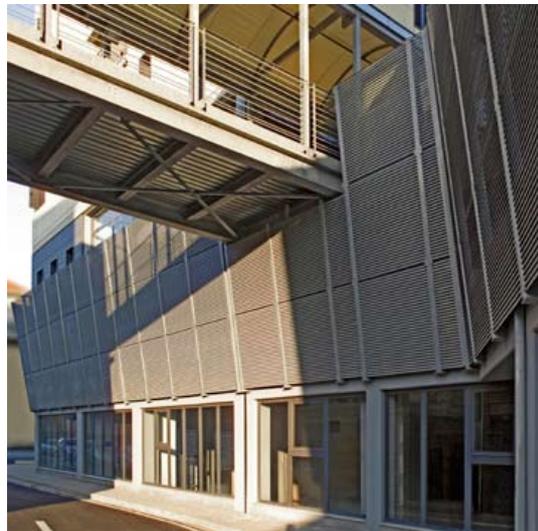


LANGFULTON



Louvred Grilles

Pressure Locked and Electrofused Products

Our History

Lang+Fulton is one of the oldest companies in Scotland; its history as iron merchants in Greenock dates back to 1781. From those early days it developed into an important supplier of steel to the UK shipbuilding industry, often carrying steel from the mills in its own ships.

The business has progressively evolved from this background in steel stockholding, fabrication and shipping and today operates as a supplier of fencing, gratings and louvres, employing a young team from engineering and surveying backgrounds.

The Company's main sales and technical office is based in Edinburgh with a presence and stockholding facility in the West Midlands in order to serve its primary market in the South.



*The Custom House Quay, Greenock 1820
Robert Salmon (1775-1845)*

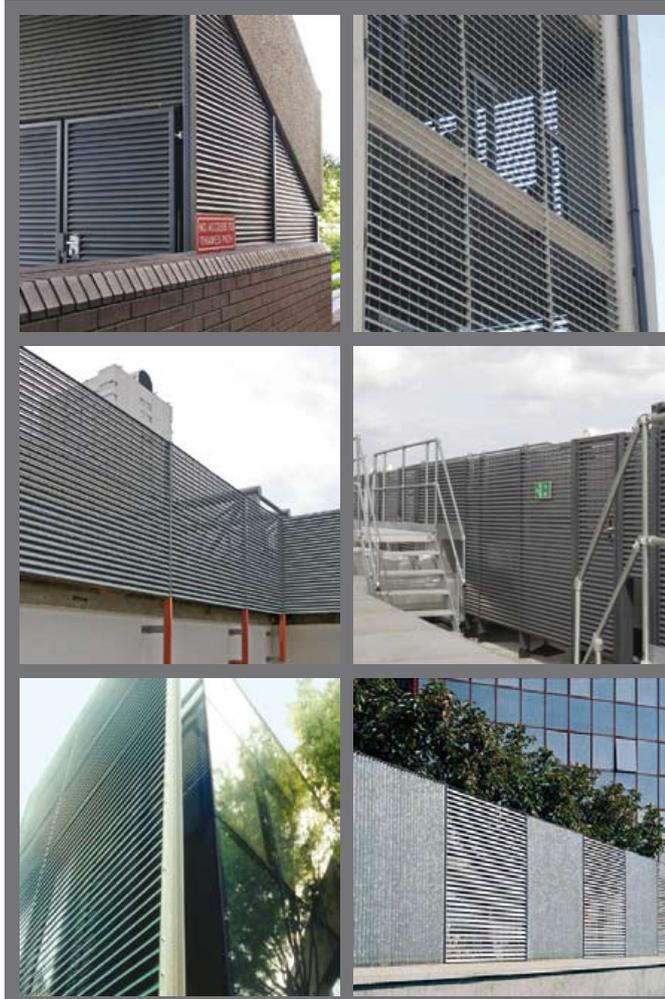
Our Mission

Our aim is to generate design-led specifications, using a standardised material to produce a bespoke finished product.

Sensitive to the integrity of an initial concept, we bring ideas to life in the most practical way possible.

We encourage contact with our clients from outline to completion and enjoy collaborating on challenging projects which involve a high element of design. We see our drawing and design service as a core strength, encompassing all aspects of support steelwork and fixings.

Our louvres are sourced throughout Italy and include several unique products. Diversification is key to our ongoing expansion and we continue to build our supply chain in order to be able to offer the broadest possible range of products.



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Our Products

Lang+Fulton offers the widest choice of louvred products to the UK and worldwide markets.

But why choose a Lang+Fulton louvre?

All of our louvred products are made from mild steel S235JR.

The mild steel construction is not only more economical than aluminium but, even more importantly, it has a much greater intrinsic strength.

