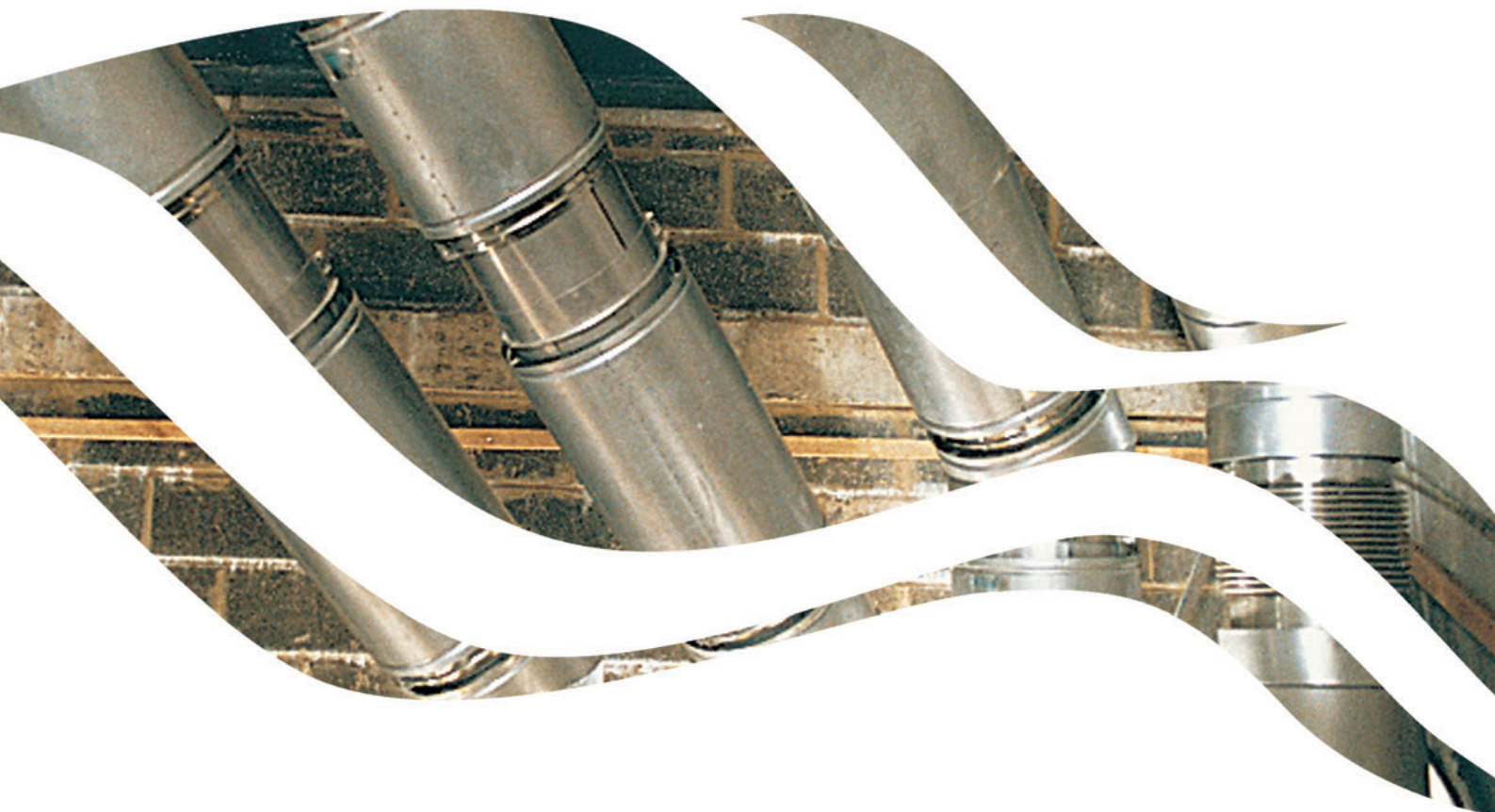


SFL Solutions

Finding the perfect solution for your
Flues and Chimneys



Wherever they are used, SFL Chimney and Exhaust systems are so versatile they provide a world of different solutions

SYSTEM APPLICATIONS

Chimney systems

- Building Supported Chimneys (internal and external)
- Mast Supported Chimneys
Single post - square or circular
- Multi-leg Frame
Square, triangular or rectangular
- Windshield Chimneys
- Chimney relining systems
- Dilution air flue systems
- Boiler flue pipes for balanced draught flue systems

Exhaust systems

- Generator/turbine exhausts
- Incinerator exhausts
- Fume cupboard exhausts
- Industrial process exhausts
- Kitchen/catering equipment exhausts
- Car park ventilation

Offshore Oil & Gas applications

- Engine exhausts
- Fire rated leg ventilation ducts
- Kitchen/catering equipment
- Smoke extract ducts

Smoke extract systems

- Fire rated smoke ducts
- Fire rated ventilation ducts

Laundry/refuse chutes

NOTABLE PROJECTS

- Palace of Westminster - London**
Boiler Chimneys
- Building Research Establishment FRS Burnhall - Garston**
Smoke Exhaust Ducts
- Bentalls Retail Complex - London**
Smoke Extract Ducts
- National Exhibition Centre - Birmingham**
Boiler Chimneys and Generator Exhausts
- University of Nottingham**
Boiler chimneys
- Royal Devon and Exeter Hospital**
Boiler chimneys and Generator Exhausts
- Taff Ely Hospital - Bridgend**
Boiler chimneys and Generator Exhausts
- Royal Bank of Scotland HQ - Edinburgh**
Boiler chimneys and Generator Exhaust
- University of Dundee - Dundee**
C.H.P. Exhausts
- Siemens Ltd. - Walsend**
Boiler chimneys
- Royal Armouries - Leeds**
Boiler chimneys
- Stormont Buildings - Belfast**
Boiler chimneys
- Waterford Crystal Ltd. - Waterford**
Generator Exhausts
- Waterfront Hall - Belfast**
Boiler Chimneys and Generator Exhausts



SFL - An introduction to the first name in prefabricated stainless steel chimneys

For over sixty years our brands have been established as the leading flue, chimney and exhaust systems, available for a wide range of specialist applications.

SFL systems create aesthetically pleasing solutions to practical chimney and exhaust problems.

This brochure is intended as an introduction to the many possibilities provided by the company and its systems.

What are the SFL Systems and what are they designed to do?

The SFL range of systems has been carefully formulated to provide products that meet the highest standards of design, manufacture and performance required throughout the world.

Optimum chimney performance is achieved through combinations of inner liners and insulation to cater for varying flue gas volumes and temperatures.

Whatever a project demands, there is usually a SFL system to suit. And wherever a SFL system is used, you can be sure it meets all statutory requirements and standards.

SFL products are approved in numerous countries world wide. Where applicable SFL products are CE marked to BS EN 1856: Parts 1 & 2.

- * EUROPA
- * SMW
- * SM
- * SUPRA
- * QC
- * IL
- * SW
- * ANCILLARIES
- * ILS
- * NOVA

- * **Fire Rated Products to BS476**
Loss Prevention appraised under CC881971

Cover photo

The Burnhall at the Building Research Establishment, Garston

How do you select the right system or combination of systems for your project?

Each SFL system has been designed and manufactured to meet the exhaust gas requirements of specific fuel types in given situations.

Each system is comprehensively tested up to and beyond its design limits at the company's extensive research and development facilities in Barnstaple. This testing provides reliable performance statistics upon which project calculations can be based.



Installations must also, of course, take into account the statutory requirements and standards of the country in question. To aid selection, SFL publish full product information on each of their systems and the company's Technical/Contract Services Department is always available where assistance is required.

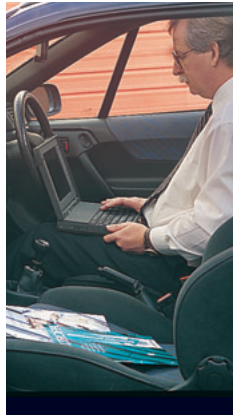
What types of technical support can SFL provide for your project?

In order to help ensure successful design and installation of systems, SFL provide a full range of technical services.

Product information is provided in the form of comprehensive technical brochures available for each system. Information is also available on computer disc for use on CAD systems. All the drawings in this brochure have been based on original drawings produced using this facility. For further details see page 18.

SFL have an extensive network of Specialist Distributors who can provide a complete design quotation, supply and installation service. This service can include items of builders work and other subcontractors work necessary to provide a complete "turnkey" facility.

The result is chimney solutions that not only meet the required performance criteria but also enable installation to be carried out effectively and efficiently.



What you need to know about the Clean Air Act

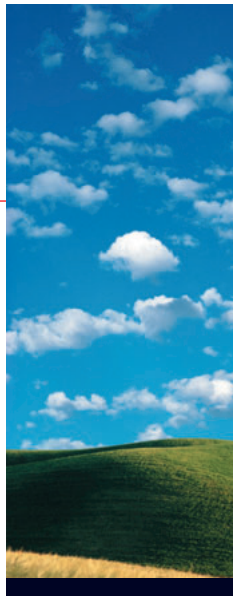
SFL are very much aware that their systems handle gases and products which are discharged to an already sensitive atmosphere. We therefore are very conscious of the need for our environment to be protected particularly where legislation demands.

The Clean Air Act currently in force in the UK aims at controlling the emission of pollutants into the air we breathe.

For commercial/industrial boiler plant and diesel generators, the Act requires chimney heights to be calculated on environmental considerations. Specific guidance as to the minimum discharge height is set out in the Third Edition of the 1956 Clean Air Act Memorandum for all combustion plant burning fossil fuels, as well as in Technical Guidance Note (Dispersion) D1, which covers all other circumstances, including diesel generators, incinerators and process plant.

The final height in every instance must be approved by the local Environmental Health Department.

Regardless of aesthetics or chimney type, compliance with the Act is a legal requirement for any chimney construction or fuel.



The following examples of SFL applications are not actual case studies. They represent the uses of combustion equipment and SFL systems in various typical applications, and do in some cases illustrate how the SFL product can be applied to provide a unique solution to specific problems.



