, D-79110 FREIBURG

Schornsteinfegerinnung Darmstadt

(Association of Chimney Sweepers Darmstadt)

Statutory Body under Public Law – Technical Department –

Schornsteinfegerinnung Darmstadt, Hch-Hertz-Str. 20, 63225 Langen

Landgasthof
Pension Neubauer
Westring 3/a

63500 Seligenstadt

Langen, 10.09.99

Expert Assessment

Re: **The ventilated ceiling installed by GIF mbH in the kitchen of the Hotel "Pension Neubauer", Westring 3/a, 63500 Seligenstadt**

At the request of the GIF Ventilator and Extractor Ceilings Company, Freiburg mbH and the Technical Department of the Association of Chimney Sweepers, Darmstadt, an onsite-visit was arranged for 12 May 1999 by Mr Klaus-Peter Stallknecht, the official expert who had been engaged and sworn in for the purpose of clarifying the question of the „Certification of Secure Use" according to §80 Paragraph 2 HBO.

As the above-mentioned expert was able to see by direct inspection on site, no defects were found in relation to the installed ventilated ceiling, the built in gas fired heaters in the commercial kitchen of the Hotel „Pension Neubauer" and the steam-removal chimney (see page 2, pictures 3 + 4).

From the way they have been installed, ventilated ceilings cannot be judged in accordance with the Facility-Ventilation guidelines. These Facility Ventilation Guidelines are applicable only to commercial steam-removal hoods and for down standing extraction equipment.

As a result, the ventilated ceiling installed by GIF mbH can only be assessed by independent testing establishments (see attachment ULC-Laboratories and Institute for Building Materials) in relation to material, fire-protection and usability (International Assessment Agencies – EU-Norm and Testing Agencies).

In this case the appointed Master Chimney Sweepers can only be held responsible for the installation of fire places (see attachment CE-Certification of combination ovens) and their combustion supply (with particular reference to extracted air).

There is nothing to prevent a certification of “Secure Use” in accordance with § 80 2 HBO being granted by the appointed Master Chimney Sweeper Mr Moran, who is responsible for the matter.

Yours faithfully

Klaus Dieter Köbler
Association Technical Supervisor

(signed) Klaus-Peter Stallknecht
Deputy AssociationTechnical Supervisor

Encs.
1. ULC-Laboratories
2. Institute for Building Materials, Delft (Fire Issues)
3. DVGW-CE Sample Building Assessment Certificate

Certified translation from the German

University Clinic Freiburg
Institute for Environmental Medicine and Hospital Hygiene
Director: University Professor Dr. F. Daschner
National Reference Centre for Hospital Hygiene
Telephone / Fax
Dr. med. Markus Dettenkofer, Senior Physician, Consultant for Hygiene and Environmental Medicine
(Extension:)

Hugstetter Strasse 55
79109 Freiburg i. Br.

GIF GmbH
Brühlstr 7
79112 Freiburg

Date: 20 February 2001

Expert medical report on the examination of the rough-cast ceiling above the GIF ventilation ceiling in the staff canteen of the Freiburg University Clinic.

1. The issue

According to the manufacturer of GIF ventilation ceilings (GIF GmbH, Freiburg), the individual coffers of this ventilation ceiling act as a fat and condensate separator: the directing of the air current over phase separating chambers leads to the depositing of dirt, fat and other suspended particles on the inner surface of the small coulisses, thus avoiding contamination of the ceiling cavity of the rough-cast ceiling.

As instructed by GIF (Managing Director Mr. Hammer) in their letter of 26 October 2000, the rough-cast ceiling above the GIF ventilation ceiling which was installed in the staff canteen of the Freiburg University Clinic about 15 years ago (in the area above the tilt-type frying pan, see Fig.1) was examined and appraised with regard to hygiene.

2. Methods

Within the course of routine cleaning of the removable element of the GIF ventilation ceiling, the area situated above this section (rough-cast ceiling) was thoroughly examined on 10 November 2000. In addition, a microbiological examination was carried out using sterile, commercial RODAC contact agar plates ("Replicate Organism Detection and Counting", Biotest Columbia blood contact agar, Heipha Diagnostika, Heidelberg; contact surface approx. 21 cm²). These were opened taking aseptic precautions, put on the various accessible control points (plasterboard ceiling, ventilation duct, girder element, cut-off wall) applying moderate pressure for 10 seconds each, and then sealed immediately to avoid contamination. The plates were incubated in the laboratory for 48 hours at 37°C, followed by a germ count and, where necessary, by a microbiological analysis.

3. Results

The macroscopic inspection of the clearly designed and largely visible ceiling area above the GIF ceiling elements, which had been removed a few minutes before, did not show any conspicuities: the yellowish surface of the plasterboards was dry, smooth and did not show any specific sediments. The steel plate surface of the ventilation duct and the steel girder construction for the GIF elements were also in good condition commensurate with their age (refer to Fig. 3-5).

In total, 19 RODAC plates were used to take multiple samples from all accessible areas (refer to item 1). Using an additional plate, the rear of a dismantled GIF ceiling element was sampled.

In 16 cases, there was no germ growth on the RODAC plate after the incubation period. One colony-forming unit (CFU) of coagulase-negative staphylococci was isolated in three plates, with an additional CFU of micrococci found on one of these plates.

On the RODAC plate used to sample the rear of the ceiling element, the following germs were isolated: aerobic spore-forming organisms 5 CFU, coagulase-negative staphylococci 11 CFU, non-fermentors 2 CFU, micrococci 4 CFU.

4. Summary assessment

As mentioned above, the external (macroscopic) aspects did not give any cause for objection, the visible areas above the GIF ventilation ceiling showed findings commensurate with their age without any relevant sediments/contamination.

The results of the microbiological examination of selected surfaces by means of contact agar plates presented no conspicuous findings and/or a low degree of contamination (0 CFU - 2 CFU for each RODAC plate). The European Good Manufacturing Practices (EU GMP, 1997) were applied in the assessment; the germ concentration found corresponds to the second highest purity level (Grade B) as defined for the manufacture of medical products. The 22 CFU/RODAC plate isolated on the rear of a ceiling element are to be assigned to 'Grade C' (3rd level). The spectrum of the isolated germs corresponds to the usual colonization of surfaces (mainly by gram-positive bacteria).

We fully agree with the manufacturer's statement that ceiling cavity contamination on the rough-cast ceiling can be ruled out by the special GIF ventilation ceiling design. In summarizing, it may be stated that, even after many years of using the GIF ventilation ceiling in the staff canteen of the Freiburg University Clinic, the accessible areas of the rough-cast ceiling above the ventilation elements were in perfect condition in terms of hygiene.

Freiburg, 20 February 2001
Dr. med. M. Dettenkofer (signature illegible)

I hereby certify that the above text is a true and correct translation of the original German document/certified copy submitted:

Freiburg, dated: - 8 MAR 2001

(Sworn translator)

PETER J. SPÄTH, B.A.
Sworn translator and interpreter (English) for the courts of Baden-Württemberg (Germany)
ELSÄSSER STR. 43, D-79110 FREIBURG

Wolfgang Rink
Noise and Fire Protection Company

Officially Appointed and Sworn-in Expert in Noise and Fire Protection
Measurement Agency for Noise Emissions and Immissions in accordance with § 26 BImSchG

Isw • Wolfgang Rink • Schwarzwaldstr. 37 • 7801 Reute

Gesellschaft für Ingenieur-Projekte
Freiburg mbH
Attn: Mr Hammer
Brühlstraße 7

7800 Freiburg

02.03.93

GIF-Ceilings in dish-washing areas
- Advice in respect of room acoustics

Dear Mr Hammer,

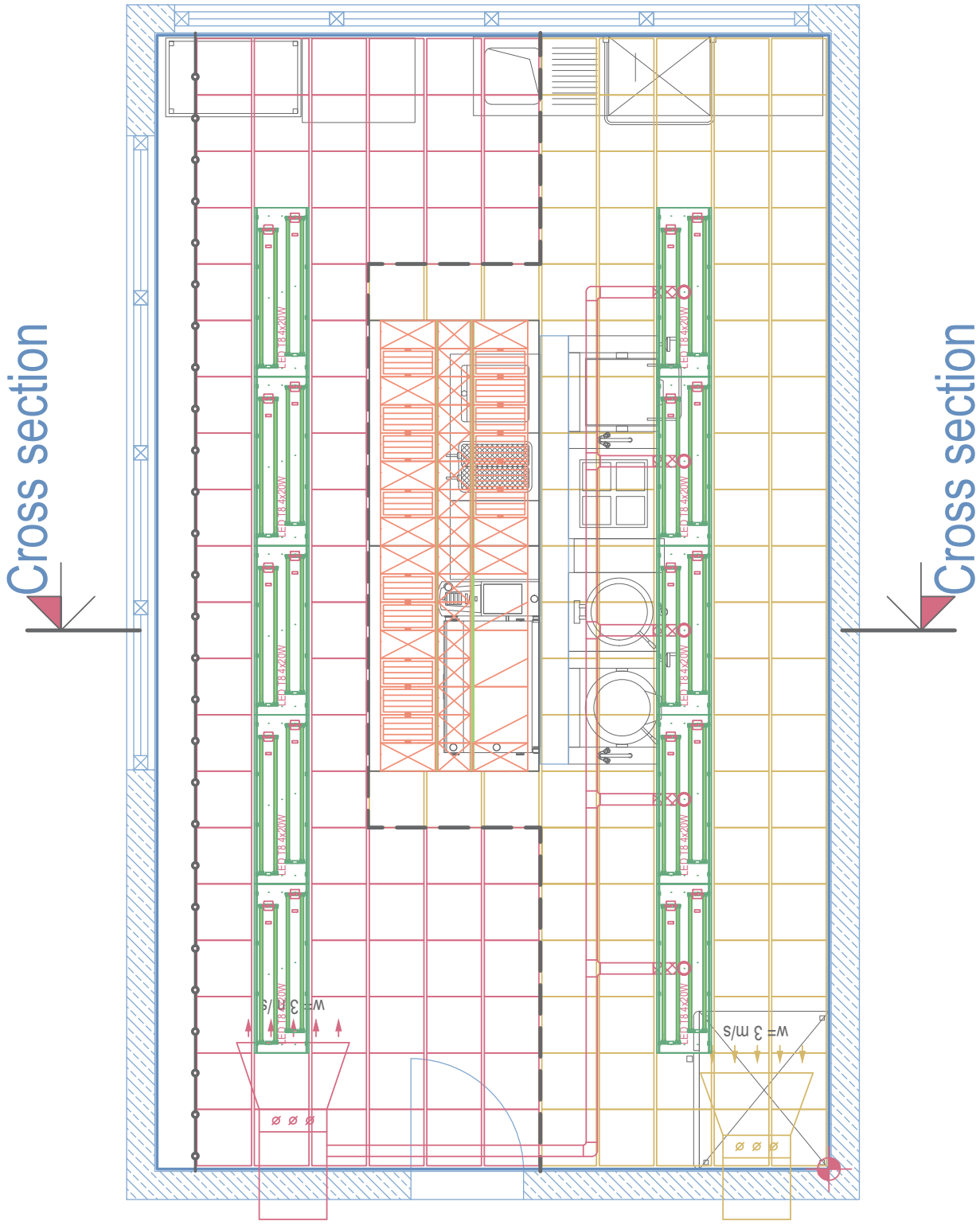
According to your telephone call you wish to have in addition to the results contained in my letter of 08.02.93 further pairs of variates to be considered in respect of the surface relationship active/flat cassettes in the mathematical prognosis of the achieved level reduction. As agreed, I have therefore extended the two tables on page 3 of the above-mentioned letter, as follows:

Variants	Surface relationship active-/flat cassettes	Resulting median degree of noise absorption
I	70 / 30	$\alpha_{mI} = (0,7 . 0,20) + (0,3 . 0,76) = 0,37$
II	50 / 50	$\alpha_{mII} = (0,5 . 0,20) + (0,5 . 0,76) = 0,48$
III	40 / 60	$\alpha_{mIII} = (0,4 . 0,20) + (0,6 . 0,76) = 0,54$
IV	30 / 70	$\alpha_{mIV} = (0,3 . 0,20) + (0,7 . 0,76) = 0,59$
V	20 / 80	$\alpha_{mV} = (0,2 . 0,20) + (0,8 . 0,76) = 0,65$
VI	10 / 90	$\alpha_{mVI} = (0,1 . 0,20) + (0,9 . 0,76) = 0,70$