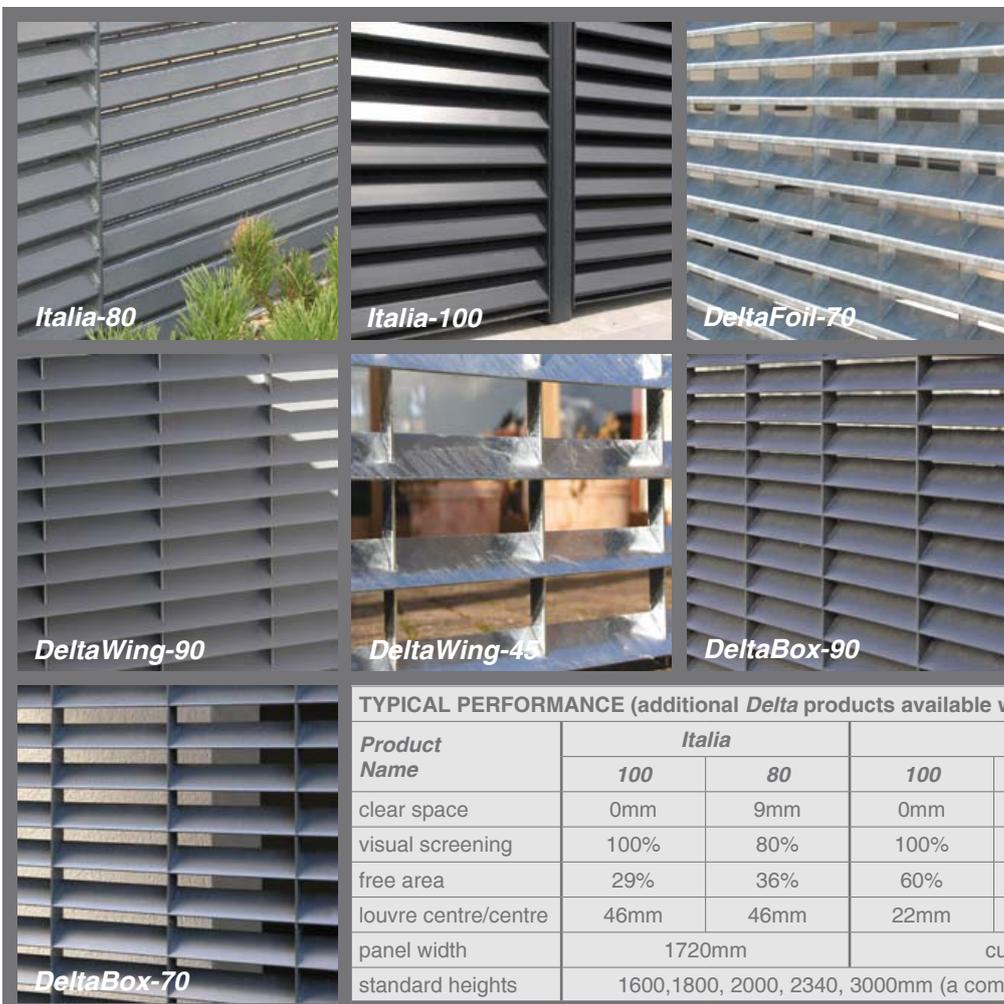
This is particularly important as the linear nature of a louvred material will highlight any distortion. There are many sites where a compound or street-front wall cladding may be subjected to hard knocks. Where aluminium will dent or distort, steel will maintain the uniformity of its line.

Our Technical Team can draw upon a wealth of experience to propose the exact product that will deliver the desired aesthetic and the most cost-effective, code-compliant solution for a particular project.

Our experience has also allowed us to source the highest quality finishing processes ensuring maximum durability and low maintenance.

Steel is a sustainable material with 100% recyclability. The overall average end-of-life recovery rate for steel from construction is 94% in the UK.

While all reasonable care is taken to ensure that published and website information is accurate and regularly updated, Lang+Fulton cannot guarantee its accuracy and information may change at any time without notice.



TYPICAL PERFORMANCE (additional *Delta* products available with louvres centred at 11mm increments)

Product Name	Italia		DeltaWing and DeltaBox			
	100	80	100	90	70	45
clear space	0mm	9mm	0mm	3mm	14mm	36mm
visual screening	100%	80%	100%	90%	70%	45%
free area	29%	36%	60%	63%	65%	67%
louvre centre/centre	46mm	46mm	22mm	33mm	44mm	66mm
panel width	1720mm		custom widths up to 2000mm max			
standard heights	1600,1800, 2000, 2340, 3000mm (a combination of panels make up heights >2m)					

Electrofused Louvres Italia Range

Italia louvres have a continuous lateral appearance.

The panels are made from profiled steel louvres which are fused to round transverse bars. During the fusion process high voltage electricity combines with pressure to totally amalgamate the component parts at each intersection. This produces a material which has complete integrity.

There are two alternative products within the range:

- *Italia-100* with overlapping louvres for 100% visual screening
- *Italia-80* for 80% visual screening.

Framing:

panels are framed on both sides with steel flat bar or angle section, size determined by application.

Panel Size (hwxw):

max 1975x1720mm

Alternative Fixing Methods:

panels are bolted to posts or substructure on both sides either,

- through flat framing bar, or
- behind louvre at 90° through an angled framing bar.

Axis:

- Horizontal Louvres - this is the most usual method of installation in order to achieve uniform visual screening.
- Vertical Louvres - the degree of visual screening will vary according to the angle of view. Panels can be rolled to a radius.



<p>Italia-80</p>	<p>Italia-100</p>	<p>Italia-100</p>
<p>Italia-100</p> <p>100% visual screening</p> <p>29% free area</p>	<p>100% / 27mm 52% / 14mm</p> <p>Italia-100</p> <p>100% visual screening</p> <p>29% free area</p>	<p>Italia-80</p>
<p>156.9% 18.7%</p> <p>45°</p> <p>Italia-80</p> <p>80% visual screening</p> <p>36% free area</p>	<p>100% / 27mm 63% / 17mm</p> <p>55°</p> <p>Italia-80</p> <p>80% visual screening</p> <p>36% free area</p>	<p>Italia-80</p>

Pressure Locked Louvres Delta Ranges

Delta louvres have a crisp aesthetic; three different styles offer a choice of linear, geometric or gently profiled form.

The panels are made from inclined steel flat bars which are pressure locked to vertical transverse bars. This process creates perfectly formed intersections.

The inclined louvre can be spaced at any increment of 11mm to provide either total screening or any degree of partial screening with a corresponding degree of free area.

Delta products are particularly robust with a 40x2 mm louvre and 20x2 or 30x2mm verticals.