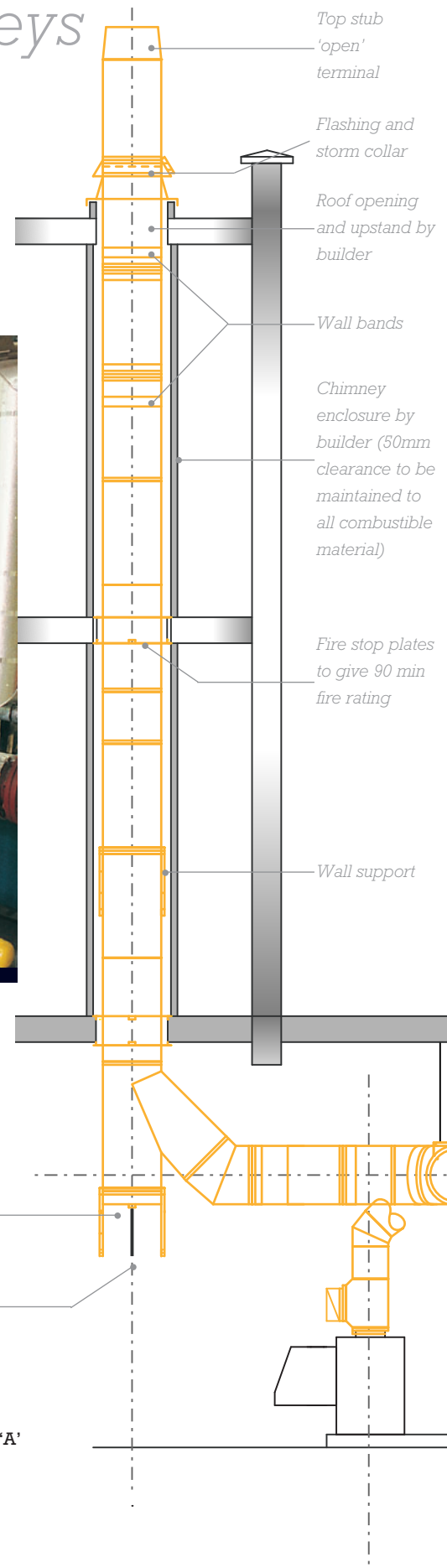
Building Supported Chimneys

Internal
and
External



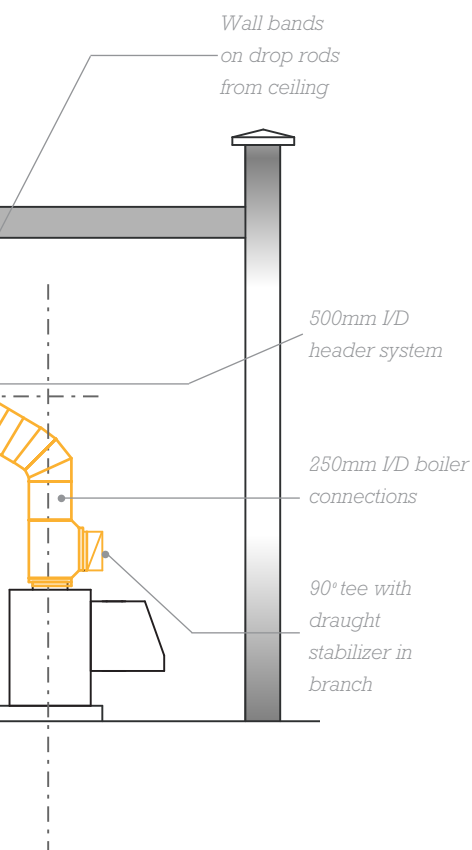
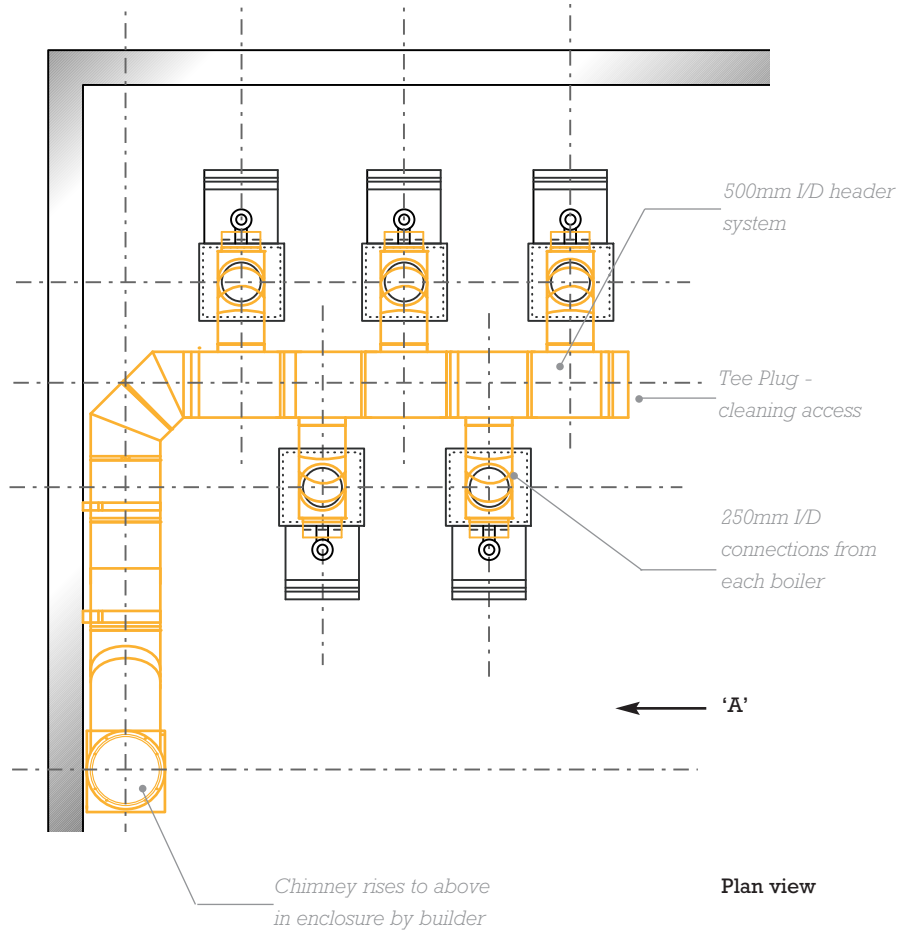
Above
Glenogle Swimming Complex, Scotland.
SM W chimney and header system serving high efficiency gas boilers.

Opposite
Three chimney systems supported on the building wall and located internally and externally. Each chimney passes through an atrium glass roof.



SM W

SM W is a twin wall mineral-wool insulated stainless steel system design for use with oil and gas fuels. It is available with a full range of fittings and accessories in twelve diameters ranging from 127mm to 600mm. CE marked to BS EN 1856-1. Suitable for use on gas, oil or solid fuel. Where the flue gas temperature is greater than 250°C, or where SM W passes internally through combustible floors, ventilated support components must be used.



Building supported chimneys offer easy and speedy erection without the need for foundations. They can be concealed within a building or, when applied externally, can be used as an architectural feature and coloured to choice.

Supplied to meet all necessary fire ratings, they are lightweight and space saving, requiring a minimum clearance to combustibles of only 50mm.

These types of chimney are also easy to inspect and maintain.

SYSTEM KEY
 SM W Chimney System



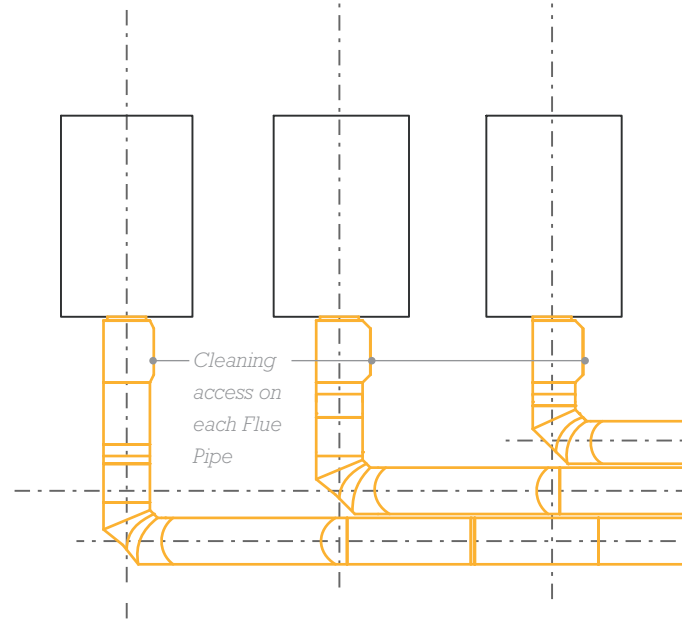
Mast Supported Chimneys

Free Standing
Square or Circular
Single Post

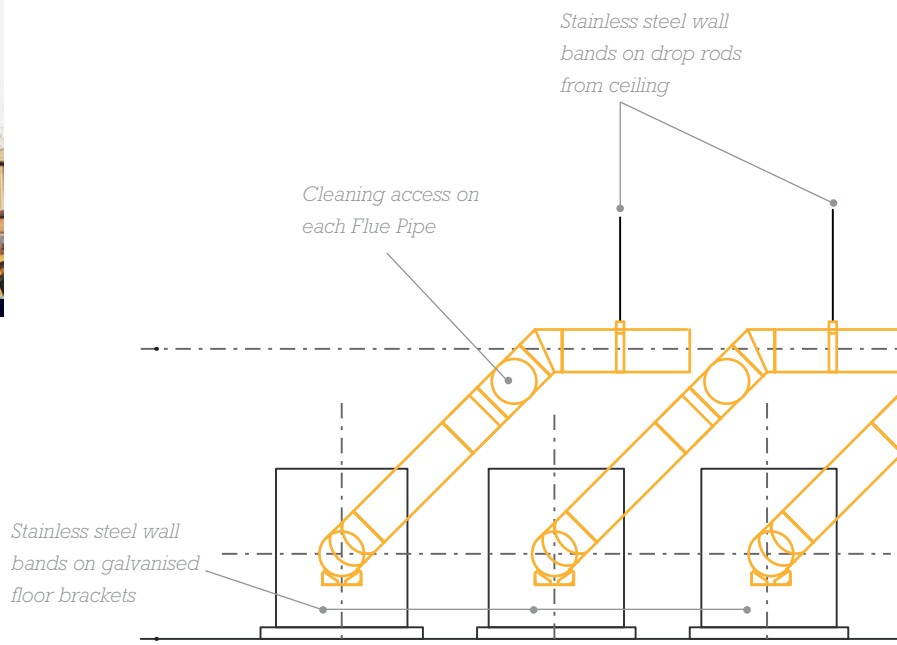
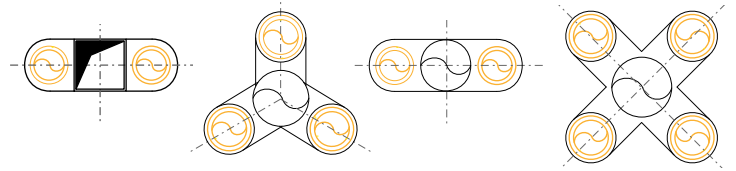


Government establishment, Northern Ireland.