Variants	Equivalent Absorption Surface	Level reduction
I	$A_{2,I}$ = 58,7 m²	ΔL_I = 7,1 dB
II	$A_{2,II}$ = 78,5 m²	ΔL_{II} = 8,3 dB
III	$A_{2,III}$ = 89,3 m²	ΔL_{III} = 8,9 dB
IV	$A_{2,IV}$ = 98,3 m²	ΔL_{IV} = 9,3 dB
V	$A_{2,V}$ = 116,3 m²	ΔL_V = 9,8 dB
VI	$A_{2,VI}$ = 118,1 m²	ΔL_{VI} = 10,1 dB

Kind regards,

12. Planning Example

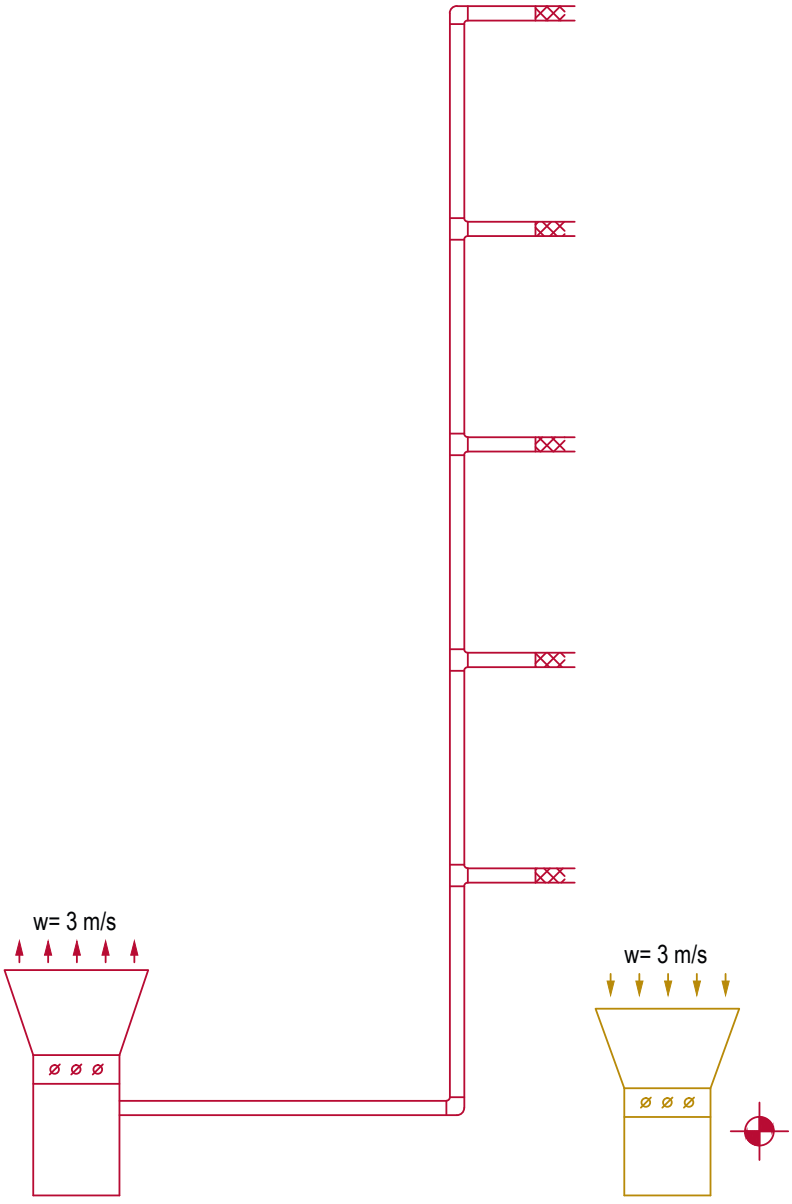


Planning Example

Optional intermediate ceiling

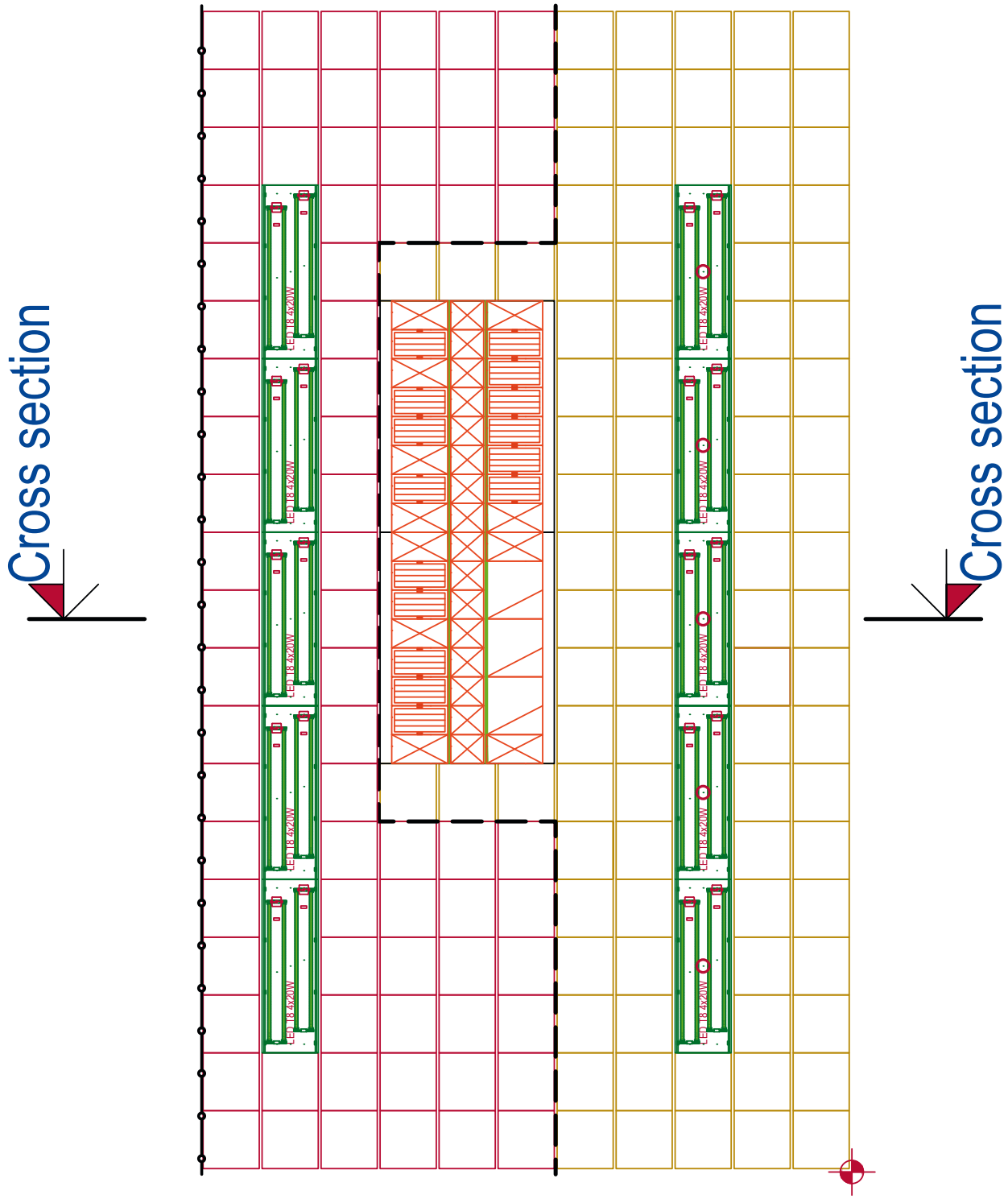
Planning Example

Air duct network extract air and fresh air



Planning Example

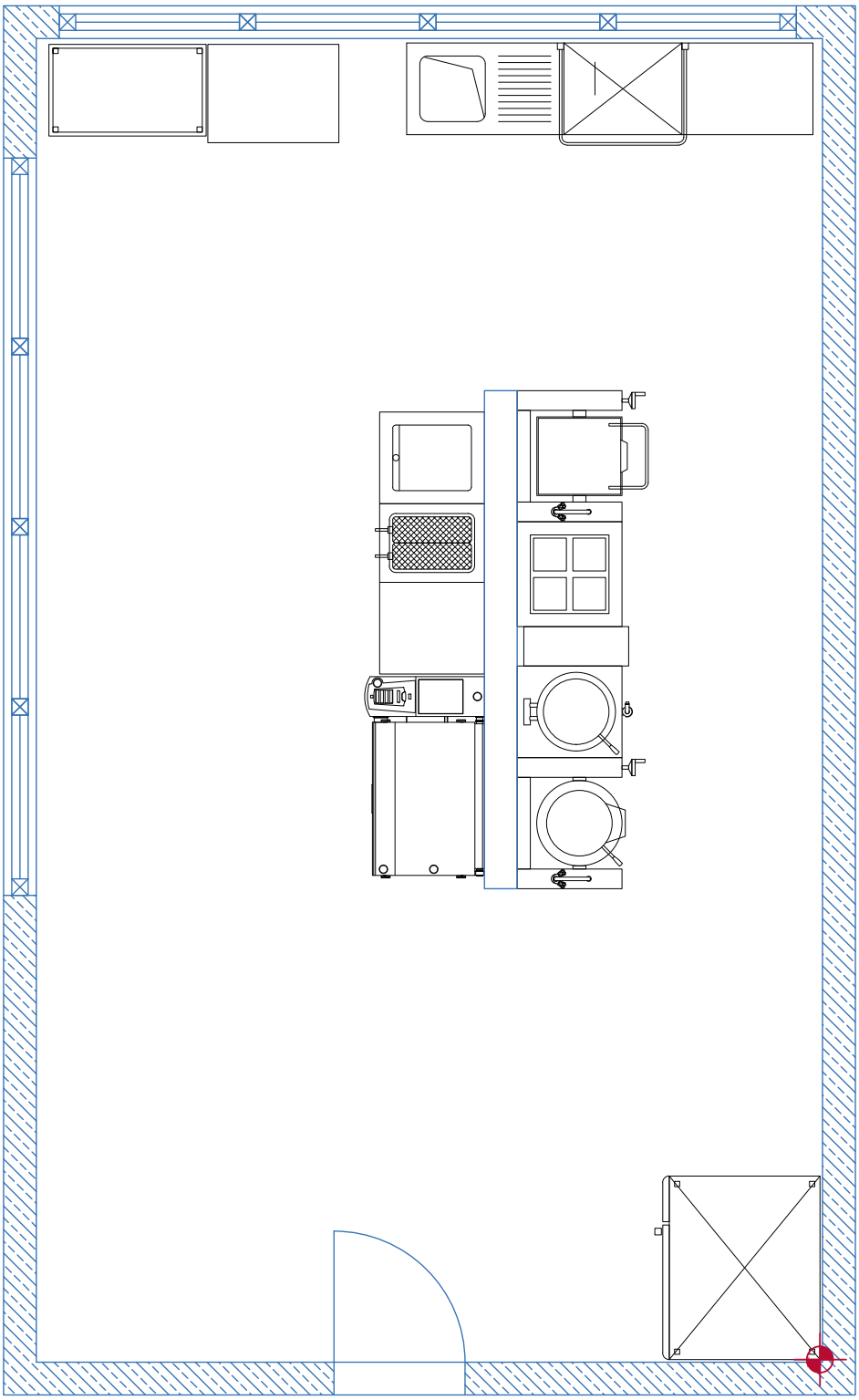
GIF Ventilated Ceiling



Planning Example

Floor plan of the kitchen and cooking appliances

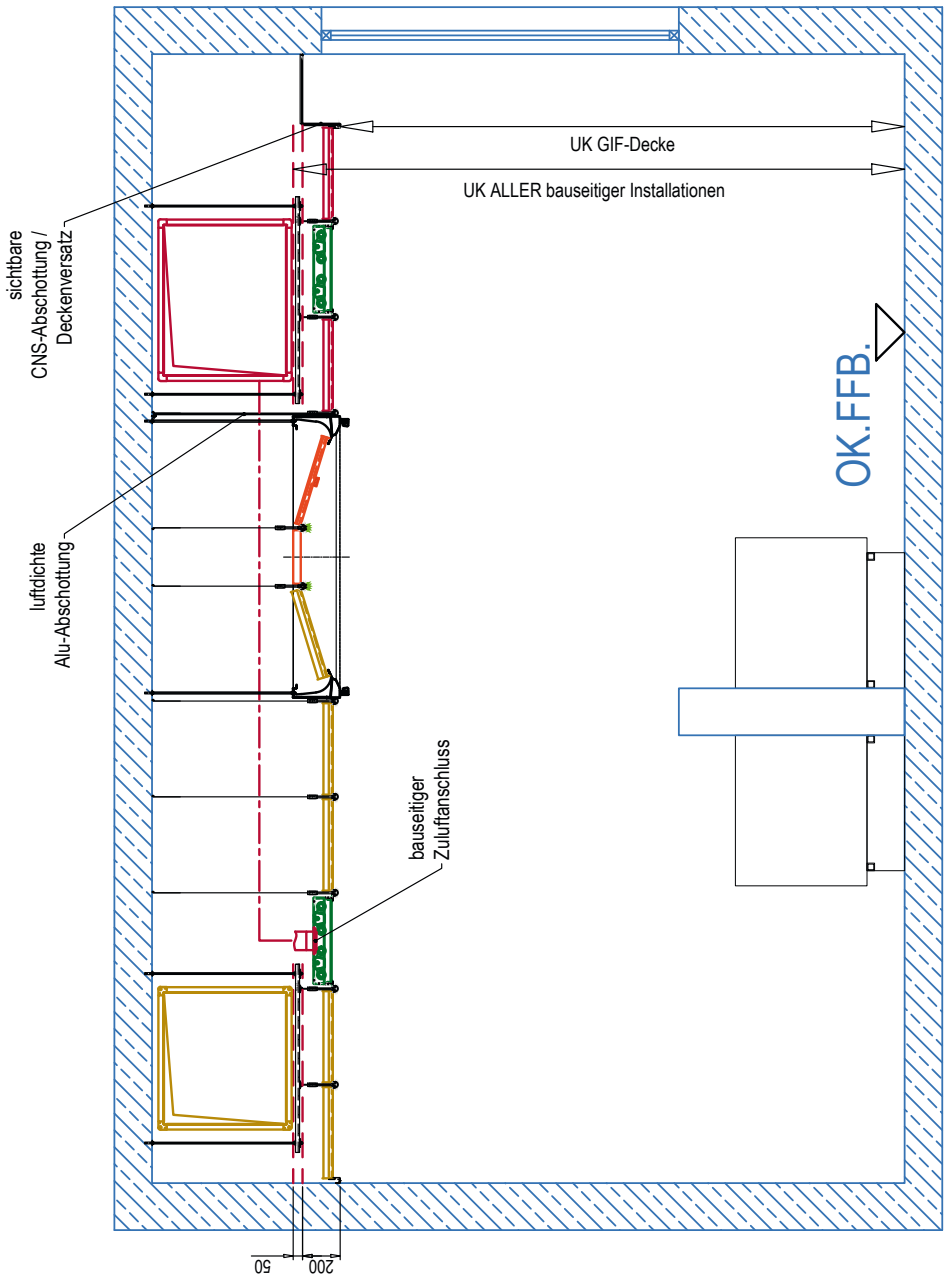
Scale 1:50



Planning Example

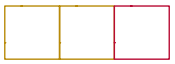
Cross section

Scale 1:50



Planning Example

Legend for GIF Ceiling



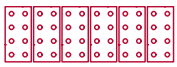
Active cassettes for extract air and fresh air supply

Flat cassettes without function

Flat cassettes for extract air and fresh air supply

Restaurant Systems with high performance separators and blank cassettes

Restaurant Systems with active cassettes



Combined sound absorption and fresh air supply cassettes

Light box equipped with 4 x 20 W, IP 54, electrical supply and E-connection on-site

- including fresh air connection on-site, damper ø 100 mm
- not including direct connection, only damper ø 100 mm
- including electronic ballast

EVG

LED Rail Lighting System

Ceiling perimeter

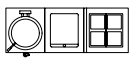
Air tight partition

Split-level ceiling

Visible air tight partition

Datum point for installation of the GIF Ceiling

Attachments to and fittings into ceiling: e.g. speaker, pictogram, heat detector, equi-potential bonding



Thermal cooking appliances present on-site

13. References

RTL, Cologne

Restaurant Aligot, Santiago de Chile

Hilton, Athens

Marienhospital, Witten

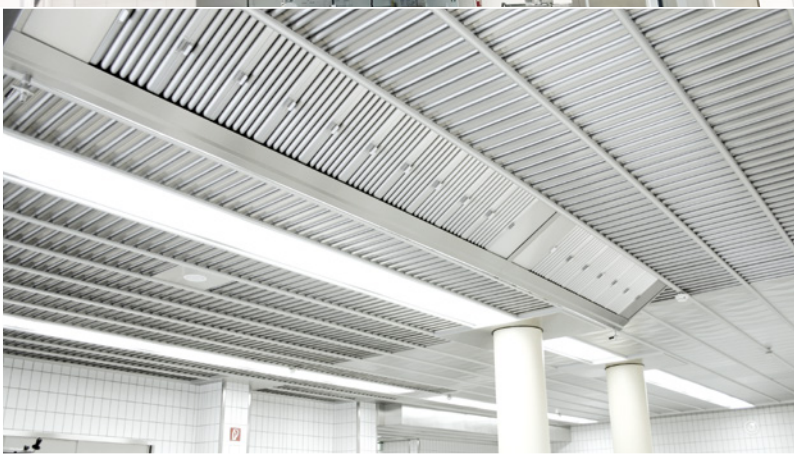
Stadtsparkasse, Hagen

Technical University of Dresden

IGV, Mannheim

Nestlé, Milan





Referenz Dornahof, Altshausen

Description

The architectural and ergonomic focus was defined by the window-facade facing west and capture of natural daylight. The daylight wasn´t to be obstructed by suspended installations for extract air.

The area-active GIF Ventilated Ceiling was installed into the main kitchen, dishwash area and preparation areas for meat, poultry and vegetables.
For areas without thermic load, such as corridors and adjacent rooms the GIF Flat-System Ceiling was the preferred ceiling of choice.

- **Due to a ceiling height of about 6 meters a secondary ceiling was installed, thus forming a defined pressure chamber.**
- **The concave Restaurant Systems sit flush with the ventilated ceiling and inside the ceiling void. In such a favourable configuration no visible obstruction occur giving the kitchen the pleasant feeling of space.**
- **Large-area supply air inlets in front of the windows prevent the window-facade from fogging up.**
- **The installed UV-C(lean) System in the main kitchen provides additional reduction of fire danger, reduction of cleaning costs, smell and improved hygiene.**
- **No tools are necessary to open the ventilated ceiling and secondary ceiling, hence inspection and access is possible at any time and at any spot.**

Mała Wieś, Poland

Description

Built in 1786 Mała Wieś near Warsaw is one of the most famous baroque palaces in Poland.
Going through an eventful history this gem today is a picturesque location for weddings and receptions alike, offering elegant suites and a restaurant that is expected to live up to best practice and high standards.
One of the decisions to opt for GIF was that compared to other exhaust systems less air volumes were needed.
Also requested was an effective solution to integrate supplement parts such as emergency lighting, heat detectors, gas pipes and heating lamps into the supply and exhaust system however, without having a mixture of different installations impacting on the overall appearance of the kitchen.
Merging all of those different kitchen works into one homogeneous surface is just one of the many strengths of GIF-ActiveVent´s wall-to-wall ceiling solution

Villa Aretusi
Bologna, Italy

Description

Villa Aretusi, named after and home of the renowned renaissance-painter Cesare Aretusi (1549 - 1612) was affectionately maintained and carefully transformed into an appealing Hotel on the north-western fringe of Bologna.
