Uniclass	EPIC
L442	D4

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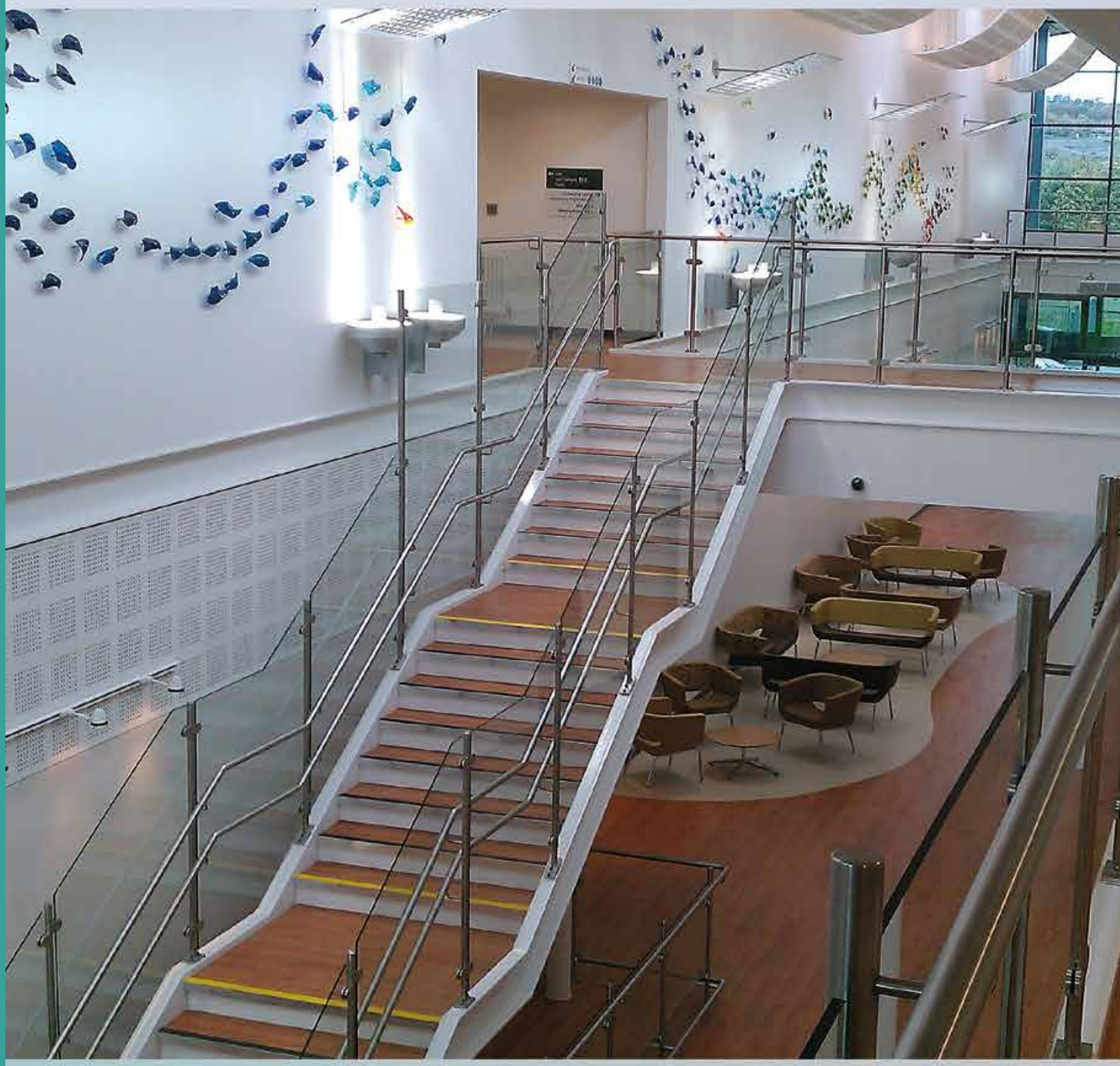
Balustrading Solutions