Three Europa chimneys supported on a single hollow section circular mast. Connected by individual SM W sections to pressure jet oil-fired boilers, burning 35 sec. fuel oil.



Other mast arrangements



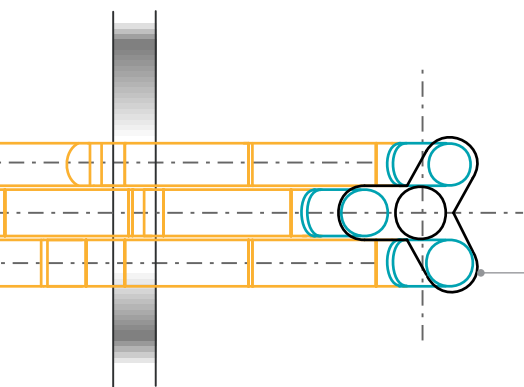
With compact arrangement and mast and chimneys coloured to choice if required, mast supported chimneys can form architecturally attractive features.

The central support post can be either circular or square hollow section steel to provide lightweight, easily and speedily erected structures.

Installations can be easily inspected and maintained.

Mast supported chimneys can be constructed up to a height of approximately 18m depending on overall wind conditions.

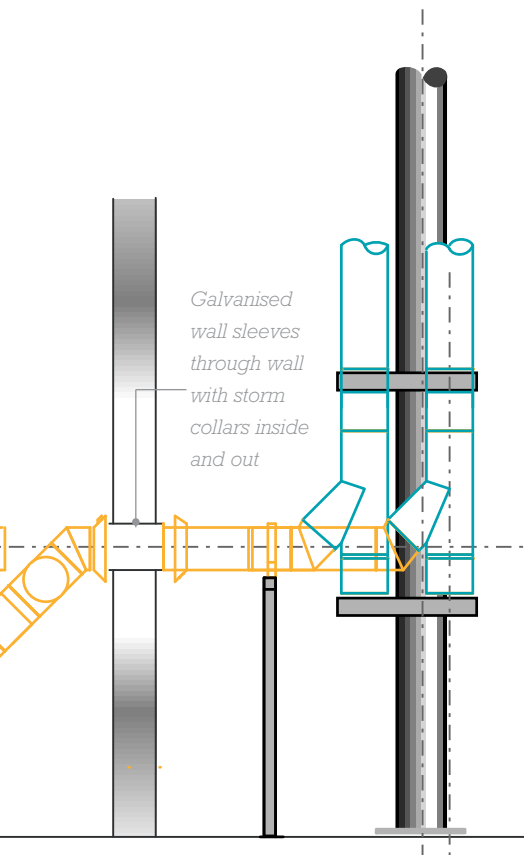
SFL products installed internally can be fire-rated if required.



Circular hollow section support mast painted as per spec.

Support plates welded to mast and profiled to match chimneys

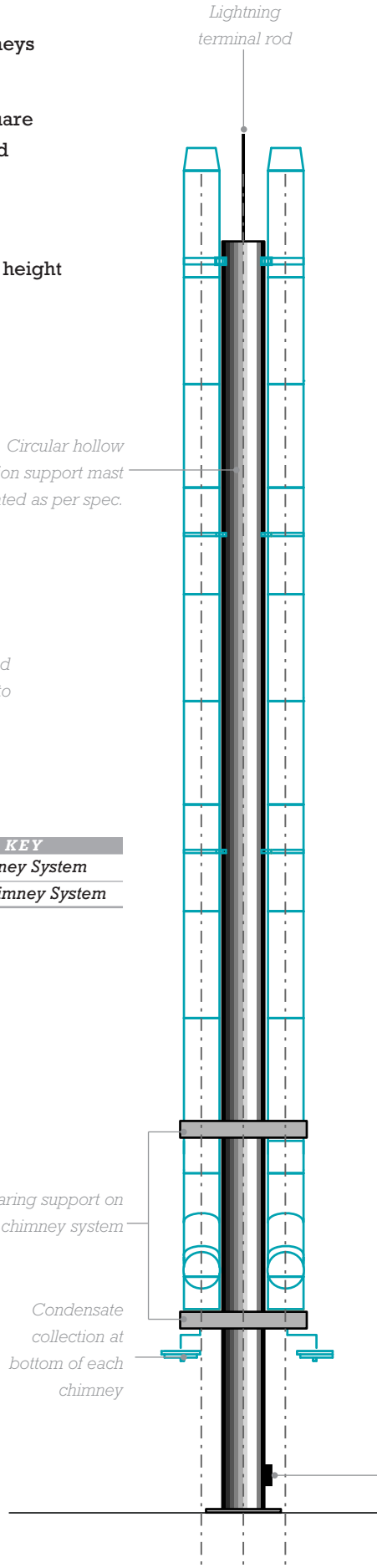
SYSTEM KEY	
	SM W Chimney System
	EUROPA Chimney System



Galvanised wall sleeves through wall with storm collars inside and out

Load bearing support on each chimney system

Condensate collection at bottom of each chimney



Lightning terminal rod

EUROPA

The Europa system is designed to convey gases, particles, fumes, smoke and products of combustion from a wide range of engineering, combustion and process equipment. It is a lightweight engineered system designed to resist pressure up to 15 kPa (60in. w.g.) The system is available in a wide range of diameters from 100mm to 1200mm.

SM W

SM W is a twin wall mineral-wool insulated stainless steel system design for use with oil and gas fuels. It is available with a full range of fittings and accessories in twelve diameters ranging from 127mm to 600mm. CE marked to BS EN 1856-1. Suitable for use on gas, oil or solid fuel. Where the flue gas temperature is greater than 250°C, or where SMW passes internally through combustible floors, ventilated support components must be used



Lightning conductor test point terminal

Mast Supported Chimneys

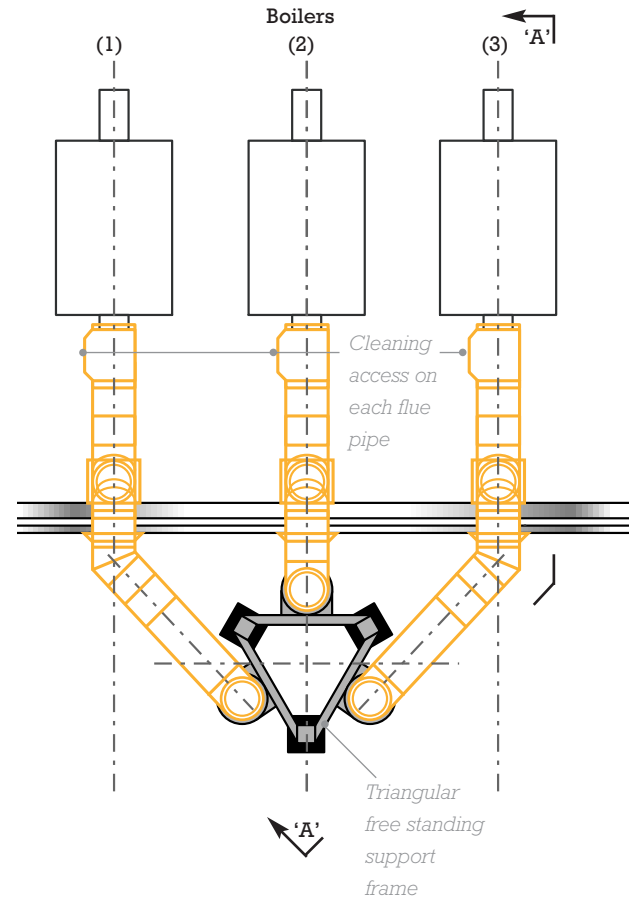
Multi-Leg Frame

Square, Triangular, Rectangular



Bio Products Laboratory, England.

Three SM W Chimney systems supported on a triangular open framed mast, constructed from square hollow section steel.

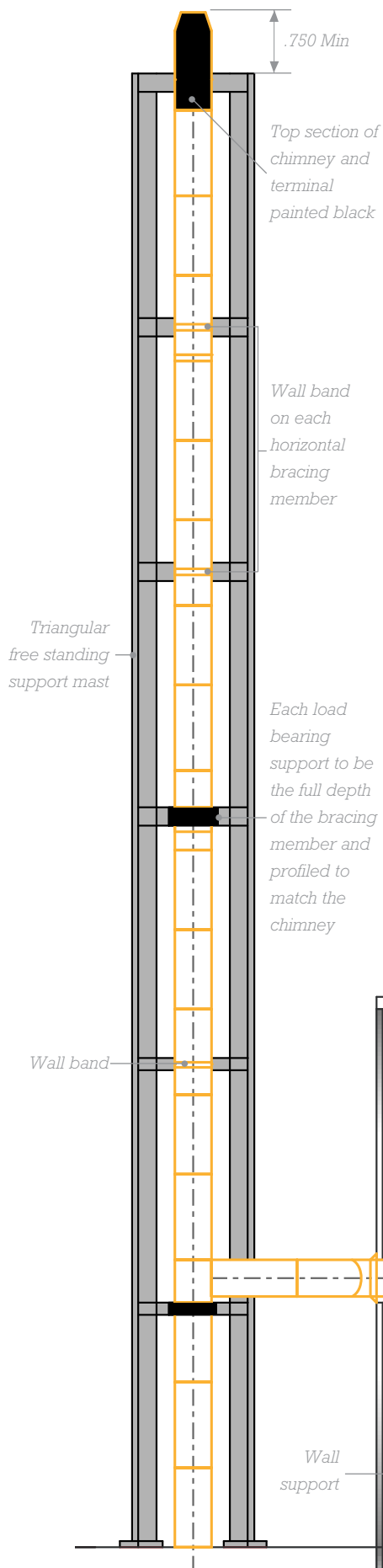


Mast supported chimneys can form architecturally attractive features through the benefits of compact arrangements with mast and chimneys coloured to choice if required.