- **DeltaWing**
the vertical bar is recessed to achieve a more linear appearance
- **DeltaBox**
the vertical bar is in line to achieve a more geometric appearance
- **DeltaFoil**
the angled bar is profiled to achieve a more organic appearance

Alternative Fixing Methods:

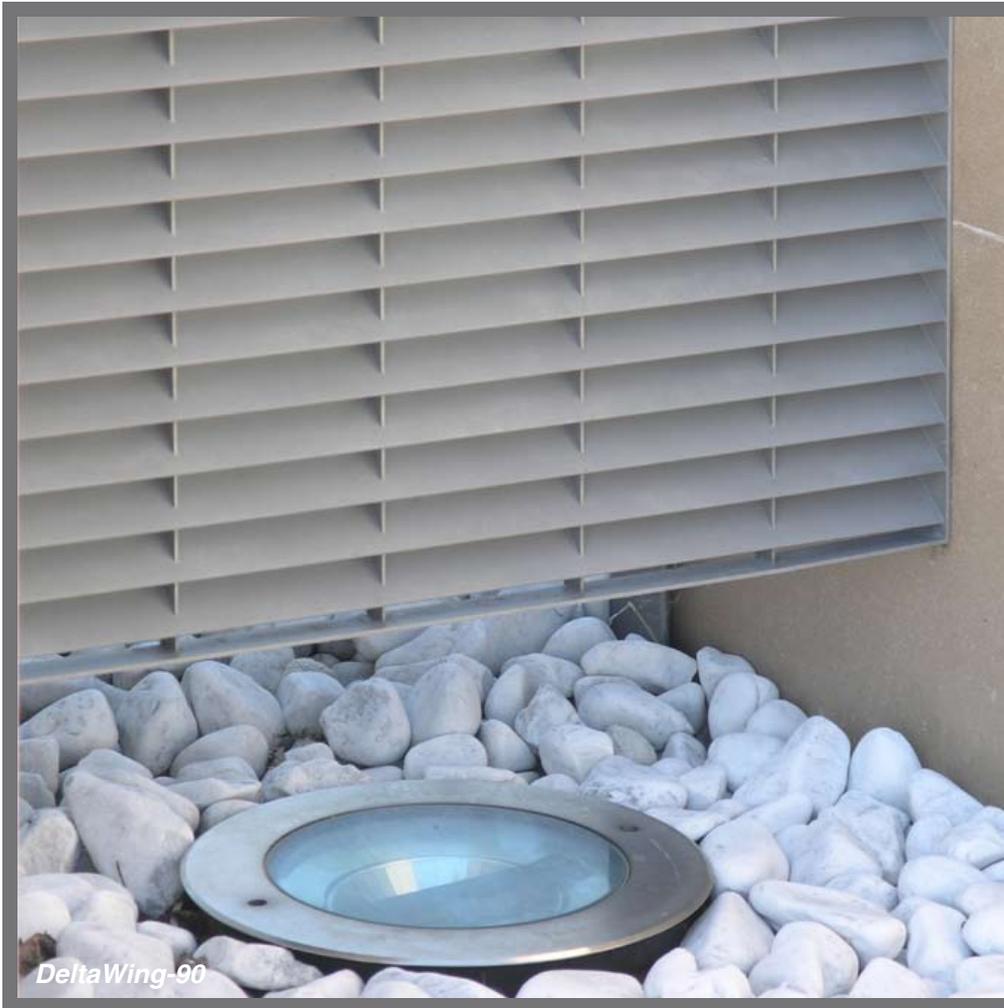
- panels are bolted through flat framing bars
- bolted behind louvre at 90° through 60x30mm angled framing bars
- front fixed through the louvre.

Framing:

panels are generally framed on all sides with flat bar or angle section.

Panel Size (hwxw):

max 1600x1850mm
exceptionally up to 4m²



DeltaWing-90



DeltaWing-100



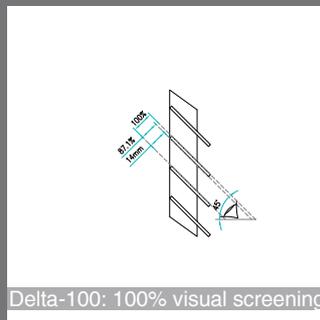
DeltaWing-90



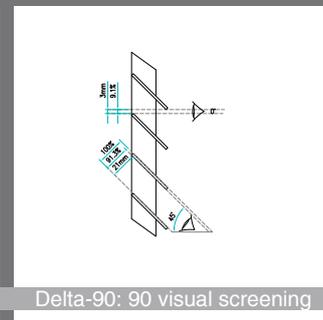
DeltaWing-45



DeltaWing-70



Delta-100: 100% visual screening

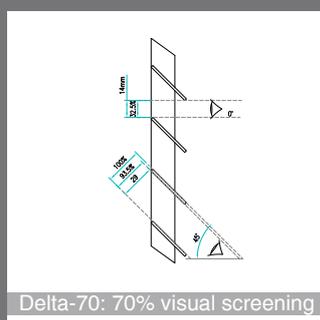


Delta-90: 90 visual screening

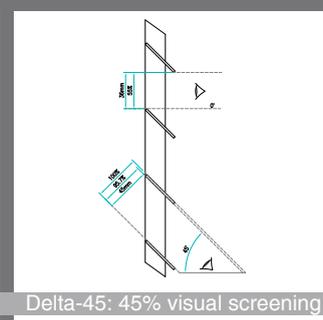
DeltaWing and DeltaBox (-100 and -90)



DeltaBox-90



Delta-70: 70% visual screening



Delta-45: 45% visual screening

DeltaWing and DeltaBox (-70 and -45)