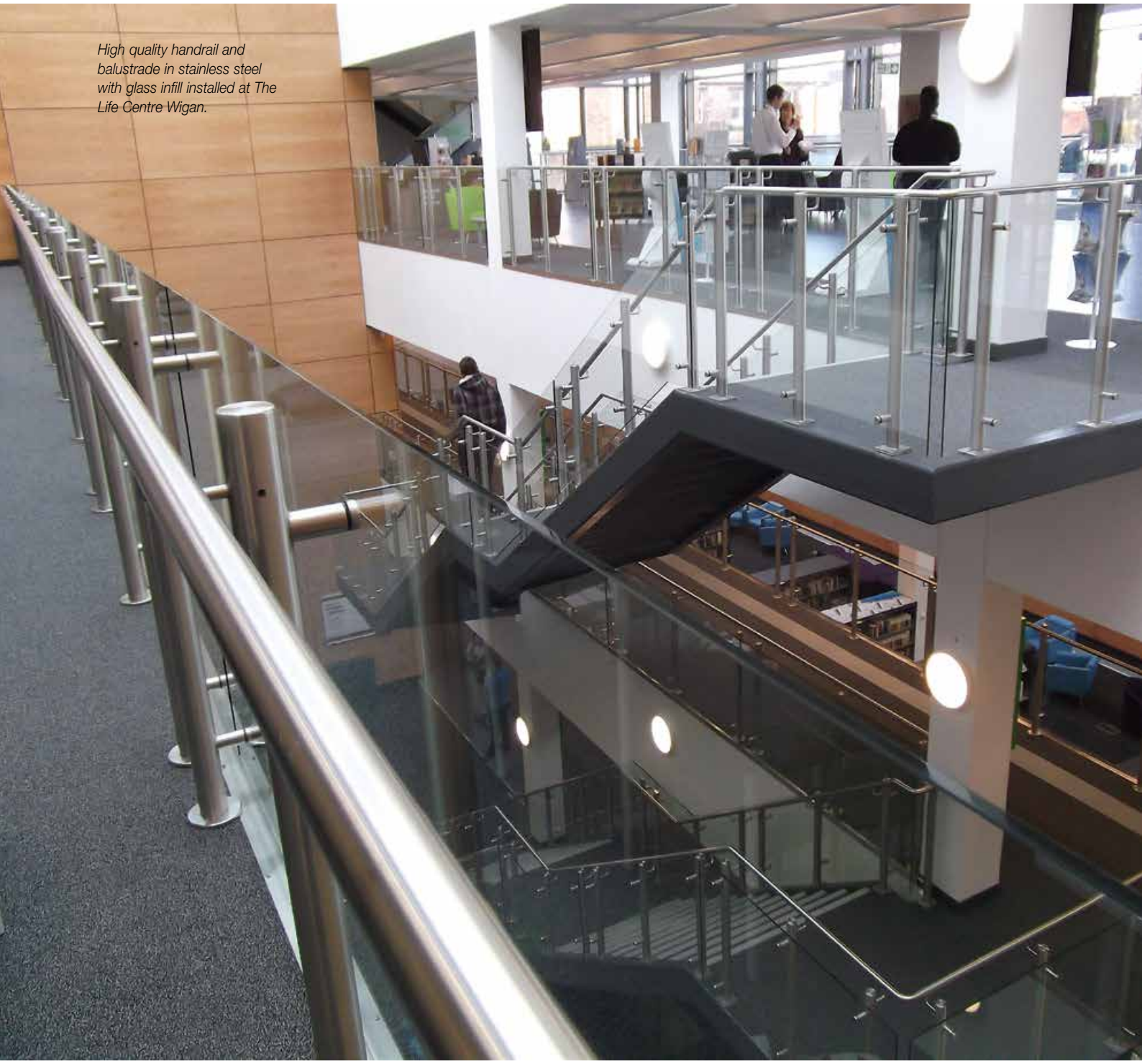
Laidlaw

handrail & balustrading

Balustrading Solutions

BALUSTRADING SOLUTIONS - **INTRODUCTION**

The installation of a good quality handrail and balustrade system can have a significant effect on the way we interact with the built environment. A well designed system using quality materials and construction can enhance the visual and tactile nature of a building and will strongly influence the way in which the building is perceived as a welcoming place to be. From a purely functional view point, the handrail and balustrade solution will determine how accessible the facility is and will have a direct bearing on the health and safety of anyone who uses the building.