They can be designed to accommodate any number of chimneys up to heights of approximately 50m, with mast frames in square, triangular or rectangular format.

Using either circular or square hollow section steel, this type of chimney design is relatively lightweight compared to other methods of chimney construction.

Speed of erection and subsequent maintenance can be facilitated by the incorporation of a ladder and platform system as a permanent feature of the structure without detriment to its aesthetic appeal.



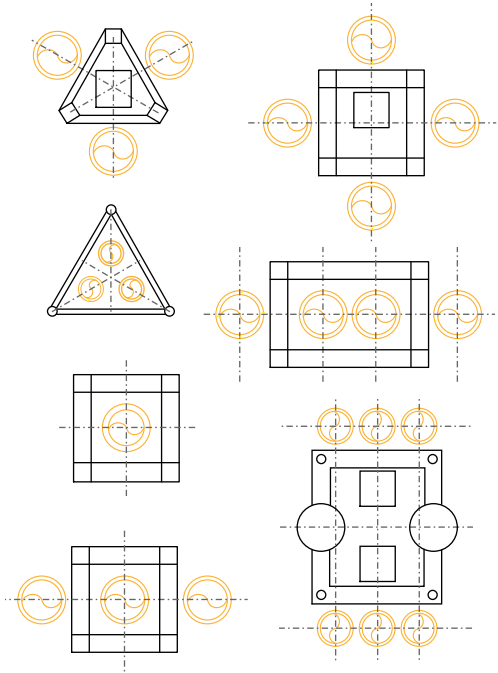
Worms eye view of the trio of SM W chimneys supported on a triangular frame.



SM W

SM W is a twin wall mineral-wool insulated stainless steel system design for use with oil and gas fuels. It is available with a full range of fittings and accessories in twelve diameters ranging from 127mm to 600mm. CE marked to BS EN 1856-1. Suitable for use on gas, oil or solid fuel. Where the flue gas temperature is greater than 250°C, or where SMW passes internally through combustable floors, ventilated support components must be used

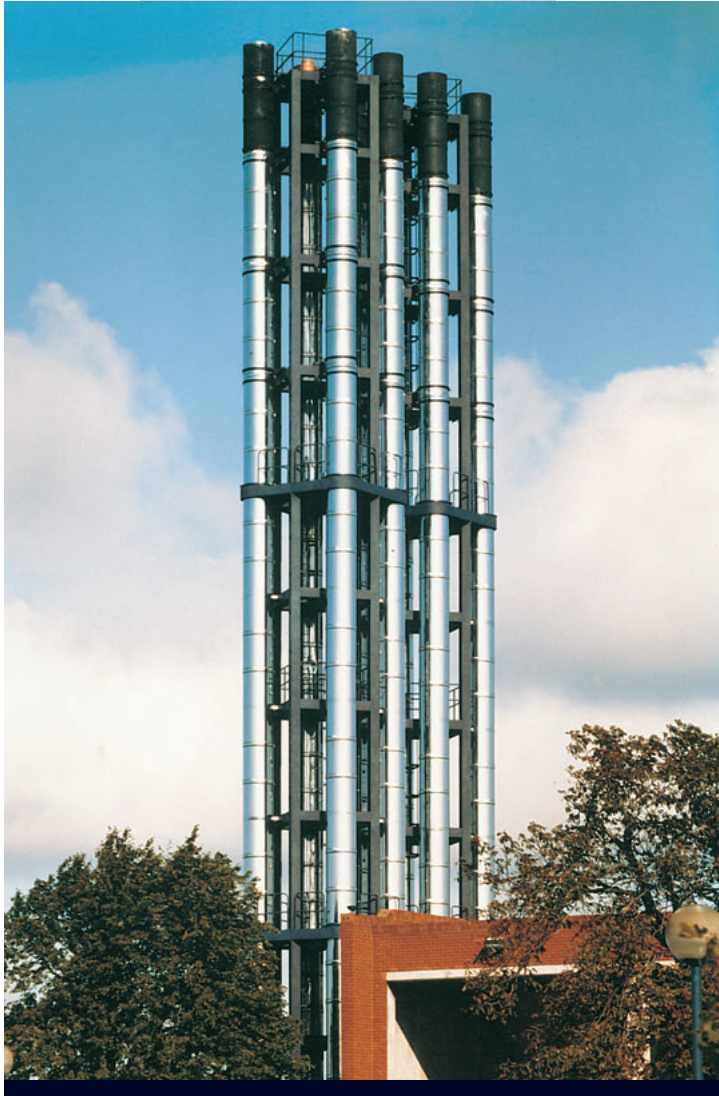
Other mast arrangements





Mast Supported Chimneys

Base and Wall/Roof Supported



St James Hospital complex, Dublin.

Eight Chimneys serving six gas fired boilers and two incinerators. The chimneys are supported on two, square open framed, hollow section masts, which are 45m high.

The unique foundation and support arrangement featured for the mast can be just as easily applied to masts supporting any current SFL chimney system.

Main load bearing support and inspection platform.

Rest platform

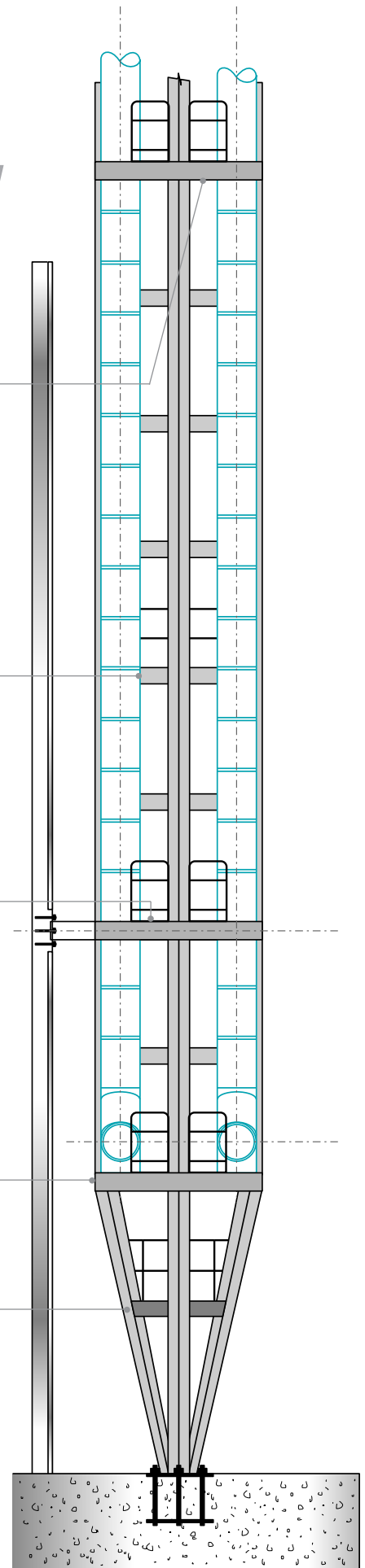
Main load bearing support and inspection platform.

Main load bearing support and inspection platform.

Rest platform

SYSTEM KEY
EUROPA Chimney System

NB. All ladders and platforms to be in accordance with BS4211.





EUROPA

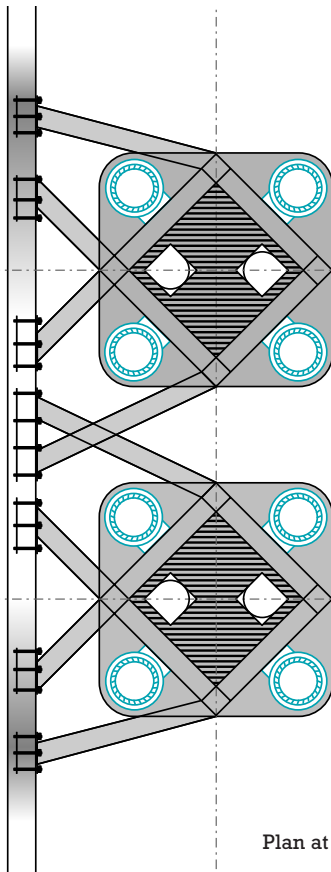
The Europa system is designed to convey gases, particles, fumes, smoke and products of combustion from a wide range of engineering, combustion and process equipment. It is a lightweight engineered system designed to resist pressure up to 15 kPa (60in. w.g.) The system is available in a wide range of diameters from 100mm to 1200mm.

SMW

SMW is a twin wall mineral-wool insulated stainless steel system design for use with oil and gas fuels. It is available with a full range of fittings and accessories in twelve diameters ranging from 127mm to 600mm. CE marked to BS EN 1856-1. Suitable for use on gas, oil or solid fuel. Where the flue gas temperature is greater than 250°C, or where SMW passes internally through combustible floors, ventilated support components must be used

NOVA SM

Nova SM is a twin wall mineral wool insulated stainless steel system designed for use with oil, gas and solid fuel appliances. When fitted with a seal, the Nova product is ideally suited for condensing appliances or wet/pressure systems up to 200 Pa at a max flue gas temperature of 200°C. Without a seal fitted the Nova SM product is suitable for negative draught conditions at a max flue gas temperature of 450°C. Nova is fire assessed to BS 476-20 for 120 mins. Nova SM is CE marked to BS EN 1856-1.