Wall Cladding

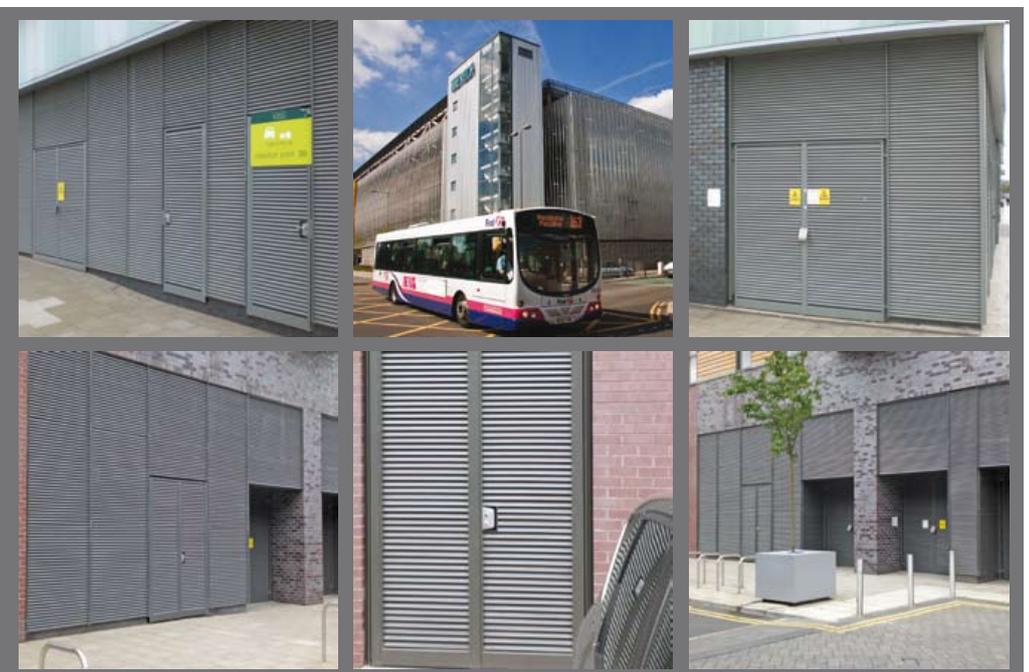
A louvred facade is a very economical way of creating a solid or semi-solid wall.

The louvred panels can be made either to fit within a structural opening with concealed ancillary steelwork or can be used to cover an underlying concrete or blockwork surface.

The panels have a proven record of resistance to vandalism and excellent anti-climb properties and are therefore particularly appropriate for street-front elevations.

Alternative styles of framing can be chosen to create a particular accent, pattern or continuous effect.

Lang+Fulton can advise on the design of the most appropriate supporting structural frame and will supply any ancillary steelwork which may be required.



The Rock, Bury

Product: *Italia-100* and *Italia-80*
Street-front facade providing security and ventilation for electrical generation and distribution systems at major inner-city retail and leisure development.

Finish: galvanized and ppc RAL7022

Project: 300m² of custom-sized *Italia-100* panels were supplied together with 20 sets of doors. These were made to fit the building's structural openings with concealed ancillary steelwork. In addition, an internal screen dividing delivery bays from public car parking was made from 2.8m high *Italia-80*.

Architect: BDP

Multi-Storey Car Parks



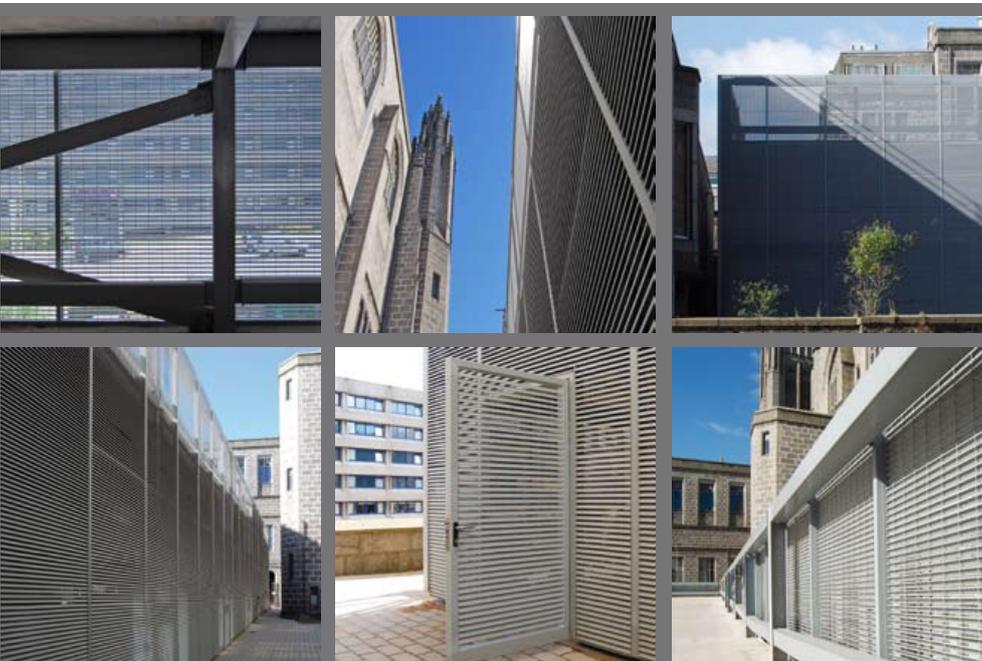
There are several important prerequisites when considering the choice of material for the facade of a multi-storey car park.

Louvres provide the natural ventilation of vehicle emissions that is a primary requirement of multi-storey car parks.

Louvres allow the passage of natural daylight, reducing the potential problem of claustrophobia and increasing personal security.