Today this location with its green outdoor areas and large guest rooms is readily used for weddings, meetings and ceremonies of all sorts.

Three kitchens take care of the culinary arts with the main kitchen entrusting the ergonomic, hygienic and fire-save ventilation to GIF-ActiveVent with its area-active kitchen ceiling. Supply-air fields surround the kitchen block and two other exhaust-areas bringing in fresh and cool air, so that vapours and steam are fully captured and staff not exposed to potential toxic smoke and heat. New LED-stipe technology provides a modern look and ensures the professional illumination throughout the entire kitchen. By means of including the LED-stripes into the carrier profiles (C-Profiles) the supply and exhaust air cassettes remain moveable. This unique GIF-characteristic, which enables for the cassettes to be pushed and pulled as necessary is hence maintained, e.g. for cleaning or access to ceiling void.

Thyssen Krupp Headquarters, Essen

Description

At the new Thyssen Krupp AG Head Office, which was completed in 2010, both the office canteen in the Forum and the restaurant for the Board of Directors at the headquarters were equipped with GIF Kitchen Ventilated Ceilings. In doing so, the most innovative technologies developed by GIF were used. These ensure a pleasant indoor climate at all times and an economic operation. Due to the huge commitment of all parties involved in the project, everything was up and running within just a few weeks.

Thyssen Krupp Headquarters, Essen

- Jet Stream Extractors are used to ensure optimum capture of cooking vapours in the free-flow areas. As a result, in particular the polluted air above the high emission wok and grill units can be reliably captured despite the cross-flow which is typical for free-flow areas. Draught free fresh air is supplied through the area-active GIF Kitchen Ventilated Ceiling

- The kitchen extract air systems were equipped with a further technology developed by Hidria GIF. Here, the GIF UV-C(lean) Systems provide grease-free kitchen extract air

- In the production areas of the kitchen, extract air is captured above deep frying areas via GIF Restaurant Systems. These ensure constant capture of extract air and cost-efficient intervals between cleaning

- The fire-extinguishing systems as well as the alarm systems and loud speakers were incorporated in the kitchen ventilated ceiling

- Clear room heights of more than 6 m required special designs taking account of structural loads

- All components carrying extract air were made of Thyssen Krupp stainless steel

- The preparation and auxiliary rooms were equipped with GIF Flat System Ceilings

- The noise levels in the dish-washing zone, generated by dishwashing processes, were considerably reduced by using combined GIF Sound Absorption Fresh Air Supply Ceilings. These ceilings simultaneously vent fresh air and reduce ambient noise levels up to 10dBa.

Prague Florentinum, Czech Republic

- **Two GIF ventilated ceilings in the prestigious Florentinum building, Prague**
- **Adaptation of the GIF kitchen ventilated ceiling to the round contours of the serving area**
- **The GIF ventilated ceiling ends on the side of the serving area of the production kitchen with a visible, curved partition**
- **In order to deal with the intensive use of the cooking appliances and the small ceiling surface the ventilation installations in the ceiling consist of Active Cassettes, Restaurant Systems and Flat System Ceiling**

Description

2014 saw the opening of the prestigious Florentinum building in the centre of Prague. It was at once the recipient of several awards, such as the Best Office Development and the LEED Platinum Award, which is the highest level of the international „Green Building Certification".

The staff canteen of the office building was equipped with GIF ventilated ceilings both in the main kitchen and the serving area.

As a result of the specific extraction of steam from the production kitchen and the separate cooking and serving areas it was unnecessary for these sections to be divided off from each other.

The sophisticated appearance of the guest area was taken into account in the design of the ventilated ceiling so as to reflect exactly the rounded contours of the serving counters.