Plan at wall support level

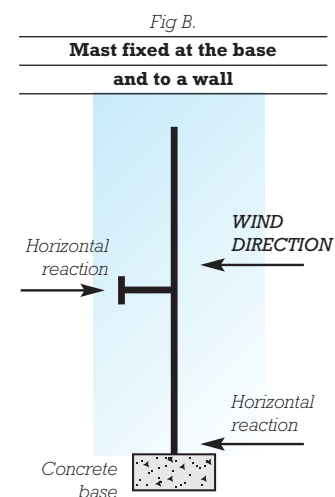
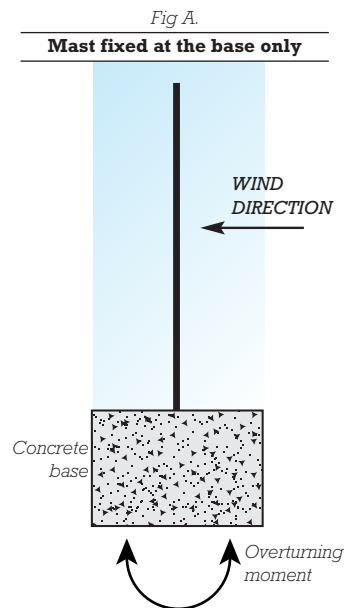
This arrangement of providing two fixing points for the support mast can be applied to either the single post mast illustrated on pages 5 & 6, or the multi-leg frames as illustrated here and on pages 7 & 8.

When the mast is provided for base fixing only, a relatively large overturning moment has to be accommodated. In consequence, a large foundation requirement is necessary, as illustrated in figure A.

Where the support mast is required close to the building, or partly within it, site conditions may not always permit the construction of large concrete foundation, so an alternative engineering arrangement has to be considered.

When two fixing points for the mast are provided, one at the base and the other either to a wall or at the roof intersection, the base foundation requirement is substantially reduced. The resultant forces are changed from an overturning moment to two simple horizontal reactions, as illustrated in figure B.

It can be seen that this type of solution is particularly relevant to the open frame mast structures. It permits the installation of a chimney arrangement which could not be as easily achieved with other chimney constructions.



Windshield Chimneys

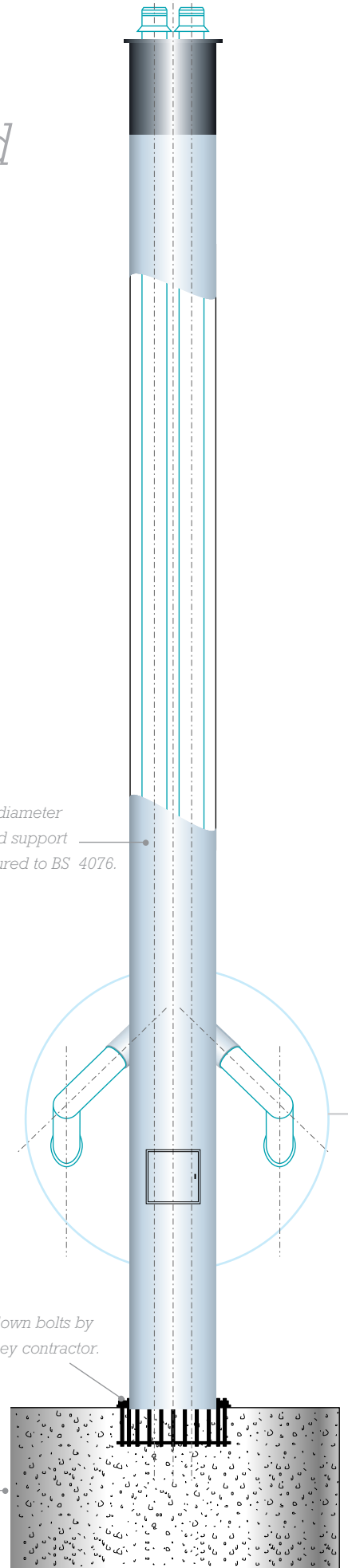


*Nationwide Building Society, Northampton.
Three Europa Chimney systems installed
within a windshield.*

*1600mm diameter
windshield support
manufactured to BS 4076.*

*Holding down bolts by
the chimney contractor.*

Concrete base by builder.

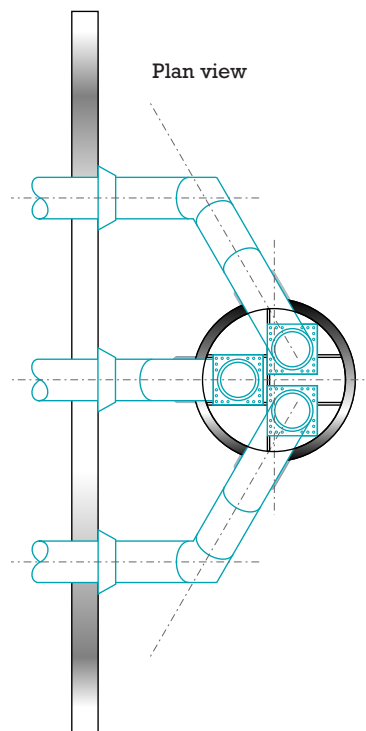


Chimneys can be constructed within a windshield. The structure has a reduced overturning moment when compared to a similar arrangement using a single post or open framed mast, and would therefore require smaller foundations. On site erection time for such a structure can often be considerably less than that required for a mast, particularly if the shell section flanges are internally located, which reduces the need for external scaffolding.

As the chimneys are enclosed within the windshield, and the assembly often features internal "landings", the facility of easy inspection and access for maintenance of the entire structure is considerably reduced. However, appearances are very subjective, and the overall design features of the windshield would in some cases not be considered as aesthetically acceptable as the mast structures illustrated earlier in this brochure.

EUROPA

The Europa system is designed to convey gases, particles, fumes, smoke and products of combustion from a wide range of engineering, combustion and process equipment. It is a lightweight engineered system designed to resist pressure up to 15 kPa (60in. w.g.) The system is available in a wide range of diameters from 100mm to 1200mm.



SYSTEM KEY

EUROPA Chimney System

Main load bearing support plates for chimney system.

Cleaning access door on each chimney system.

Storm collars around flue pipe.

1000mm x 1000mm access door.

Secondary load bearing support plates for chimney tees.

Condensate collector with drain pipe to ground level.

Steel platform.

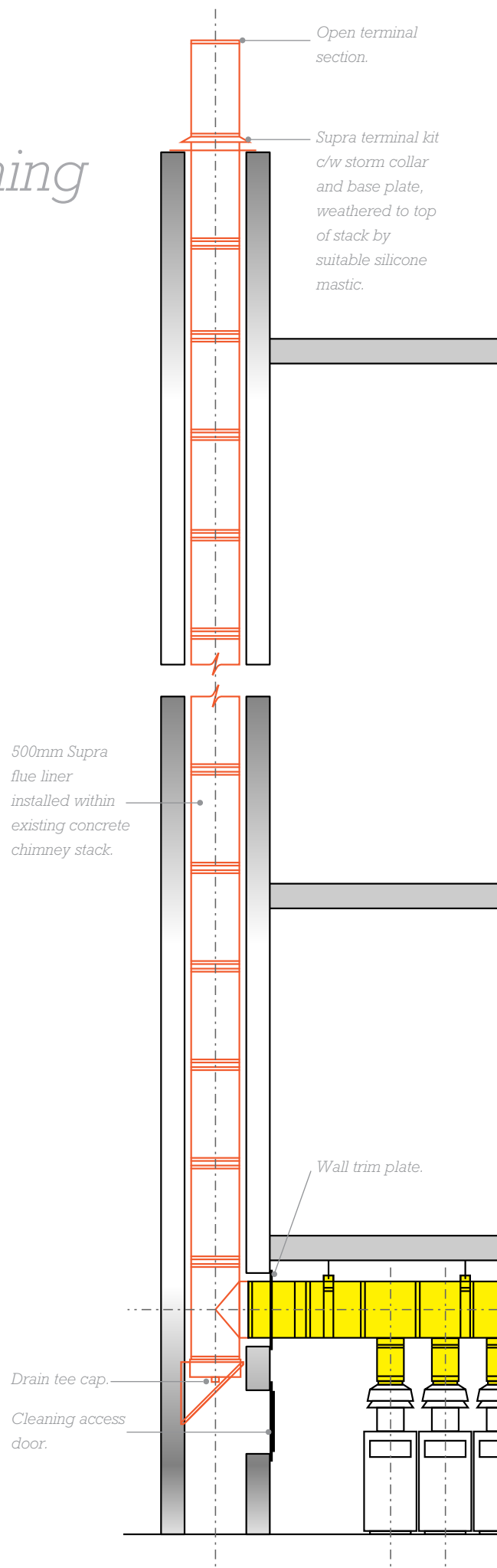
Re-lining

Existing Brick
and
Concrete Stacks



Bristol Royal Infirmary.

Three Insulated Europa Chimney systems used to reline an existing 65 metre high concrete windshield. The chimneys served both dual fuelled boiler plant and CHP plant.



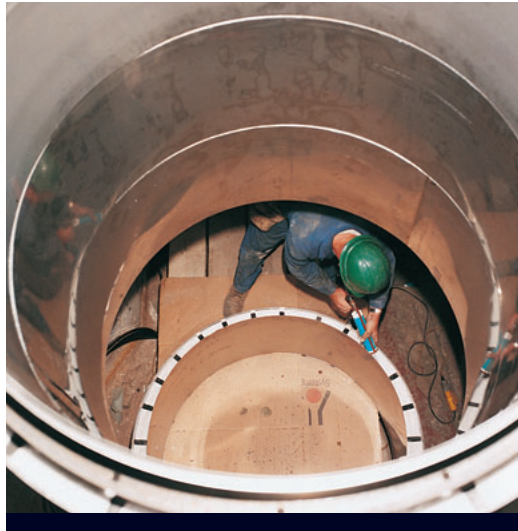
SYSTEM KEY

- SUPRA Chimney System
- QC Chimney System

Planning Authorities often insist that the architectural integrity of older buildings under renovation, particularly their external appearance, must be maintained. Where this restricts chimney requirements, often the only recourse is to re-utilise the existing chimney location by the installation of new chimney liners.

The installation of new liners enables the chimney to serve modern more efficient combustion equipment. This procedure can also be a cost effective means of renovating existing chimneys which might otherwise have to be completely rebuilt.

SFL Europa, Supra, SM W and Nova systems can usually all be used for this type of application.



Europa liners being installed at the Bristol Royal Infirmary (main photograph).