Light pollution in urban areas is increasingly a concern to Planning Departments; louvres will diffuse or block the glare of headlights.

Louvres conceal the levels and ramps which form the inner structure of car parks and which may have an adverse effect on the overall architectural scheme.



Marischal College

Product: *Italia-80*

Visual screening of a new 4-storey car park to service an adjacent refurbished Grade A listed building.

Finish: galvanized and ppc RAL7040

Project: 716m² of panels were supplied to a standard design with custom-sized closing panels. These were fixed to 100x50 RHS posts centred at 1.7m which were attached to the main structural steel framework. Also, three fire exit doors with self-closing devices.

Architect: joint design developed between Holmes Partnership and Lang+Fulton.

Roof Mounted Plant Housing

Louvres are an effective solution to the particular problem of how to conceal unsightly roof-top plant such as air conditioning condensers and heat exchange units. These can often be subject to a Visual Impact Assessment as part of the Planning process.

Panels can be manufactured either to the standard orientation or inverted so that the louvres are angled upwards. This has the effect of increasing the degree of visual screening from ground level.

While providing a screening function, the louvres also allow the free passage of air which reduces the impact of severe wind conditions.

Lang+Fulton will design and supply posts, engineered to accommodate the calculated wind loadings, or secondary supporting rails which can be fixed to a structural steelwork frame.

Our Technical Department will also advise on fixings and can recommend various systems which can be used where there is a continuous waterproof membrane that should not be penetrated.



Croft Theatre, Allyn's School

Product: *Italia-80*

Screening and access to roof-top plant at prestigious performance space shared with National Youth Theatre.

Finish: galvanized and ppc RAL7016

Project: The design and supply of 53 linear metres of 1850mm high louvred panels with 7 single and 2 double-leaf doors to obscure the extensive air conditioning and service plant. The detailed design involved fitting individually sized panels and doors around the piping and ductwork.

Architect: van Heyningen and Haward



Compounds & Security Screening



Louvered compounds provide the security and visual screening which may be needed for industrial gas storage tanks, for mechanical or electrical plant, or for vehicle, bike or equipment stores.

For the highest security requirements, such as electricity sub-stations, a security or bird mesh can also be fitted to the back of the louvres.

Each compound is custom designed with support steelwork and posts are supplied either for ground foundation or with base plates for fixing to a concrete slab.

Compounds can be supplied with a roof for additional security or for keeping out birds. The roofing is made from a choice of materials:

- single skin profiled steel with Plastisol coloured finish with or without rain-water gutters
- a matching louver
- an open mesh grating.

Single or double leaf doors can be fitted with self-closing devices, mechanical code locks, magnetic locks, mortice locks or a simple sliding latch for padlock.



Case Study

Product: *DeltaFoil-70*

Compound and perimeter fencing to deliver a high level of security for pharmaceutical company.

Finish: hot-dip galvanized

Project: A *Delta-Foil* product provided the most robust louver material for both the boundary fencing and the subdivision of a separate compound area for toxic waste disposal at a pharmaceutical factory. Corner panels were mitred to achieve a continuous louvered appearance.

Access was provided by an automated 10m wide sliding gate.

Balconies & Balustrades

Louvres have the dual advantage of creating a sheltered space for balconies and roof-top gardens while providing privacy between adjacent properties.

Lang+Fulton will advise on handrail design, the layout of the panels and posts and the most effective solution for anchoring the secondary steelwork to the building. Handrails can be an extension of the panel or a separate element.

All balconies and balustrades will be designed to accept the horizontal loadings for pedestrian barriers in accordance with BS 6399-1.

DeltaWing and DeltaBox are especially suitable products for balcony balustrade as the robust 20x2 or 30x2mm section of the vertical bars will contribute to the load bearing properties of the panel.

In addition, the custom sized panels are made with little or no wastage of steel. This represents a significant cost saving in the manufacture of small sized panels, typical of a balcony balustrade.

A combination hot-dip galvanized and polyester coated finish is always recommended for balconies to deliver the smoothest possible, durable finish which can be easily cleaned.



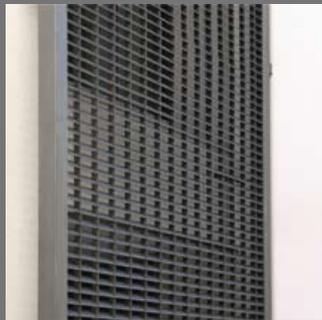
Residential Development

Product: *DeltaBox-70*

Louvred panels as a functional as well as distinctive architectural feature at a high specification development of four residential units.

Finish: galvanized and ppc RAL9005

Project: Framed panels were used to secure a roof-top terrace and to create a first floor balcony area. Fixed screens of *DeltaBox-70* were also positioned across the window openings on the side elevations to establish privacy between the adjacent properties and to enclose the undercroft parking.





Wheelie Bin Stores

The quantity of UK domestic waste is increasing at a rate of about 3% per year and Local Authorities are issuing guidelines for storage and collection. External bin enclosures should be:

- of durable construction
- well ventilated
- secure

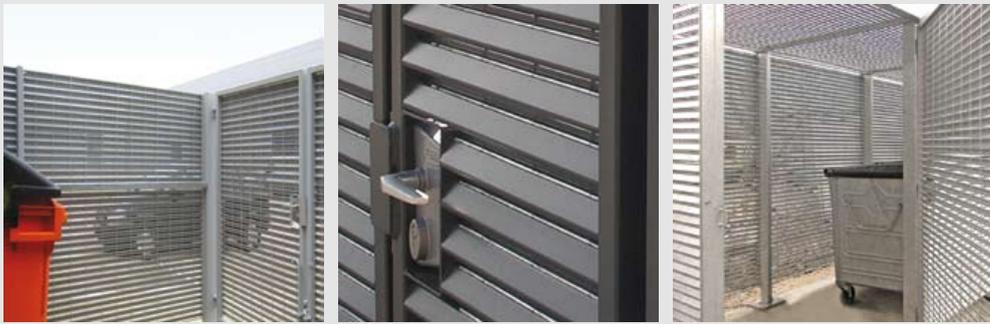
Lang+ Fulton's bin stores are supplied in a tough hot-dip galvanized finish complete with all accessories and drawings for installation. They are individually designed from a practical system of modular steel louvered panels and doors with or without roofing. They can also be made DDA compliant.