Student Canteen, Osijek, Croatia

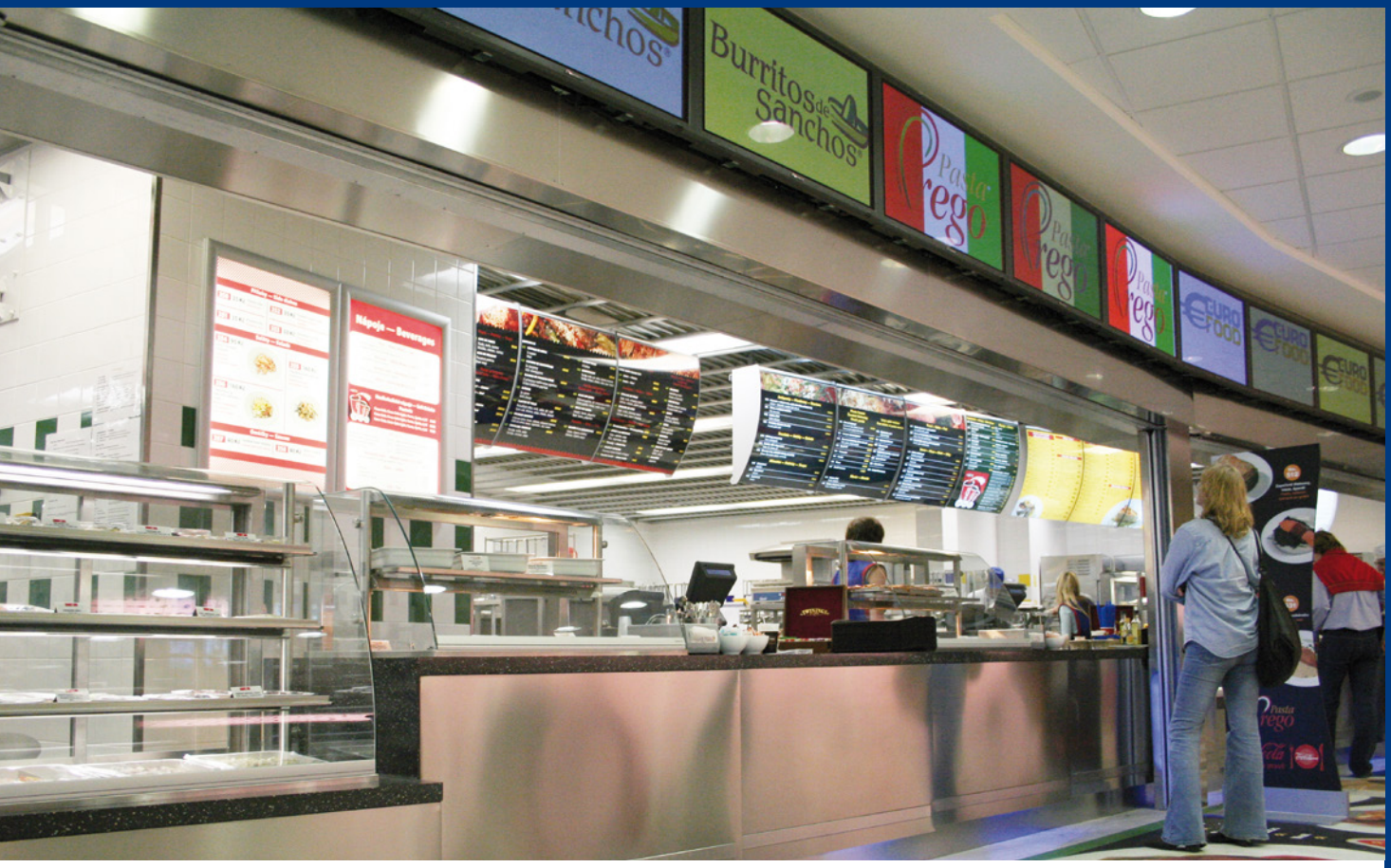
Description

In 2008 this project was realised by investors for the City of Osijek and the Croatian Ministery of Science. In spring 2009 it was completed.
The kitchen caters the campus students and has an area of more than 450m². The equipment is designed for producing up to 4000 meals per day.

The GIF Ventilated Ceiling was installed in all areas, including preparation rooms (vegetable, meat and fish), bakery and pastry room, dishwashing zones and main kitchen.
The main kitchen is divided into three areas – cooking, grilling and baking. Restaurant systems were installed to absorb reliably the cooking vapours – especially above fat intensive cooking appliances i.e. tilting frying pans and deep fryers. Furthermore less time of cleaning is needed due to the angular positioning of the high performance separator.

- **Once the planning had started it took only 16 months to implement and open this professional kitchen**
- **In total, up to 4000 meals are produced and served each day in a kitchen area of more than 450 m²**
- **The GIF Kitchen Ventilated Ceilings are designed as a modular system. More than 90% of the ceiling area can be cleaned in the existing dishwasher as required**
- **Durability, even over decades, is ensured by the use of stainless steel 304**
- **Fresh air is supplied via the GIF Active Cassette Ceiling according to the principle of laminar air flow. The fresh air replaces the polluted extract air and is supplied draught-free. A pleasant working environment, free of harmful substances, is ensured for all employees**

Airport Terminal 2, Prague, Czech Republic



Description

The new kitchen at Terminal 2 of the airport opened in January 2006. The GIF Ventilated Ceilings were installed in the so-called "Food Gallery", which is an open plan kitchen area of about 200m^2, where different national and international dishes from Italy, Mexico and Asia are prepared.

The illuminated signs were incorporated into the stainless steel panels designed by Hidria GIF. The technology installed in the signs and the automatic rear roller blind system can be easily accessed via the GIF Kitchen Ventilated Ceiling, which can be inspected without the use of tools. The sensors for the fully automatic doors were incorporated into the GIF Fresh Air Supply Flat Cassette Ceiling within the kitchen areas. This considerably reduced the amount of work for installing connection cables.

The transfer areas of the "Porto Café Restaurant" and "Gourmet Restaurant" were also equipped with GIF Kitchen Ventilated Ceilings. The great flexibility of the GIF system enables us to adapt the „Food Gallery" installation in such a way that it could also be easily used in the smaller but very challenging areas.

Airport Terminal 2, Prague, Czech Republic

- Professional kitchen designed as an open plan kitchen towards thedining area, equipped with a GIF Kitchen Ventilated Ceiling – completely interchangeable system with integrated lighting
- The transition to the dining area includes illuminated signs and an automatic shutter
- The GIF Kitchen Ventilated Ceiling was chosen by the architect because of its adaptability to complex room configurations, amongst other things. As a result, it was possible to create a smooth transition between the kitchen area and dining area
- The rectangular luminaires, incorporated flush with the ceiling, provide optimum lighting for the work areas

Kobe Jones Restaurant, Sydney, Australia

Description

The Japanese restaurant Wharf Teppanyaki, located in the world-famous Darling Harbour in Sydney, has 12 Teppanyaki cooking units with 46 seats for guests in total. In co-operation with our Australian Partner PHOENIKS PTY Ltd., GIF developed and installed the GIF Kitchen Ventilated Ceiling above the Japanese Teppanyaki tables. The ceiling combines modern aesthetics with excellent product features. The extract air is reliably captured above the Teppanyaki grills via GIF Restaurant Systems. Guests can enjoy a wonderful dinner in the open cooking area without being disturbed by kitchen vapours and steam.

- **The cooking area is illuminated by special high performance spotlights which were incorporated into the GIF Kitchen Ventilated Ceiling and can also be found in the dining area.**
- **The modular system enables everything to be easily handled and cleaned in the existing dishwasher. This is a decisive factor especially in open plan cooking areas.**
- **The materials used for the Teppanyaki units can also be found in the GIF Kitchen Ventilated Ceiling.**

Stadtsparkasse, Hagen

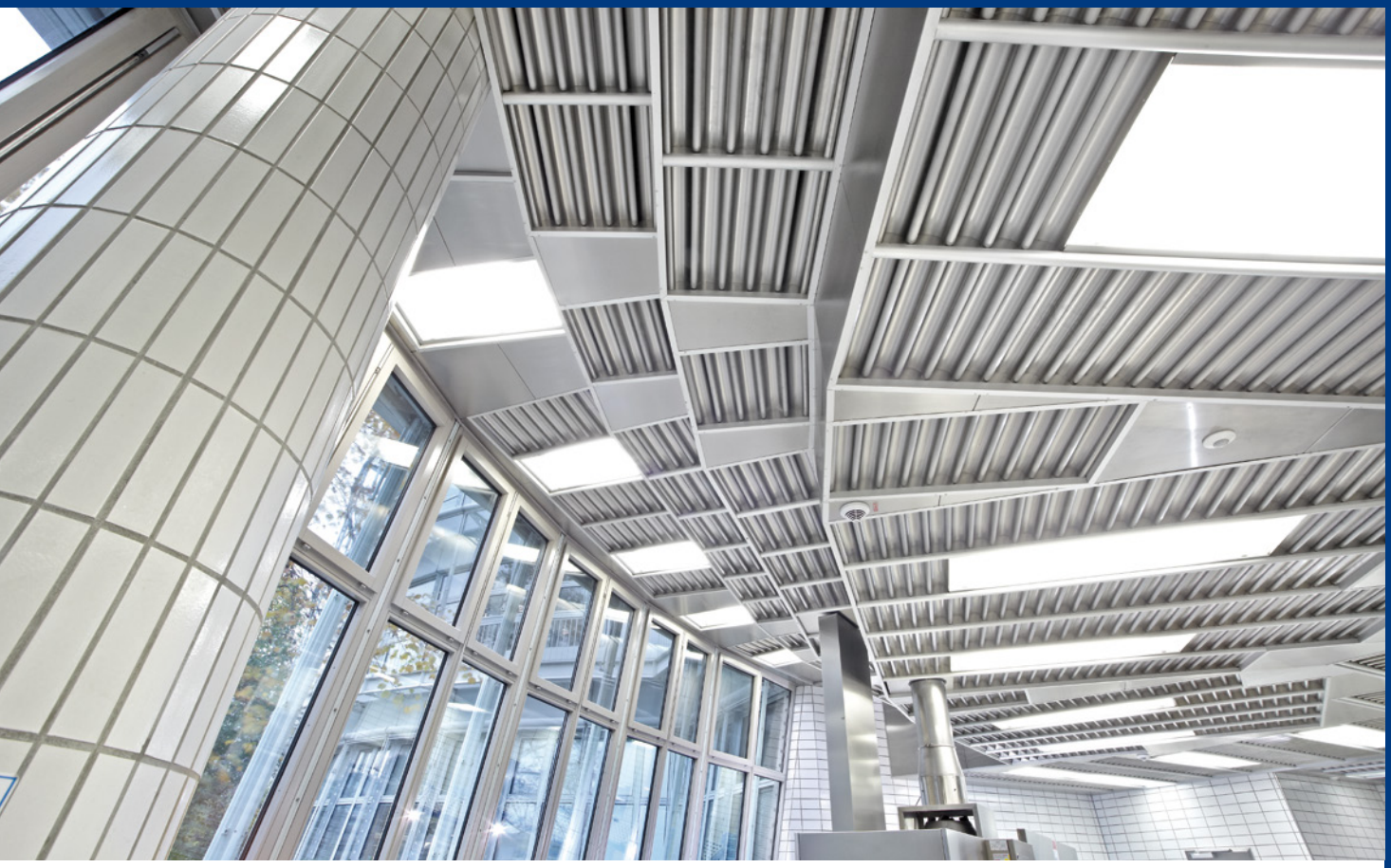
Description

The area-active GIF Ventilated Ceiling was adapted to the round geometry of the food counter. The trapezoid levelling areas determined by the radius were designed with a stainless steel effect. The grid layout of the kitchen ventilated ceiling, which is active as regards ventilation and air-conditioning, and of the lighting consequently remains unchanged.

A lintel was built in the transition to the dining area, following the counter in segment design. The lighting is provided by integrated down-lights. Additionally, an exhaust hood was provided in the rear production area for core capture of extract air.

- **Food counter area at Stadtsparkasse Hagen**
- **Adapting the GIF Kitchen Ventilated Ceiling to the round geometry of the counter**
- **Segmented lintel, made of stainless steel, in the transition to the dining area**
- **Different lighting systems in the production area and lighting of the food**

Techniker Krankenkasse (Health Insurance) Hamburg



Description

The canteen of the Techniker Krankenkasse in Hamburg was equipped by our company in 1999. One of the challenges was to adapt the kitchen's ventilated ceiling to the facades made entirely of glass. The solution was to use 3 consecutive ceiling down-steps. Due to the active cassettes used here, the narrow areas between the steps could also be used for the fresh air supply. The curtain of air down the face of the windows prevents condensation of humid air on the glass.

Techniker Krankenkasse (Health Insurance) Hamburg

- Grid solution specially adapted to the building configuration having the maximum ceiling height
- Even the smallest individual grids are active regarding ventilation and air-conditioning and create a fresh air curtain to protect the window panes
- All air-movement components (extract air and fresh air) are identical in construction and can be cleaned in the dishwasher. There is therefore no danger of mixing up individual components
- The shape of the kitchen ventilated ceiling, covering the whole area exactly follows the polygonal lines of the building
- By incorporating luminaires to suit the sign and shape of the grid pattern and down-steps, the surface area available for ventilation is maximised, so contributing to an homogenous and low-speed air flow.

HDI Insurance Cologne

Description

GIF Kitchen Ventilated Systems meet all requirements regarding ventilation and air-conditioning

The thermal and material impacts are captured above the warm air output by an active extract air ceiling.

GIF Jet Stream Extractors are used for capturing extract air in the grilling and free flow areas. They guarantee the best possible capture of extract air in these high emission areas. A migration of smells and harmful substances into the work and dining areas thereby can be prevented. The Jet Stream glass plates have been adapted to the round shape of the counter and therefore neatly fit into the counter design.

For architectural reasons, the separator housing is installed above the GIF Ceiling, it is accessible via the removable, modular GIF Ceiling.