EUROPA

The Europa system is designed to convey gases, particles, fumes, smoke and products of combustion from a wide range of engineering, combustion and process equipment. It is a lightweight engineered system designed to resist pressure up to 15 kPa (60in.w.g.) The system is available in a wide range of diameters from 100mm to 1200mm.

SUPRA

Supra is a single skin stainless steel flue system primarily designed for gas and oil fired appliances which produce condensates in the flue gases. It is available with a full range of fittings and accessories in 14 sizes from 60mm to 600mm. All diameters can be used with a seal (200°C maximum), which is designed to provide pressure resistance up to 200 Pascal. Without the seal, the flue will accommodate temperatures up to 450°C.



Glasgow Office Complex (see illustration).
Supra flue system was used to reline an existing rectangular concrete chimney shaft. The flue was connected to 5 atmospheric gas-fired boilers by QC Gas Vent header sections.

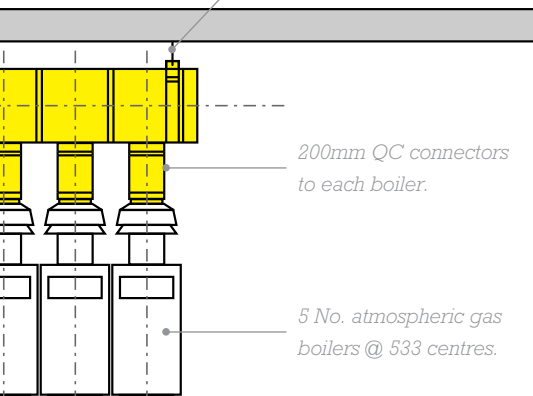
QC

QC system comprises a range of prefabricated Zalutite outer, aluminium inner, twin wall vent pipe lengths and fittings for use over gas fired appliances. These must be draught-hooded, have a flue gas temperature not exceeding 260°C, and have zero or negative pressure in the flue. Such appliances include cooking equipment, central heating boilers, modular boilers, small furnaces, water heaters and unit air heaters. The system is available with a full range of fittings and accessories in 10 sizes from 178mm to 600mm.

500mm QC header supported on wall band secured via drop rods from ceiling.

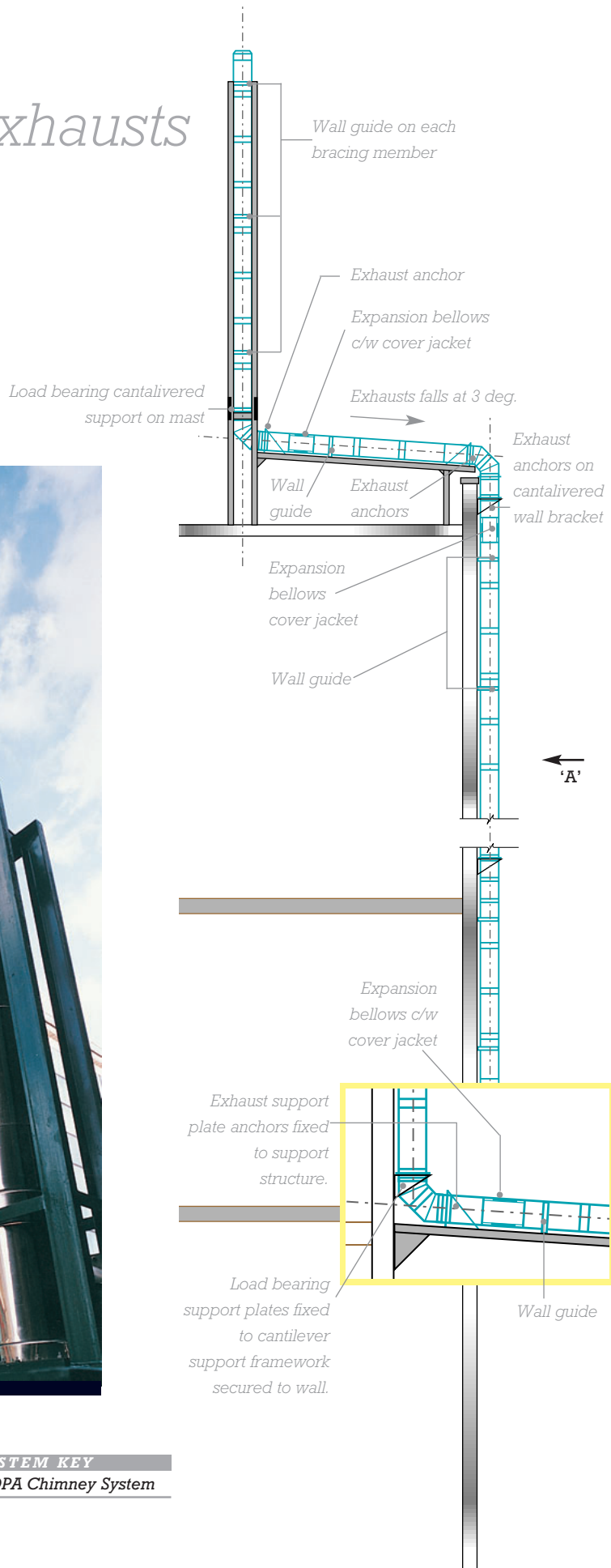
200mm QC connectors to each boiler.

5 No. atmospheric gas boilers @ 533 centres.



Exhausts

Generators/Turbine Exhaust
Incinerator



Trustee Savings Bank, London.

Three Europa Exhaust Systems serving standby diesel generators.

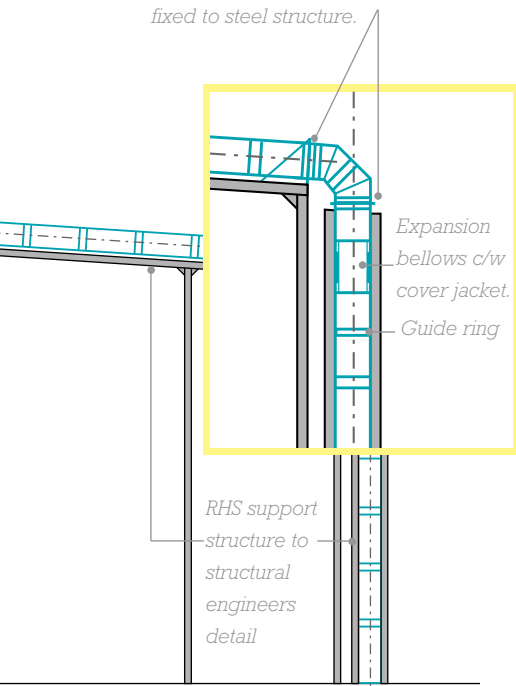
SYSTEM KEY
EUROPA Chimney System

A wide range of equipment exhaust systems can be effectively served by Europa. These can include generators, some kinds of incinerator, fume cupboards and catering equipment.

The lightweight structure and effective jointing attributes, see the text to the right, permits Europa to be applied in many situations not possible with conventional materials. The LPC's assessed 4 hour fire rating granted to the product also enables it to be safely applied with the minimum of additional fire precaution construction in situations where alternative arrangements would be almost impossible.

As can be seen, the product can also be applied externally, where it can be supported on the building structure, and/or an open mast support structure, as required.

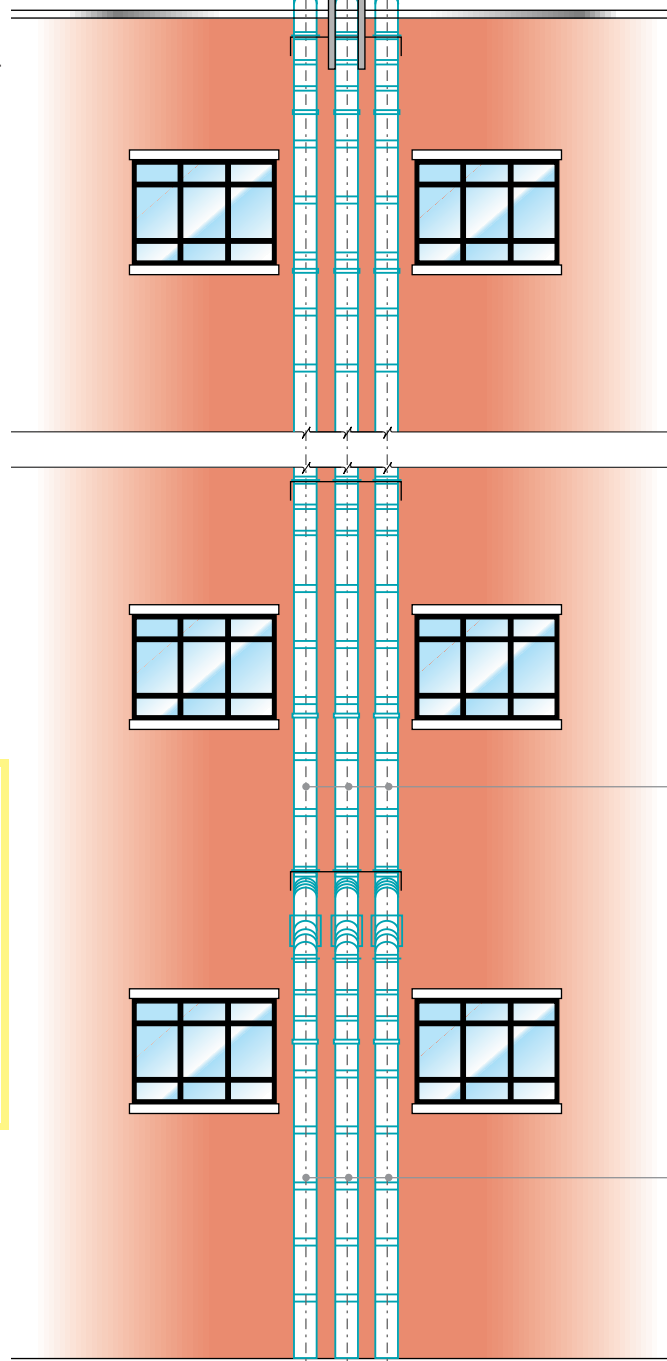
Exhaust support plate anchors fixed to steel structure.