The solid steel construction is extremely robust and can incorporate optional bump rails for wheeled 1100 litre Eurobins.

A choice of flat bar or RHS posts together with SHS corner posts are supplied in appropriate lengths for ground foundation or fitted with base plates for bolting to a concrete slab for speedy installation.

Alternative heights:
1600, 1800, 2000, 2500, 2650, 3000mm

Gates and Doors:
single leaf or double leaf with high quality euro-profile locks.



JCoSS, Barnet, North London

Product: *Italia-80*
A series of robust wheelie-bin stores for the disposal and recycling of both general and kitchen waste at a new secondary school in North London.

Finish: hot-dip galvanized

Project: Three separate fully enclosed bin stores were specified; one double, one triple and one quadruple. These were supplied complete with box profile roof sheeting and support steelwork for ground bolting.

Architect: RHWL Architects

Ventilation Grilles & Sunscreen

Natural ventilation and sunscreen both offer a 'green' solution for reducing air temperature.

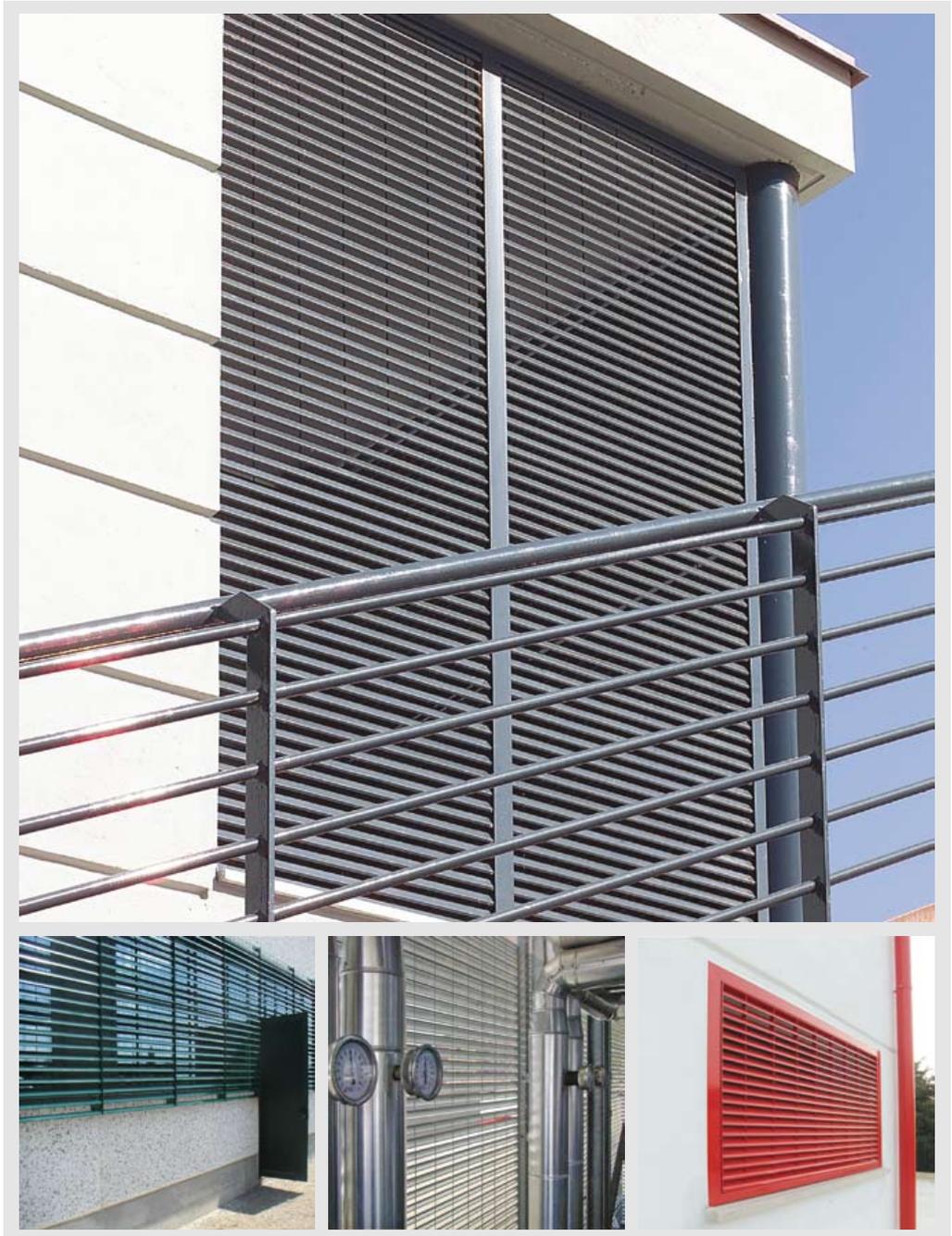
For ventilation purposes, fixed panels can be made to fit a specific structural opening.

Panels can be framed with an angle section on all four sides to provide a mounting surface for bird screens, insect screens or blanking plates. It should be noted that with all guards, particularly insect mesh, the design should allow for additional resistance to airflow.