Fresh air is supplied to the rear food counter area via GIF Active Cassettes according to the principle of layered flow. As a result constant pressure, which is an hygienic requirement, is also ensured in this critical area.

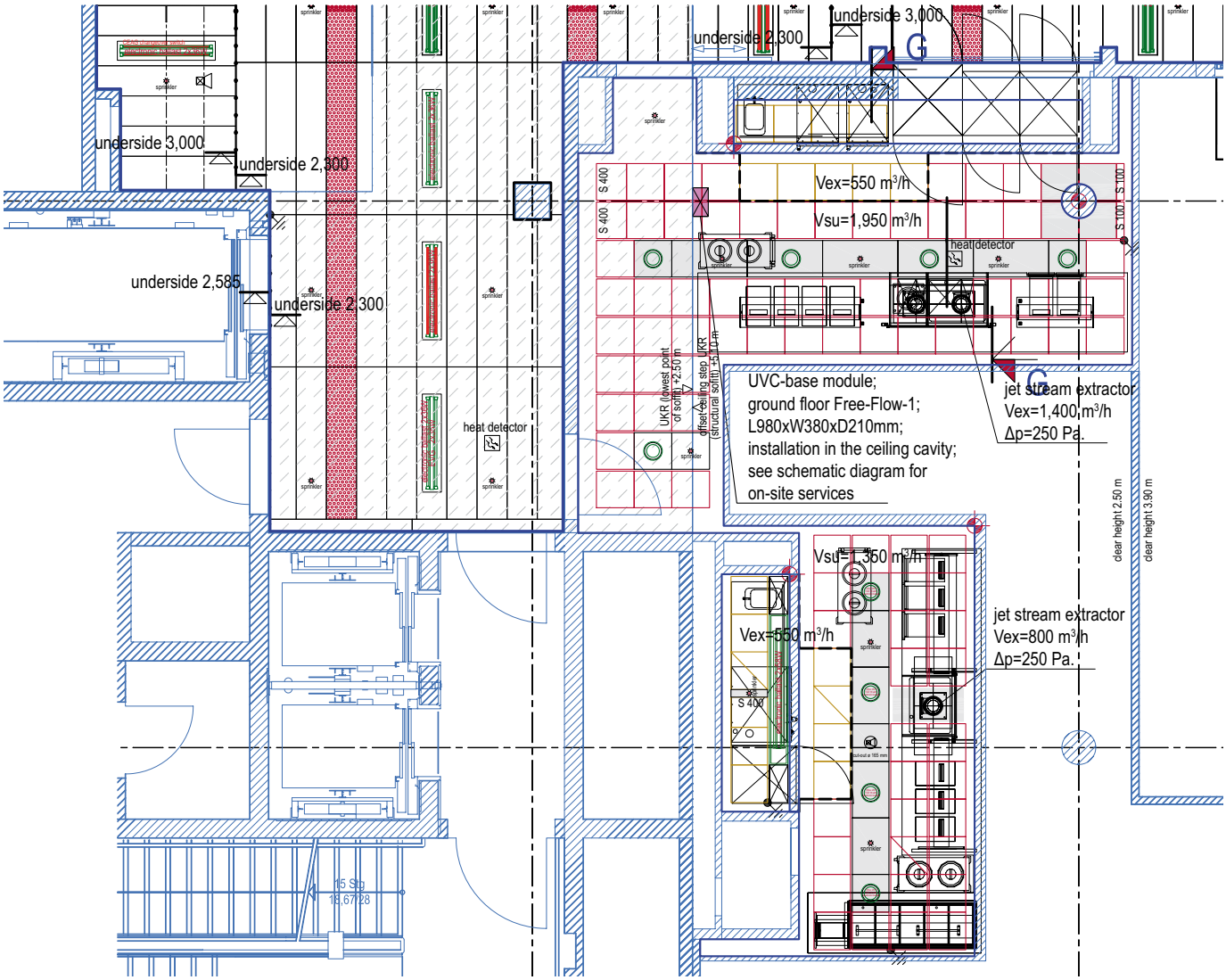
HDI Insurance Cologne

An additional fresh air curtain along the line of the server counter prevents the food counter/ servery area air from mixing with the dining or kitchen areas air.
GIF luminaires were used for the lighting above the food counter area as their form corresponds to that of the food counter. Further spot lighting was installed above the public area using downlights. The work areas are therefore lit with at least 500 lux (according to ASR – Guideline for Workplaces).

The visible cover plates made of stainless steel close up the GIF Kitchen Ventilation Solution towards the top.

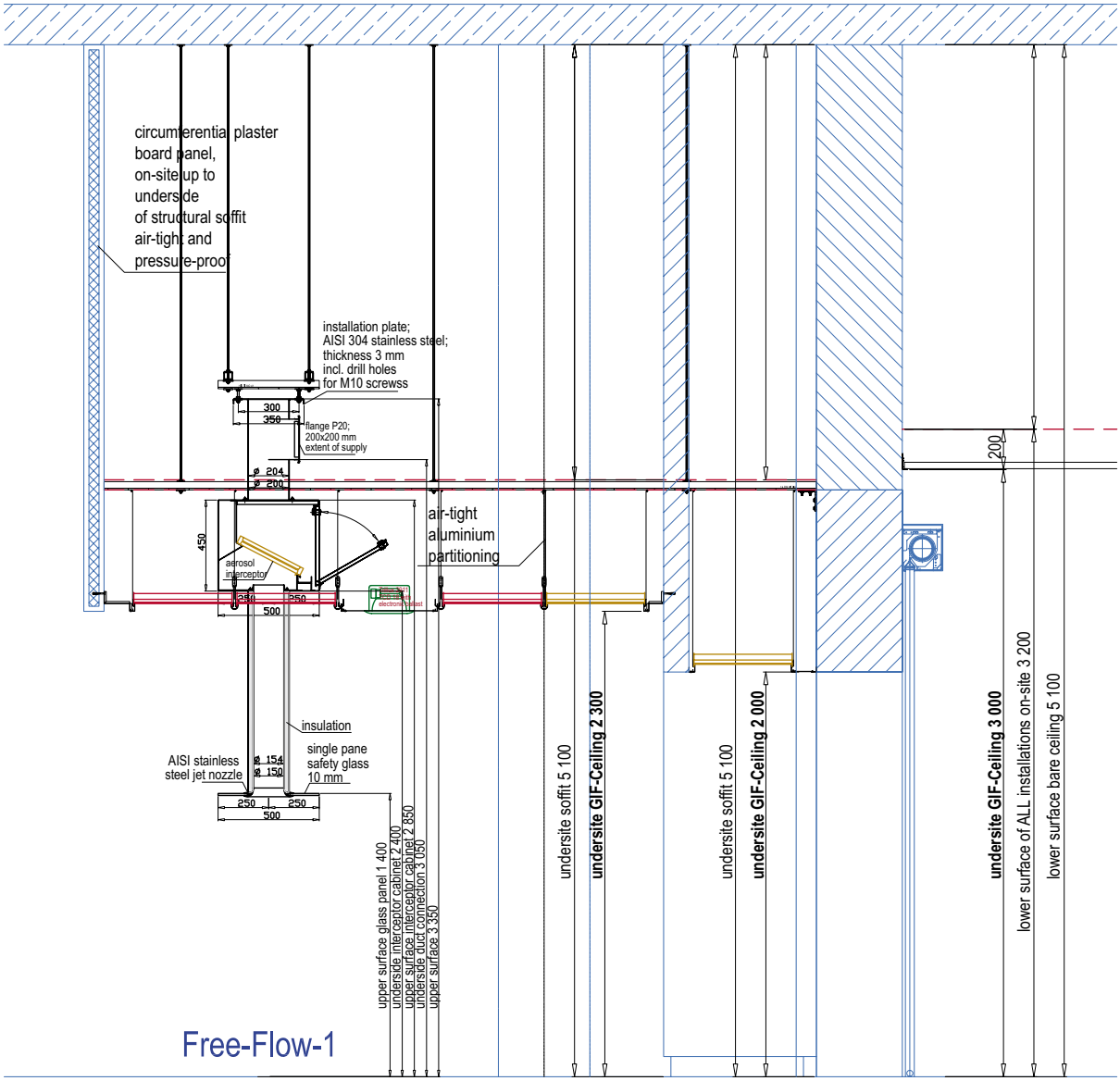
- **New office canteen at HDI Gerling Insurance in Cologne**
- **All kitchen areas are equipped with the various system solutions of Hidria GIF GmbH**
- **The various GIF Kitchen Ventilation Systems in combination provide an ideal solution regarding ventilation and air-conditioning as well as an architecturally attractive design**
- **Integrated jet stream extraction in the display cooking area, and therefore no diffusion of harmful substances or odours**
- **Spot lighting in the public area**
- **Due to the principle of layered flow, the work area is air-conditioned ideally**
- **The components (active cassettes) for the capture of extract air and fresh air supply are identically constructed. This creates a uniform appearance**