RHS support structure to structural engineers detail

Three Europa exhausts secured to support mast

View on 'A'



Europa exhausts in the process of being installed in a service duct within a building

EUROPA

The Europa system is designed to convey gases, particles, fumes, smoke and products of combustion from a wide range of engineering, combustion and process equipment. It is a lightweight engineered system designed to resist pressure up to 15 kPa (60in.w.g.) The system is available in a wide range of diameters from 100mm to 1200mm.

Three Europa exhausts secured to face of wall

Smoke Extract Ducts

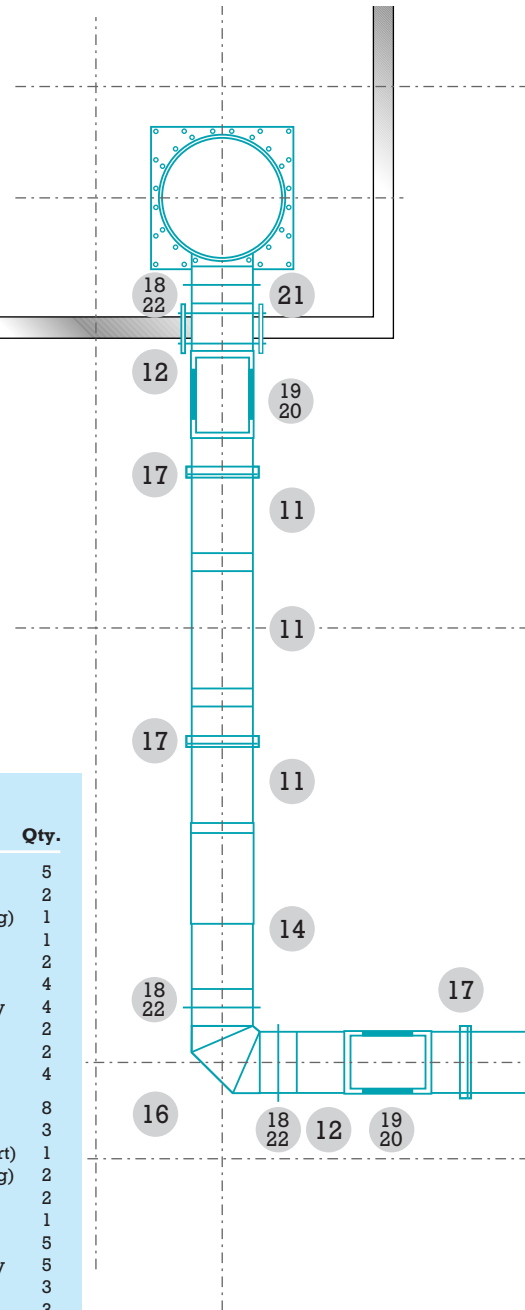


*Bentalls Retail Complex,
Kingston-upon-Thames.*

*Europa System applied as a vertical smoke
extract duct.*

BILL OF QUANTITIES

Fitting	Dia.	Description	Qty.
1	250mm	Length-1000mm	5
2	250mm	Length-500mm	2
3	250mm	Adjustable length (Long)	1
4	250mm	90 Deg. Tee	1
5	250mm	90 Deg. Elbow	2
6	250mm	Wall Guide	4
7	250mm	Support Plate Assembly	4
8	250mm	Bellows Lined	2
9	250mm	Bellows Jacket	2
10	250mm	Cover Jacket	4
11	400mm	Length-1000mm	8
12	400mm	Length-500mm	3
13	400mm	Adjustable length (Short)	1
14	400mm	Adjustable length (Long)	2
15	400mm	Special 90 Deg. Tee	2
16	400mm	90 Deg. Elbow	1
17	400mm	Wall Guide	5
18	400mm	Support Plate Assembly	5
19	400mm	Bellows Lined	3
20	400mm	Bellows Jacket	3
21	400mm	Firestop Kit	2
22	400mm	Cover Jacket	5

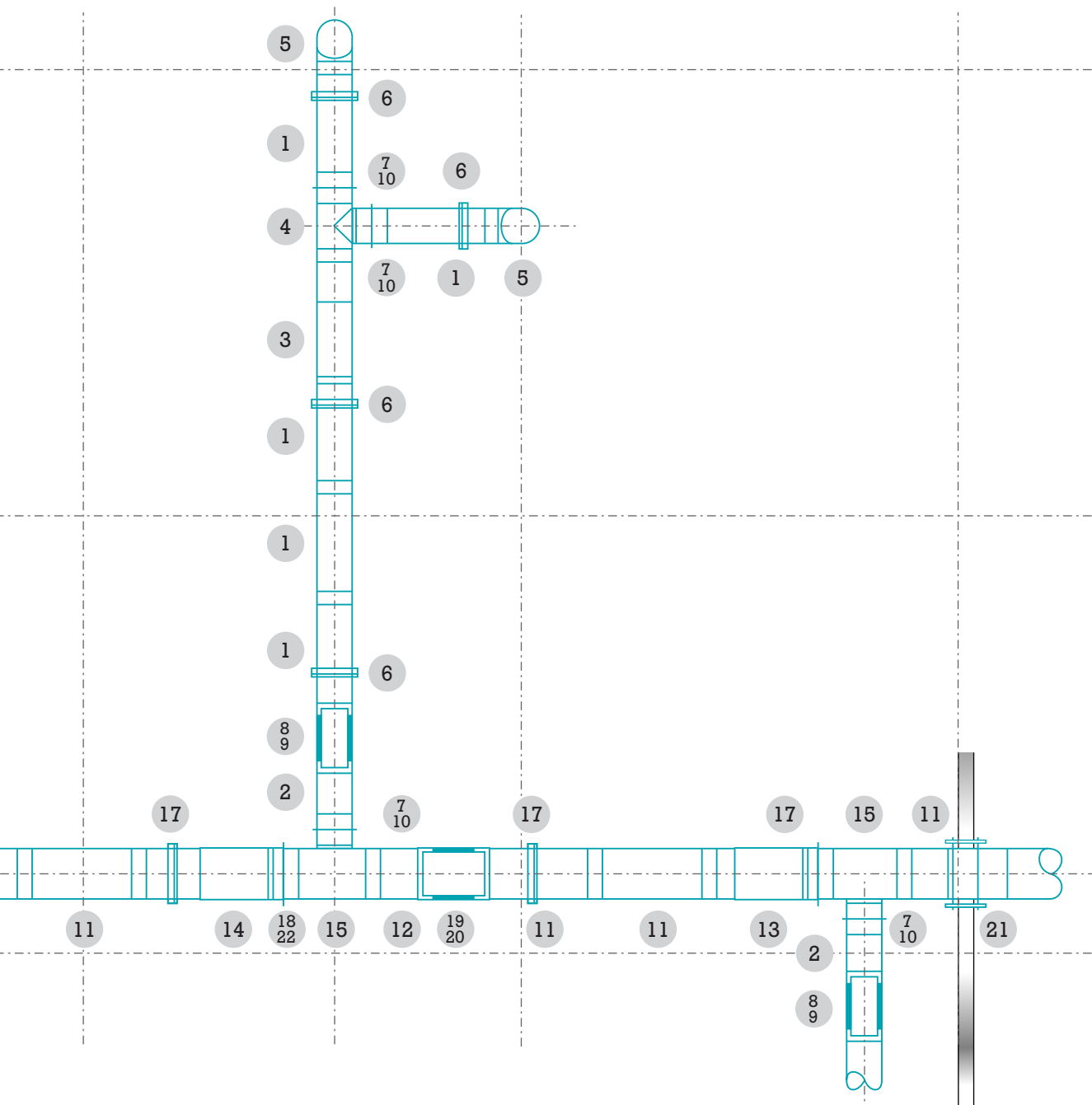


There is a growing trend towards the incorporation of Smoke Extract Systems and Positive Air Pressure Escape Routes into building services design. As part of its total service, SFL provides products specifically tailored to these requirements: The Europa Exhaust system has been successfully tested to part 24 of BS 476, and is assessed by the Loss Prevention Council as having a 4 hour stability and integrity fire rating. This feature combined with the products pressure resistant jointing system and overall lightweight construction makes it ideally suitable for smoke extract ducts and fire rated ventilation systems. For full details, a copy of the LPC Appraisal, CC 881971, is available on request.

Europa can be used as the main vertical extract duct serving a number of square/rectangular sub-ducts as shown in the photograph. Alternatively it can be constructed to form a complete extract system as illustrated in the drawing.