Brise soleil panels promote environmental sustainability by reducing solar gain within a building and maintaining an even temperature during the summer months. The resultant shading will measurably reduce the load on air conditioning units.

Lang+Fulton will collaborate to ensure that the support structure is compatible with the chosen louvre panel.

Effective solar screening can also be achieved using vertical panels: as a structural element of the building design or as fixed window grilles.



The Boat House Bristol Docks

Product: *DeltaWing-70*

Sunscreen to achieve a BREEAM or EcoHomes 'Excellent' rating for The Boat House apartments which form part of the redevelopment of Bristol Harbour.

Finish: galvanized and ppc RAL7016

Project: Framed panels of *DeltaWing-70* were designed as a brise soleil in order to significantly reduce the potential solar gain from the glazed frontage at penthouse level. There was therefore no requirement for the provision of air conditioning.

Architect: AWW



Doors & Gates



All gates are manufactured to custom sizes. Louvred infill panels are generally welded but can be bolted to RHS frames and supplied with SHS posts appropriate to the overall size and weight of the gate. Gates are designed for manual operation but can also be automated for installation by specialist engineers.

Swing Gates: single-leaf, double-leaf or bi-folding gates are designed to conform to BS1722 Parts 9 or 12.

- Full height blanking/slam plates at hinges
- Eurocylinder Locinox mortice locks as standard, sliding latch for padlocks or Maglocks
- Optional Locinox electric strikes for remote opening with provision for intercom units in gate post or adjacent panel
- Adjustable hinges for ease of installation or self-closing hinges.

Sliding Gates: ground fixed rail, overhead rail or cantilevered gates can be supplied.

Automated gates must carry the CE mark, certifying manufacture and testing in compliance with EU health, safety and environmental requirements EN13241-1, EN12604, EN12605 and EN12424.



North Kent Police HQ

Product: *Italia-100*

Perimeter security for a landmark building at Ebbsfleet Valley, Kent.

Finish: galvanized and ppc RAL7024

Project: Three sliding and two double-leaf gates completed a fencing contract which was designed to provide a high level of security and visual screening to a sensitive site. 154m of fence panels (2270mm high) enclosed the main access area; an additional 40m compound (3000mm high) surrounded the emergency generator plant.

Architect: Glenn Howells

Finishing

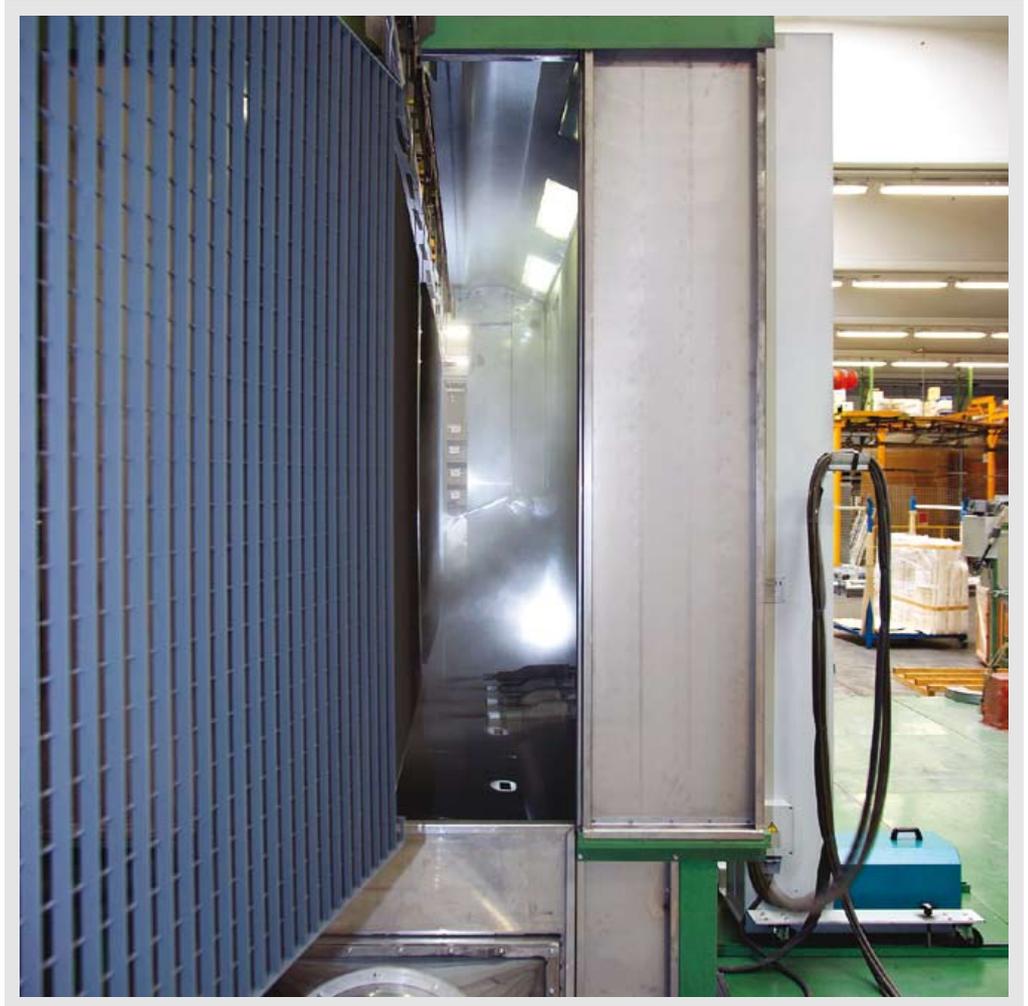
Galvanizing

All products are supplied hot-dip galvanized to BS EN ISO 1461 for long term durability and a low-cost life cycle. Galvanized products may randomly exhibit a rough surface texture as well as dissimilar colour characteristics and will oxidise when exposed to the elements.