14. Detailed Solutions

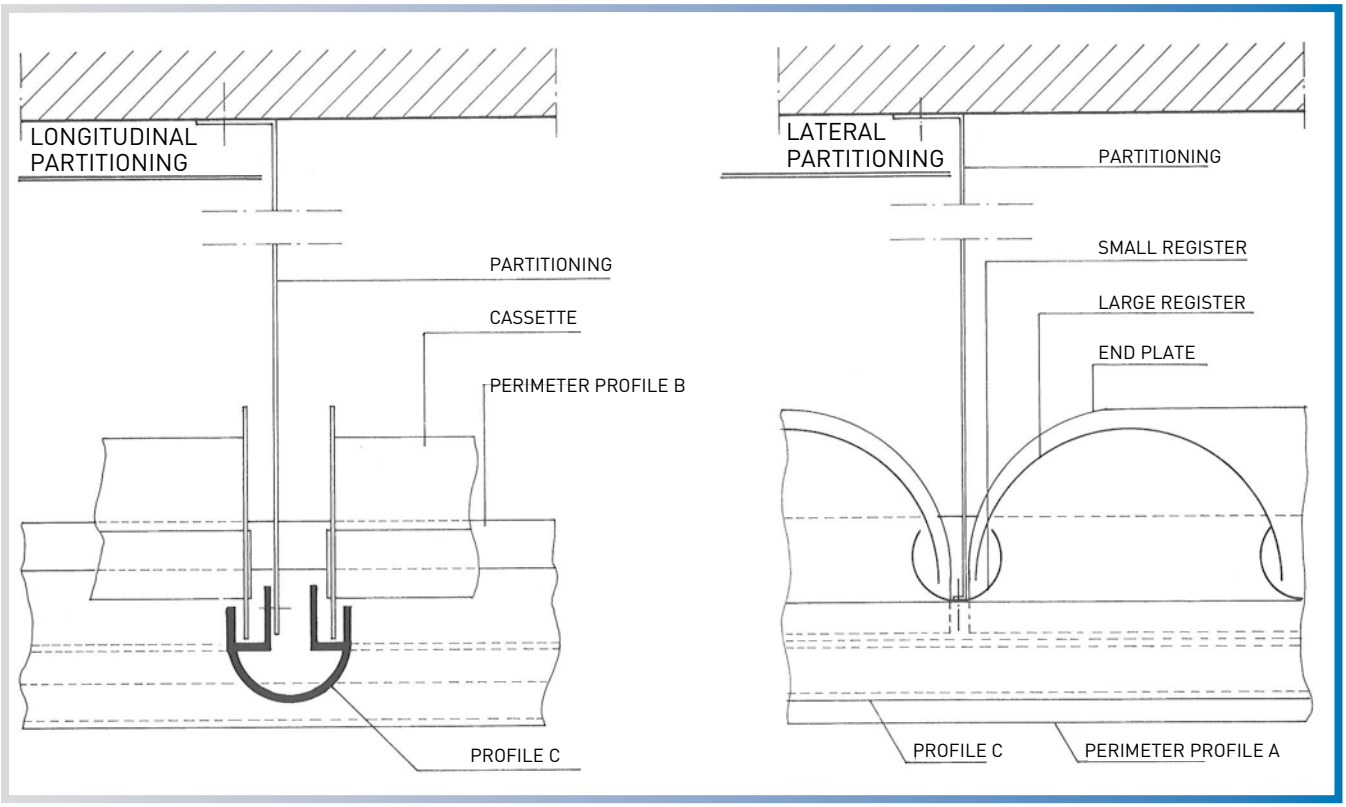


Cross section G – G

Scale 1:25

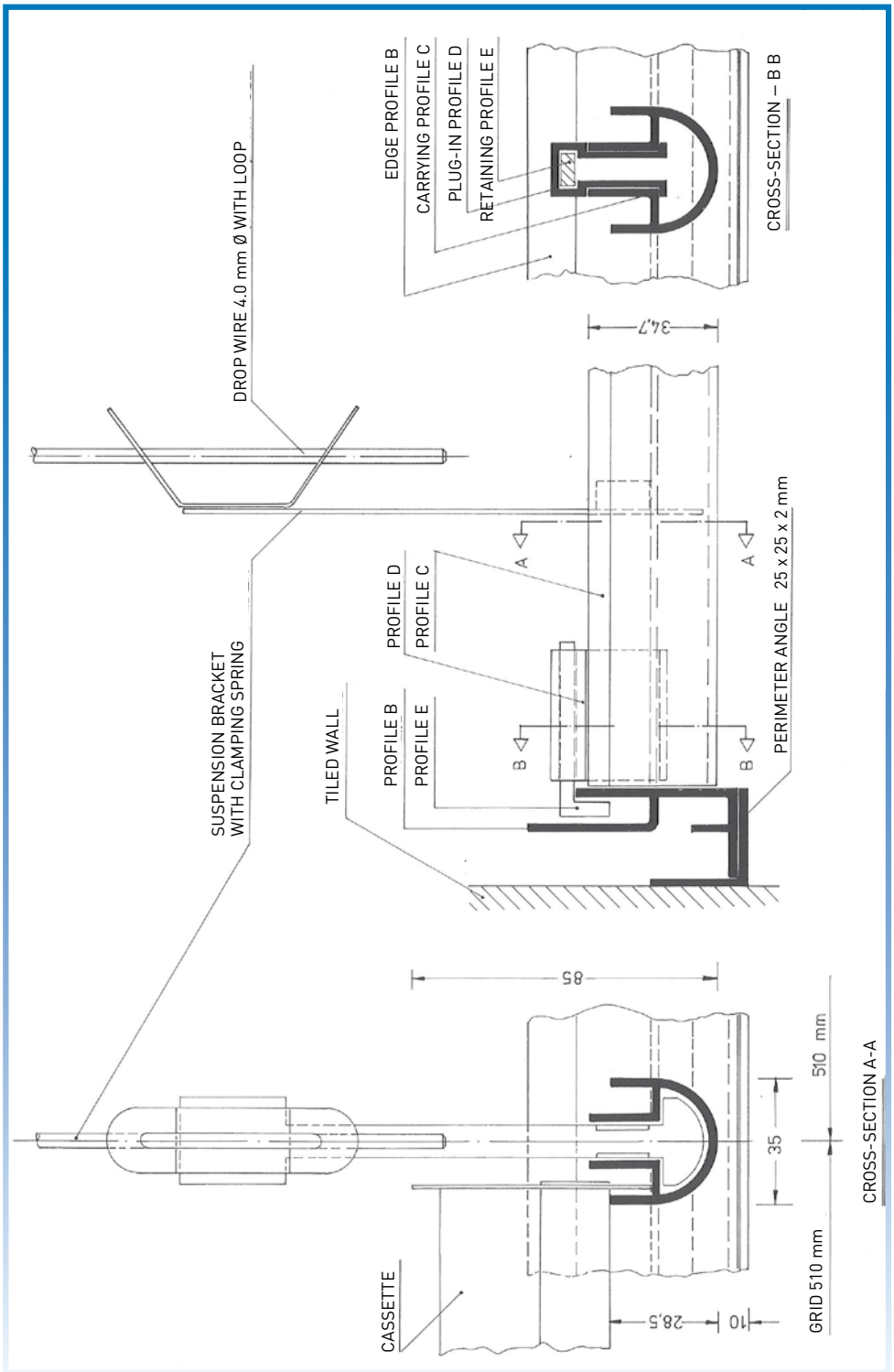


GIF Partitioning

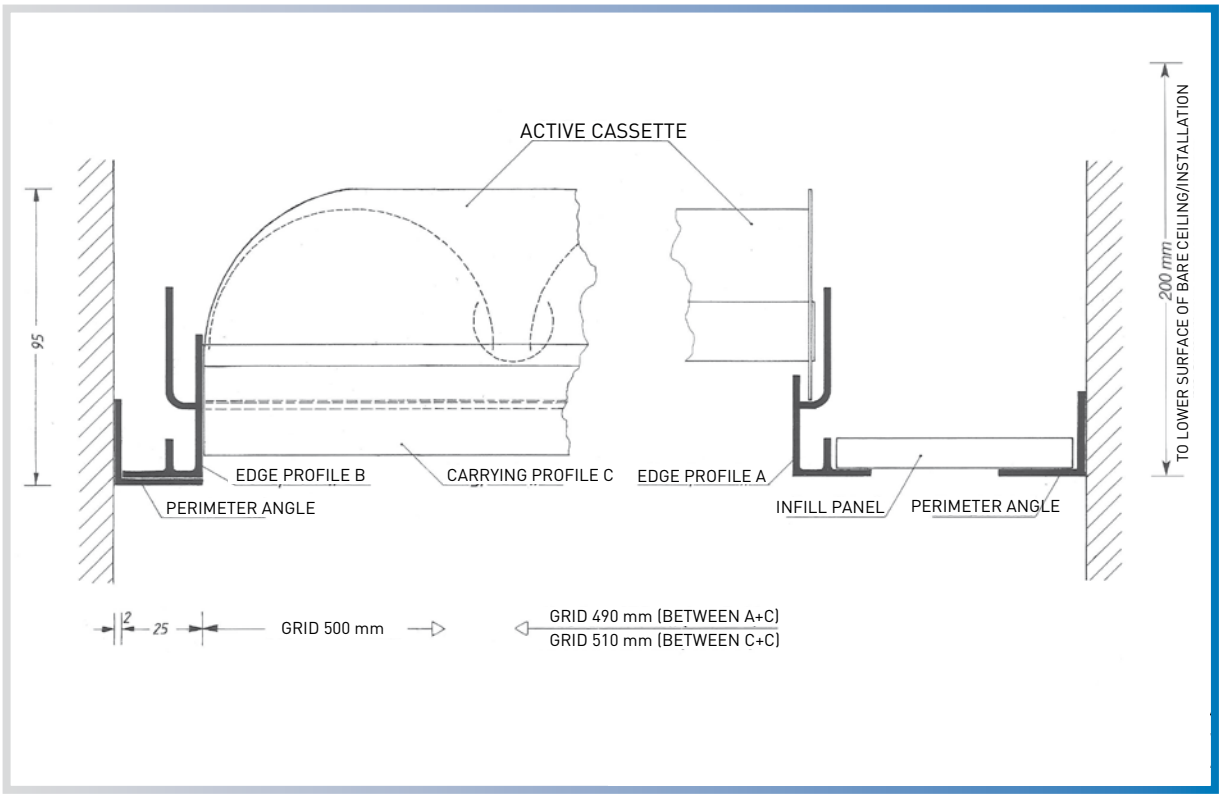


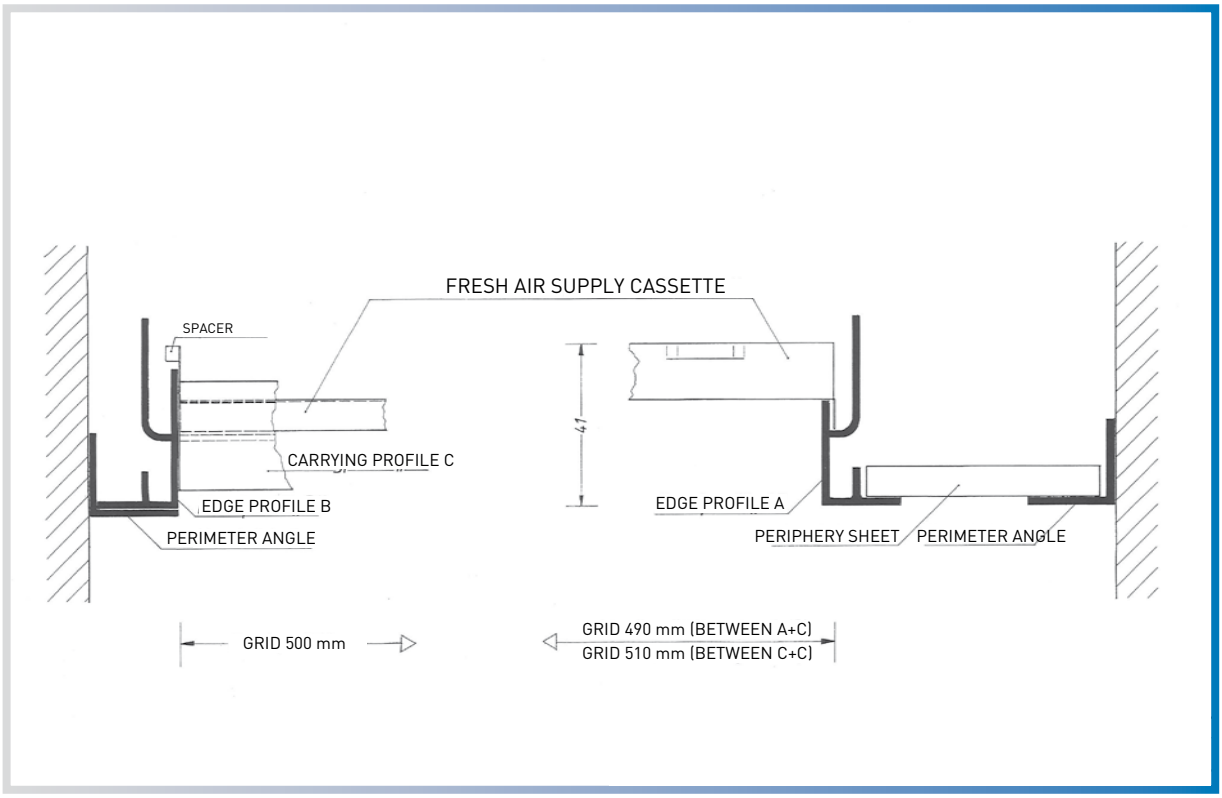
Material: Aluminium (ALMgSi 0.5)