EUROPA

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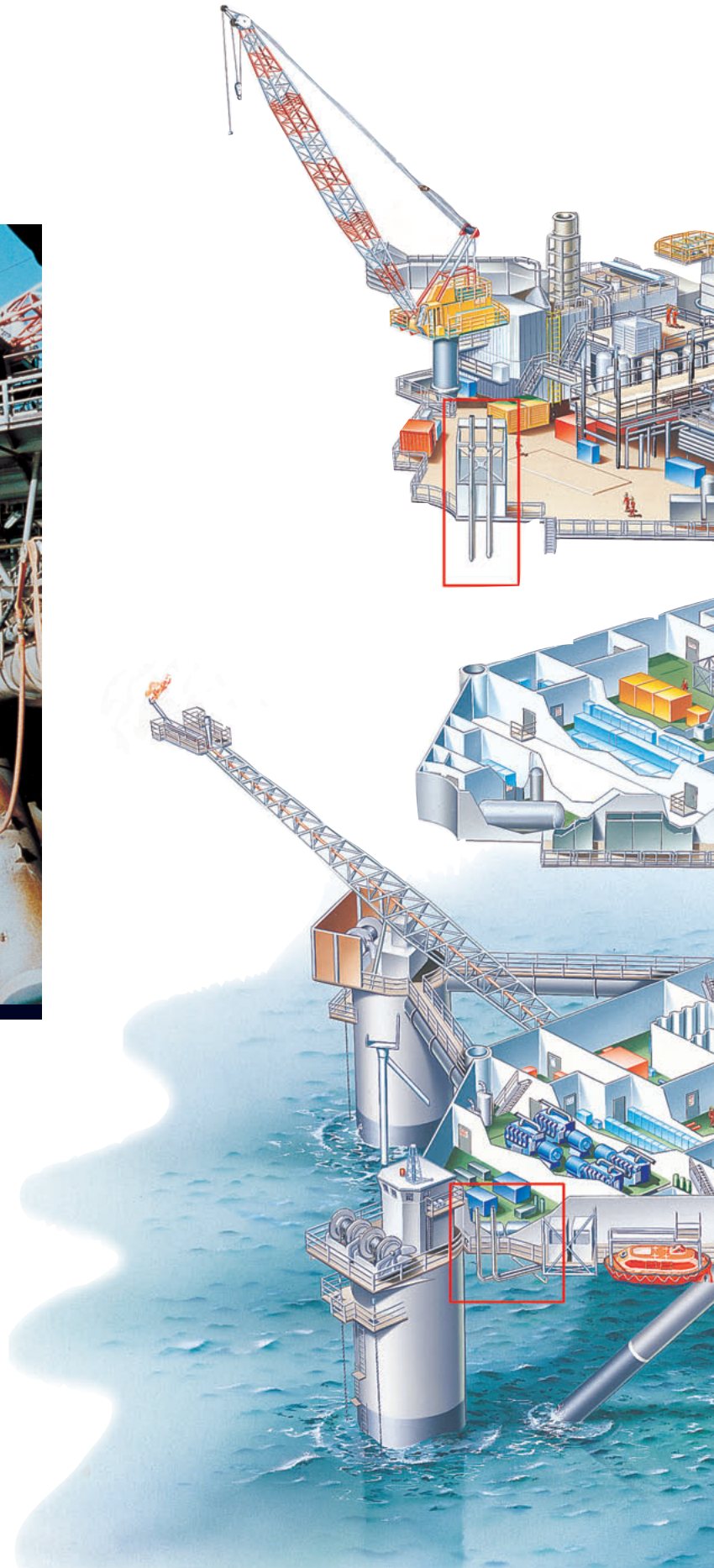


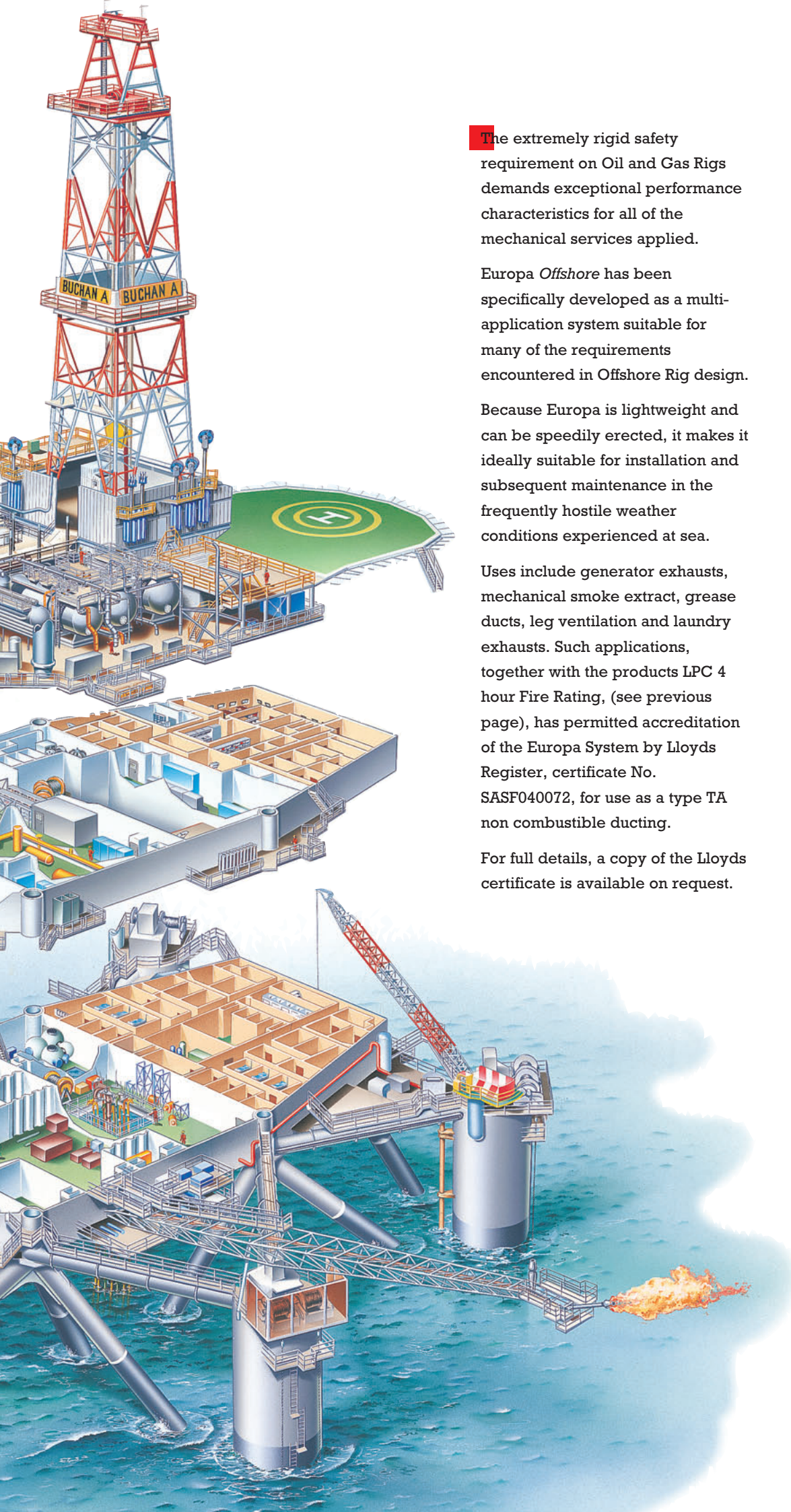
Offshore Oil & Gas Applications

Engine Exhausts
Fire-rated Ducts



*Europa Offshore installed on
Talisman Facility's
Buchan Platform in the North Sea.*





The extremely rigid safety requirement on Oil and Gas Rigs demands exceptional performance characteristics for all of the mechanical services applied.

Europa Offshore has been specifically developed as a multi-application system suitable for many of the requirements encountered in Offshore Rig design.

Because Europa is lightweight and can be speedily erected, it makes it ideally suitable for installation and subsequent maintenance in the frequently hostile weather conditions experienced at sea.

Uses include generator exhausts, mechanical smoke extract, grease ducts, leg ventilation and laundry exhausts. Such applications, together with the products LPC 4 hour Fire Rating, (see previous page), has permitted accreditation of the Europa System by Lloyds Register, certificate No. SASF040072, for use as a type TA non combustible ducting.

For full details, a copy of the Lloyds certificate is available on request.

EUROPA Offshore

The Europa system is designed to convey gases, particles, fumes, smoke and products of combustion from a wide range of engineering, combustion and process equipment. It is a lightweight engineered system designed to resist pressure up to 15 kPa (60in.w.g.) The system is available in a wide range of diameters from 100mm to 1200mm.



Lloyds Register

The Buchan Platform illustration reproduced by kind permission of Talisman Facility.

Further Solutions

Residential/Refuse and Laundry,
Mining, Food Industry, Laboratories,
Industry/Particle Movement,
Building Ventilation, Fan Dilution Systems,
Combined Heat & Power Exhausts,
Condensing Boiler Flues etc.

The flexibility of SFL systems is such that this brochure can only attempt to show a representative sample of the possibilities. However, we would understate the true potential of products and the range of our technical expertise if we did not indicate just some of the other areas in which we are involved.

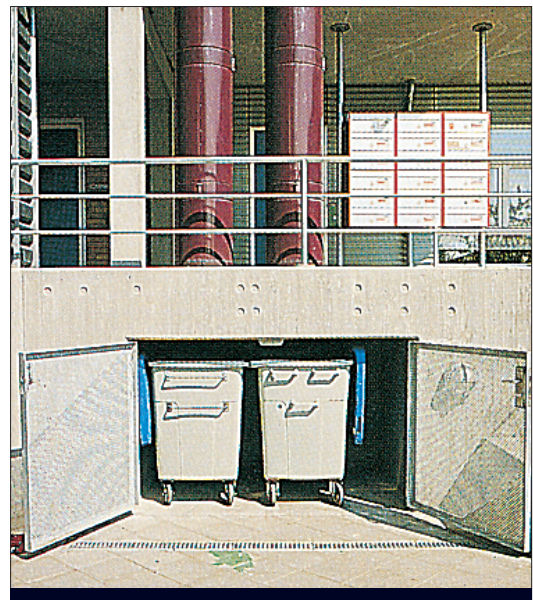
From residential refuse and laundry chutes, through applications in mining, the food industry, laboratories and industrial process applications, ovens, kilns, printing processes, to fan dilution systems, the name of SFL is synonymous with effective and economic solutions to technical problems.



Supra used to vent a particle extraction fan.



This row of laboratory fume cabinets are all vented with SFL products.



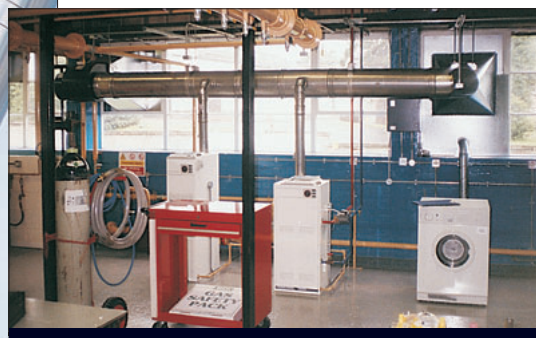
Purple painted Europa used as refuse chutes servicing flats.



Above
Europa used as a fire rated passive ventilation system at the Building Research Establishment's new Environmental Building.



Above
A typical bakery area within an ASDA store where bread ovens are vented using SFL products. Reproduced by kind permission of ASDA Stores Ltd.



Above
Supra used to form the dilution air duct of a fan dilution system.

Left
Supra inlet and exhaust manifolds used for a number of fully condensing boilers.

The information contained in this brochure was accurate at the date of publishing. However the company reserves the right to introduce at any time modifications and changes of details as may be necessary. To avoid any misunderstanding, interested parties should contact the company to confirm whether any material alterations have been made since the date of this brochure.



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