Polyester Powder Coating

Subsequent to galvanizing, a multi-stage process applies thermo-setting resins producing a significantly superior finish to painting. Polyester powder coating is available in any RAL or BS colour in full accordance with BS EN 13438. In order to meet this standard and receive certification, the complete process has to be continuous and applied at the same location.

Polyester powder coating provides a smoother finish which is less attractive to dust and dirt. It is always recommended for schools or residential projects.



New Products

Innovative new products are continually being developed and added to the range.

Corona and **DeltaMax** are boldly proportioned louvres which create a strong architectural statement.

DeltaMax

A larger scale version of *DeltaFoil* with 110mm deep louvre for a striking impact.

Corona

A curved, over-sized louvre with an organic appearance which fixes directly to a steel framework.



Electrofused Louvred Gratings

Standard Axis for All Louvred Products

- horizontal louvres
- downward facing louvres

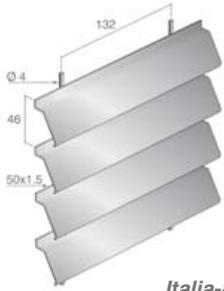
Non-Standard Axis

- vertical louvres (V)

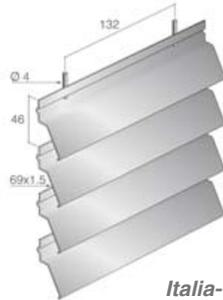
(the degree of visual screening will be variable depending on the angle of view)

- upward facing louvres

(this will increase the degree of visual screening of a roof-top or elevated louvre when viewed from ground level)



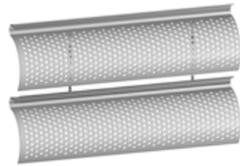
Italia-80



Italia-100



Corona



CoronaBrise

Italia-100: 69mm profiled louvres set at 46mm centres.

Visual Screening: 100% Free Area: 29%

Italia-100V: vertical louvres

Italia-80: 50mm profiled louvres set at 46mm centres.

Visual Screening: 80% Free Area: 36%

Italia-80V: vertical louvres

Panel size (h_xw): max 1975x1800mm

Corona and CoronaBrise:

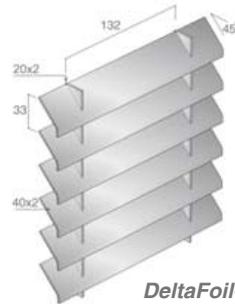
Louvre centres: 116.5mm

gap between louvres: 9mm

Louvre depth: 45mm

Panel size (h_xw): 1975x1800mm
(unframed - direct surface fix)

Pressure Locked Louvred Gratings



DeltaFoil-90

Note: All pressure locked louvres are made in other sizes with characteristic centres at 11mm increments

DeltaWing-100/DeltaBox-100: angled flat bars placed at 22mm centres.

Visual Screening: 100% Free Area: 60%

DeltaWing-90/DeltaBox-90: angled flat bars placed at 33mm centres.

Visual Screening: 90% Free Area: 63%

DeltaWing-70/DeltaBox-70: angled flat bars placed at 44mm centres.

Visual Screening: 70% Free Area: 65%

DeltaWing-45/DeltaBox-45: angled flat bars placed at 66mm centres.

Visual Screening: 45% Free Area: 66%

DeltaWing-34/DeltaBox-34: angled flat bars placed at 88mm centres.

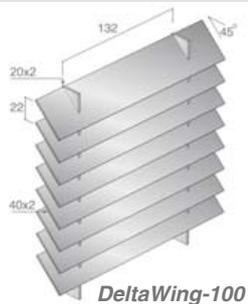
Visual Screening: 34% Free Area: 67%

DeltaFoil: made up of once-flanged 40x2mm bars set at an angle of 45°, placed at 22, 33, 44 or 66mm centres and 20x2mm vertical flats at 132mm centres.

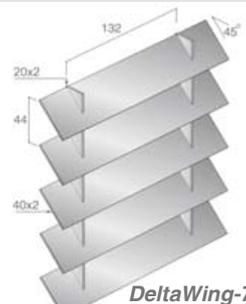
DeltaFoil-100: louvres centred at 22mm.
Visual Screening: 100% Free Area: 45%

DeltaFoil-90: louvres centred at 33mm.
Visual Screening: 90% Free Area: 45%

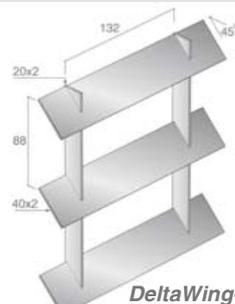
Panel size (h_xw): max 1600x1850mm
exceptionally up to 4m²



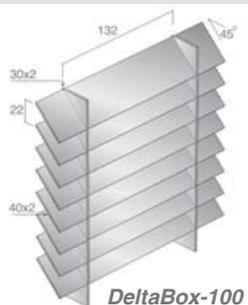
DeltaWing-100



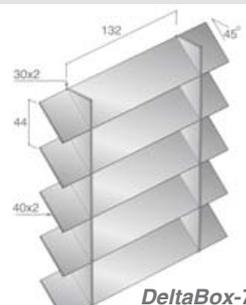
DeltaWing-70



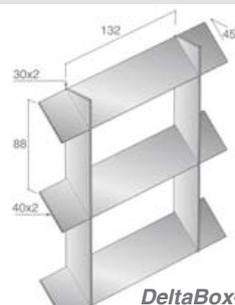
DeltaWing-34



DeltaBox-100



DeltaBox-70



DeltaBox-34



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