GIF Suspension Grid

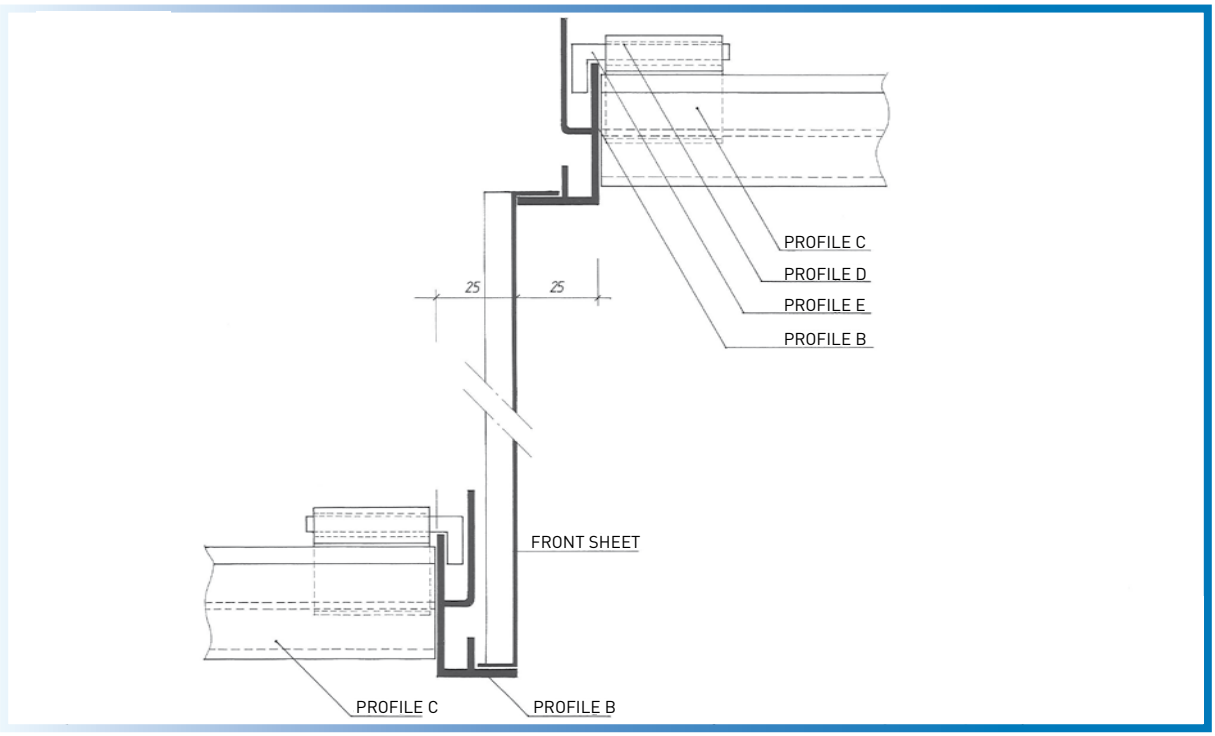


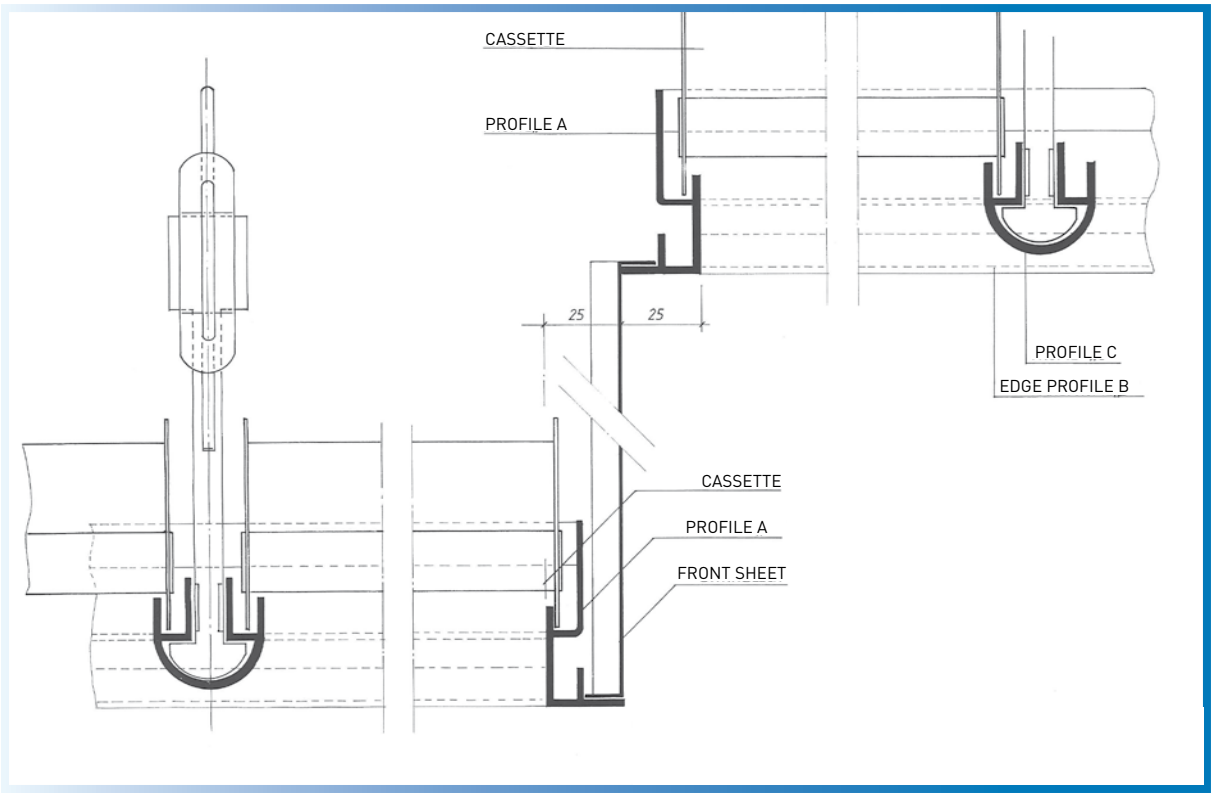
Wall connection, GIF Ceiling



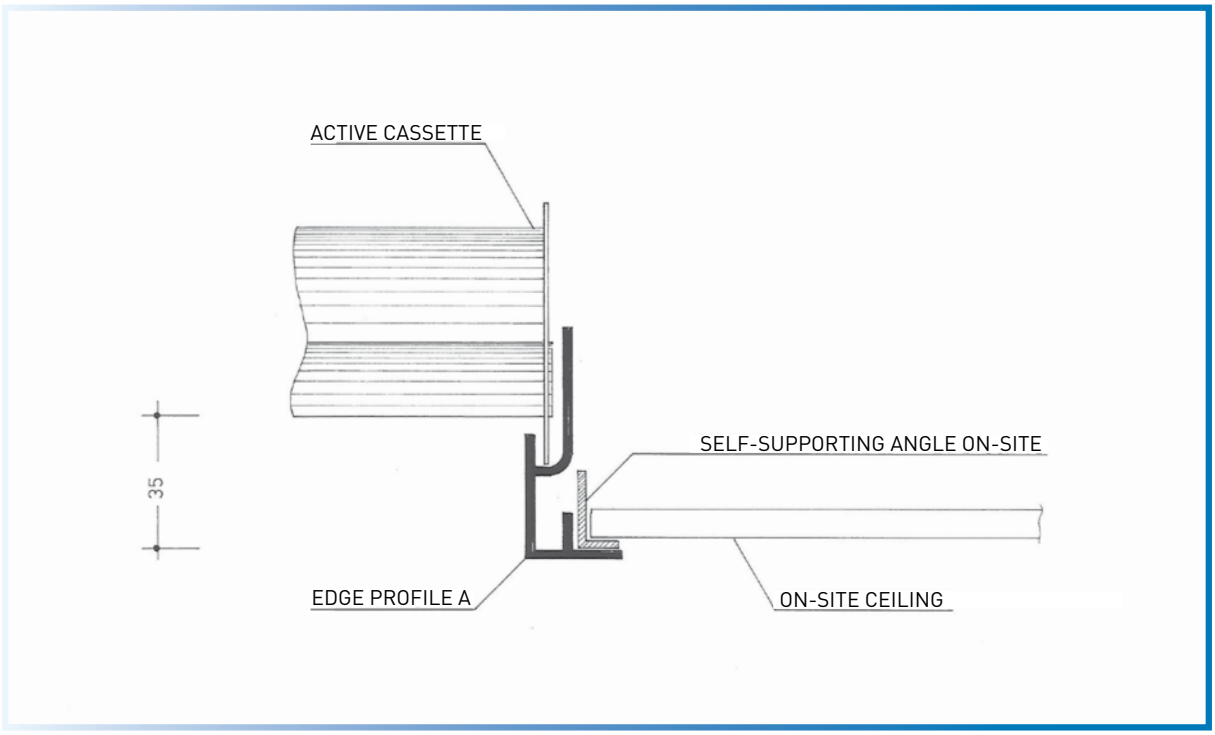


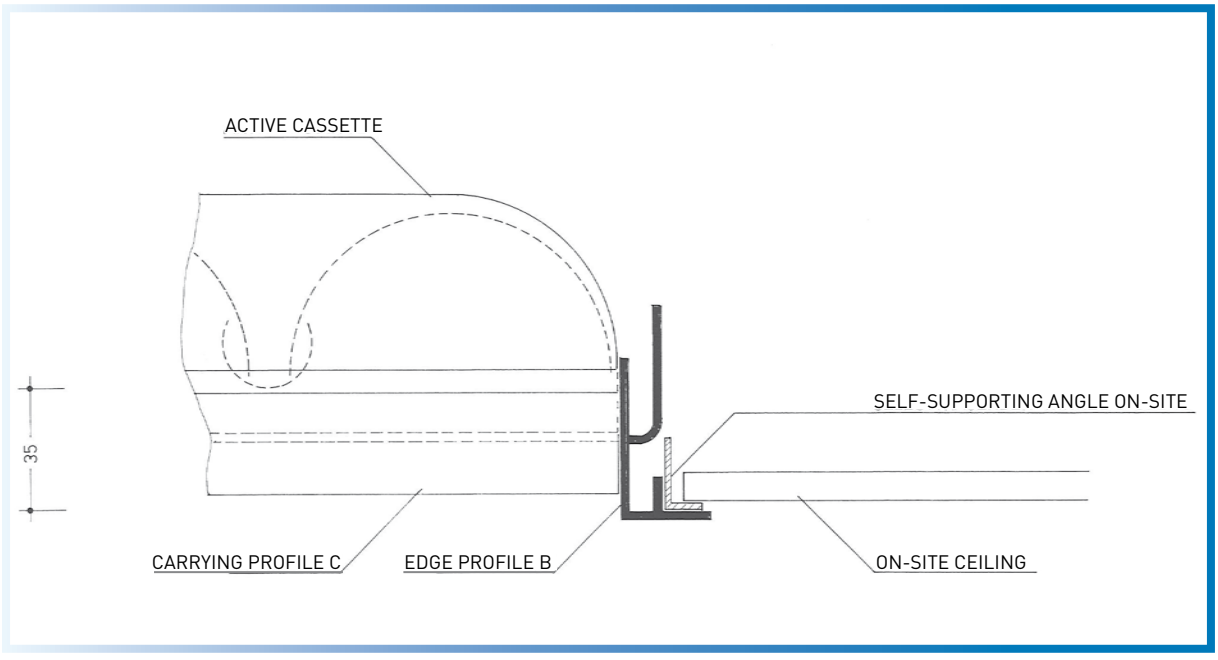
GIF Ceiling Offset





Connection of the GIF Ceiling to the on-site ceiling





15. Comparison of costs

Comparison of costs

Comparison of costs

Comparison of costs

Comparison of costs

Comparison of costs

Comparison of costs

Comparison of costs

Comparison of costs

Comparison of costs

Area-active GIF Ventilated Ceilings

The contents of a GIF quotation for a ventilated ceiling consist of:

Area-active solution
from wall to wall including:

- lighting
- components for extraction and supply of air
- fully reversible

versus

Extraction hoods

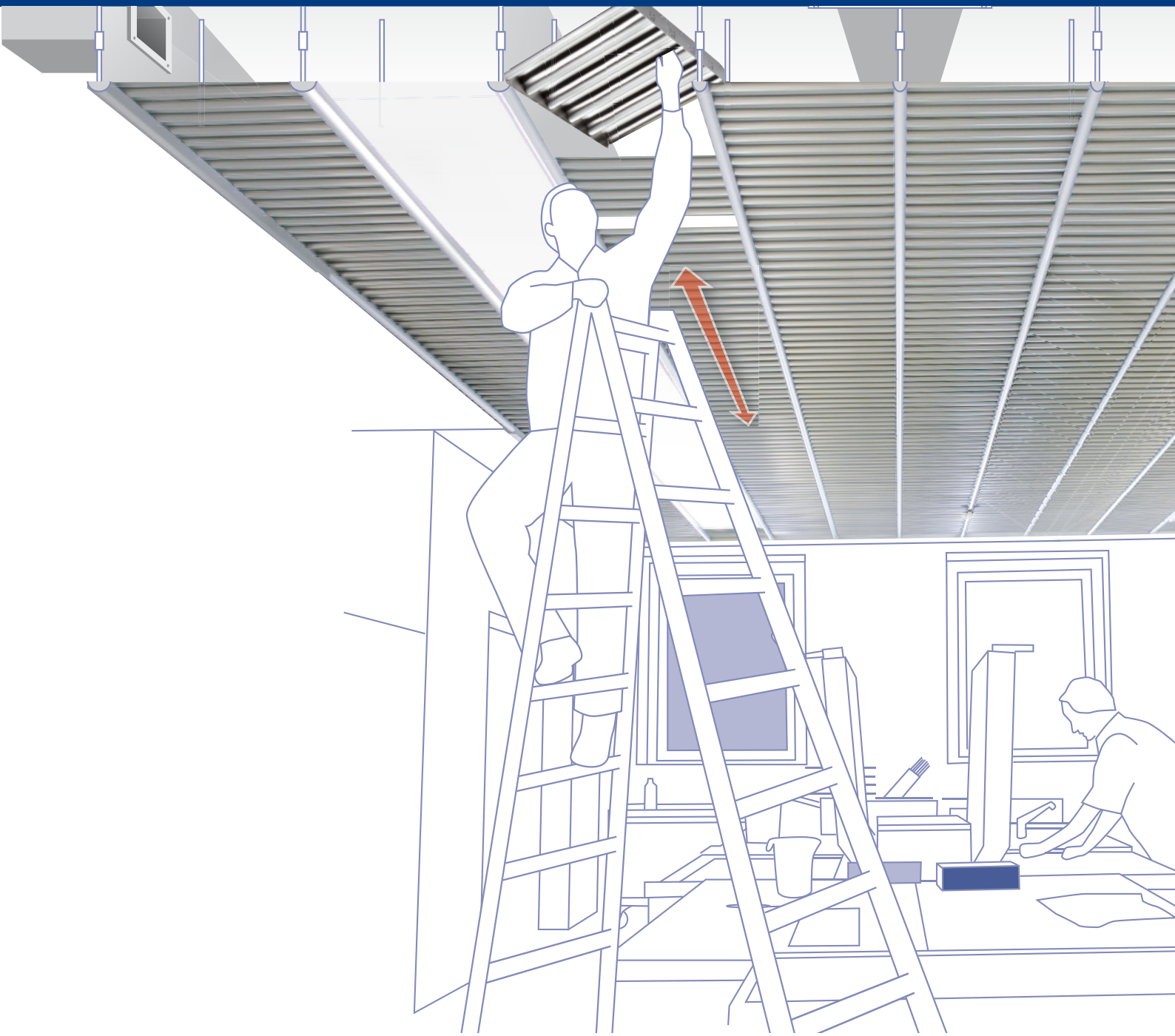
In order to make a comparison of costs the following should be included in the price calculation of an extraction hood:

+ ceiling panels or similar
+ lighting
+ air supply components
+ inspection openings
+ coverings, sheathings
+ additional channel networks

It is also recommended that in addition to costs, other aspects such as quality, hygiene and work safety should also be considered.

16. Cleaning Instructions

GIF ActiveVent



Cleaning the cassette ceiling

1
Wear gloves in order to protect you hands from injury.

2
Carefully remove the cassettes from the C-profiles. Only hold the cassettes by the side plates or the small registers.

3
Pull the cassettes that need cleaning towards you and lift them out one after the other until the entire row is empty. (Up to 10 cassettes can be removed at one time.)

4
If the cassettes are very dirty, spray them with a fat-dissolving cleaning agent on both sides.

5
Place the cassettes in the dish-washer basket. After washing, allow the cassettes to dry and remove residual water with a cloth.

6
By spraying the cassettes with a care product they will be extra shiny.

7
Insert the clean cassettes carefully into the C-profiles, linking one to another, and push them away one after the other (max. 10 cassettes) until the row is complete again.

8
If you buy additional cassettes they can be interchanged with dirty cassettes without interrupting the cooking process.

Cleaning the cassette ceiling

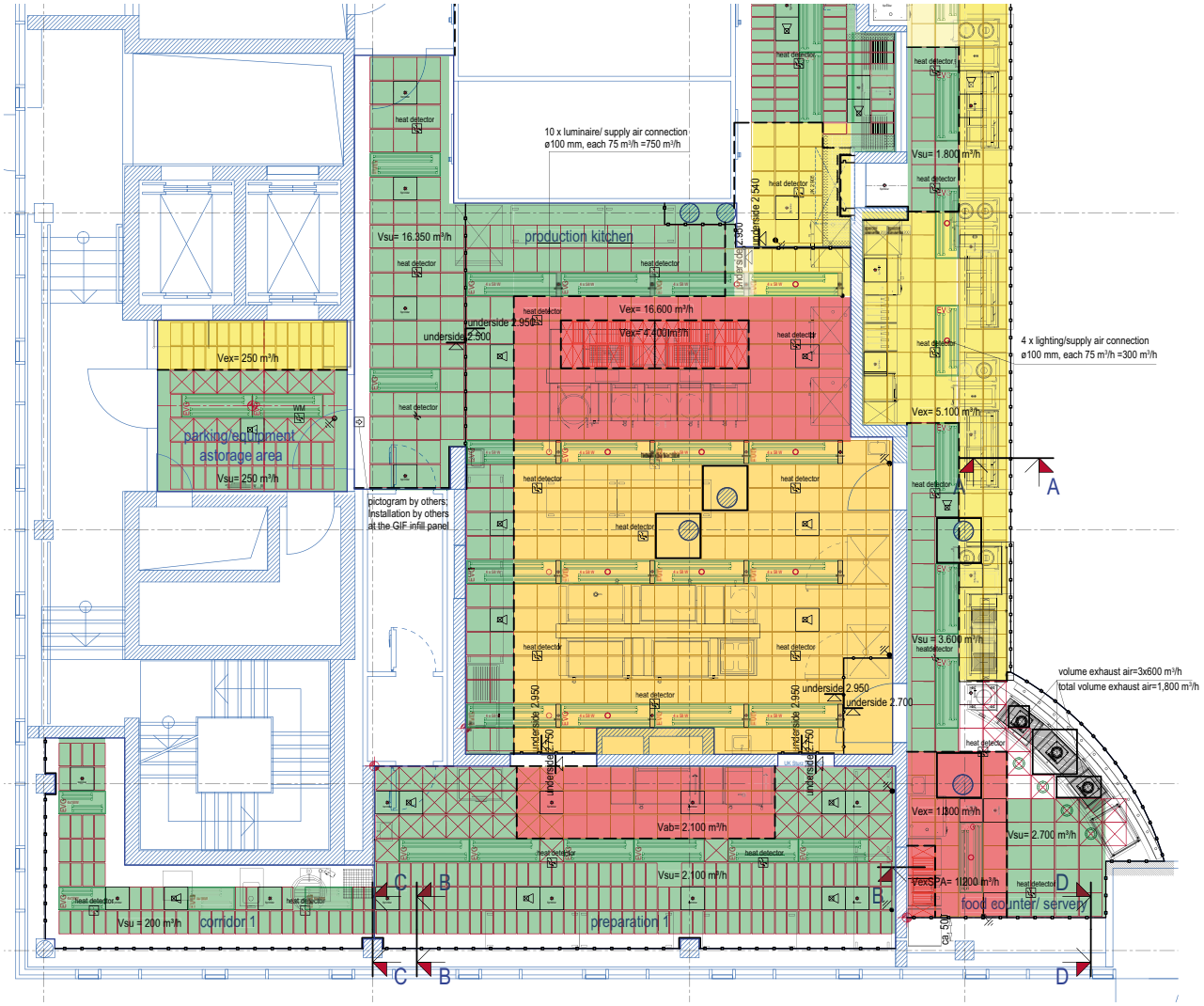
Partial cleaning
– Example: office canteen approx. 231 m² + x

35 m² Frying and deep frying area,
Cleaning every 4 weeks
Restaurant system,
cleaning every 1-2 weeks

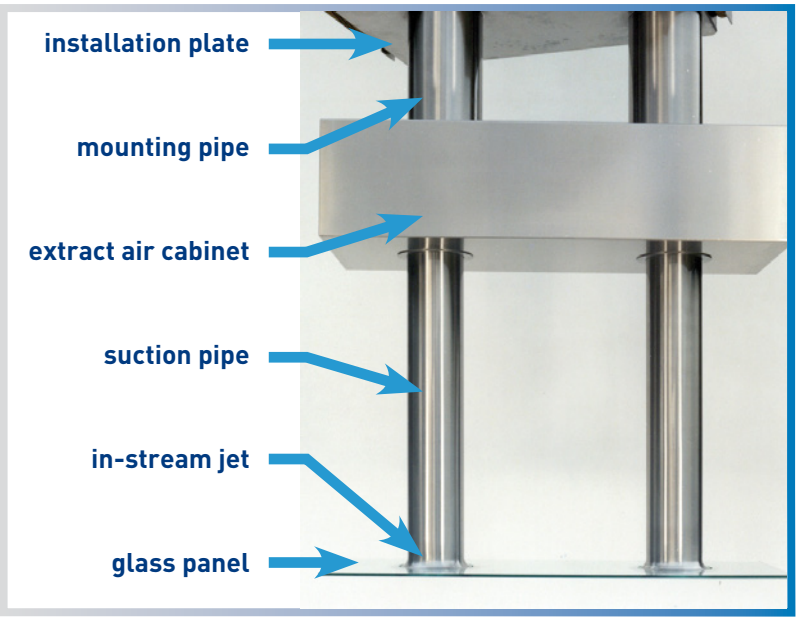
52 m² Cooking and steam area,
Cleaning every 2-3 months

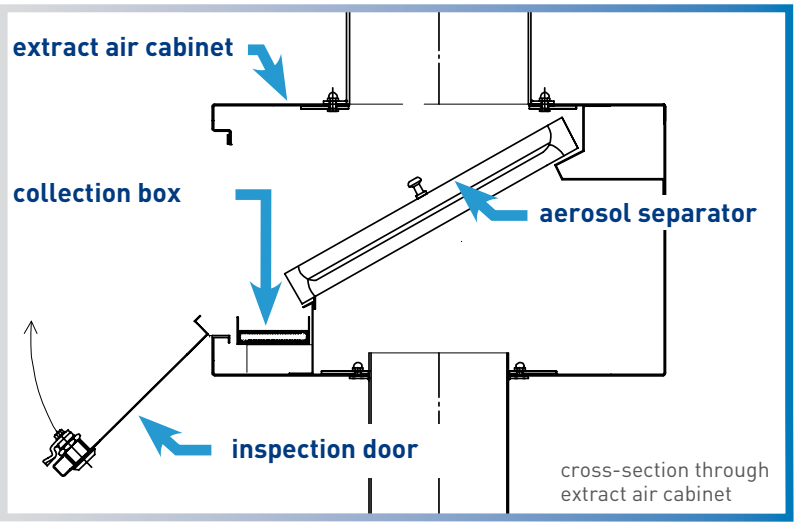
34m² Food warming area,
Cleaning every 6 months

110m² Fresh air supply area,
Inspection and cleaning every 12 months



Cleaning the Jet Stream Plate





Please note:
Before you use any cleaning or care products familiarise yourself with the materials and substances the individual components are made of. Chlorine containing or bleaching agents should not be used for cleaning. Stainless steel parts should only be treated with alkaline cleaning agents, which contain small amounts of acid-free oil, and should not be treated with acidic cleaning agents.

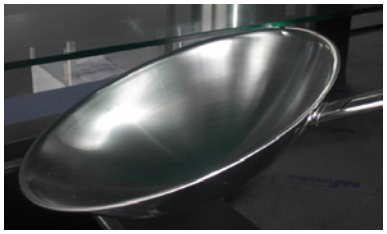
- **Do not use scouring, abrasive agents**
- **Rinse with clean water immediately after each cleaning process**
- **Do not use cleaning agents of unknown origin**

Aerosol separators:
The aerosol separators should be cleaned every 1-5 working days according to the operating requirements, but at least every 14 working days.

Collecting box:
The collecting box(es) should be cleaned every 1-2 weeks according to the operating requirements, but at least every 4 weeks.

Cleaning the Jet Stream Extractor

General advice



Avoid hard banging with metallic objects – the glass panel could break. Should the glass panel break, the operation of the kitchen and food counters must be stopped immediately.

Careful: Do not place any hot cookware on the glass panel – the glass panel could break.

Cleaning

1
The extract air box is opened with an allen key. Then lower the lid carefully.

When removing the aerosol separator, lift it by the handles and then grip it on the sides with both hands and remove.

2
The aerosolate from the separator is collected in the collecting troughs. Grip the stop ridges of the collector box

and keep it horizontally to avoid any overflow. Dispose of the grease according to local regulations.

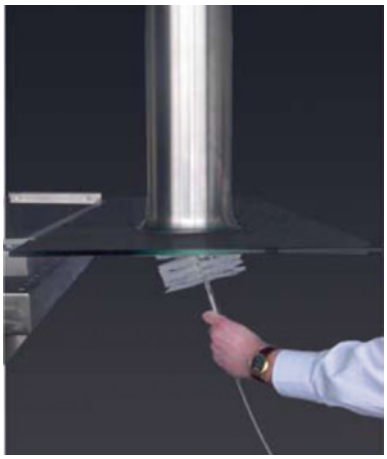
Cleaning the Jet Stream Plate

3
The separators can generally be cleaned in the dishwasher. An inclined or vertical position is ideal with the drain vent positioned downwards.
After the cleaning process, the surface should be metallic bright, if not, soak the separator in a rinsing bath and clean it in the dishwasher again.

Encrusted and charred residues from frying and grilling can best be handled with a special grill cleaner. Inserting the separators is done in reverse order. The individual separators are interchangeable.

4
The drain vent must be located at the lowest point so that the aerosolate can be drained into the collecting troughs unimpeded.

Please note:



The suction pipe should be regularly cleaned with a special brush included in the delivery contents.

Place a cloth soaked in a foamy soap solution over the brush and clean the suction pipe. Intense soiling should subsequently only be cleaned with the brush. Then dry the damp suction pipe with a cleaning cloth over the head of the special brush.

17. Contact Addresses World-Wide

Contact Addresses World-Wide

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