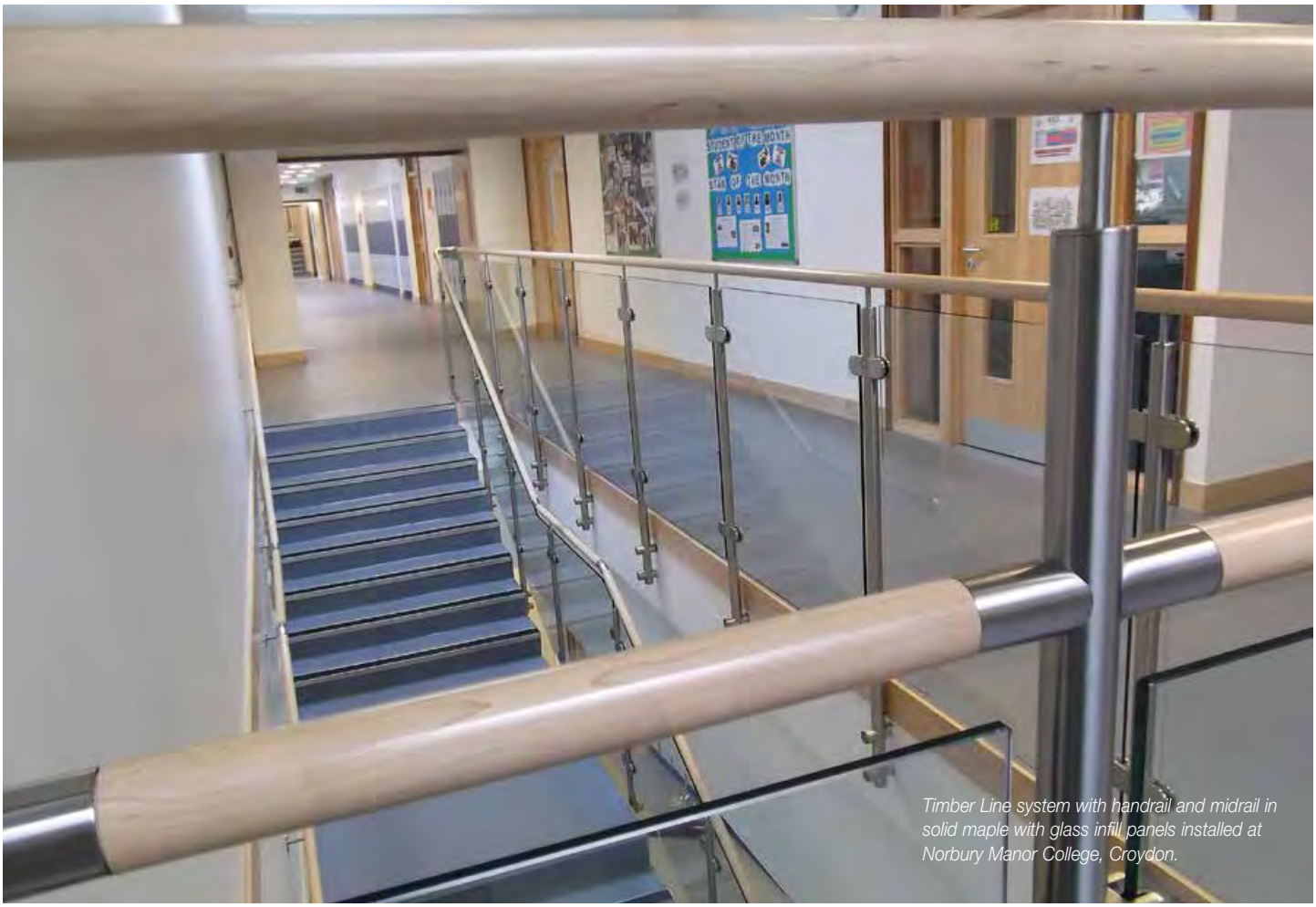


High quality handrail and balustrade in stainless steel with glass infill installed at The Life Centre Wigan.

BALUSTRADING SOLUTIONS - **INTRODUCTION**

Laidlaw Balustrading Solutions offer six fundamental handrail and balustrade systems which are precision manufactured using high grade materials which will enhance a wide range of interior styles and applications:

- Laidlaw Nylon Line – using 4mm thick nylon-sleeved galvanised steel components
- Laidlaw Timber Line – using timber rails with stainless steel or nylon components
- Laidlaw Stainless Line – precision manufactured stainless steel
- Laidlaw Combi Line - combining, nylon and stainless steel
- Laidlaw Structural Glass - sophisticated system using glass as the support structure
- Laidlaw Modu-Line - a highly flexible, component based system



Timber Line system with handrail and midrail in solid maple with glass infill panels installed at Norbury Manor College, Croydon.

Balustrading Solutions

COMPREHENSIVE HANDRAIL & BALUSTRADE PACKAGES

A Comprehensive Service and Quality Brand

Unlike many other handrail and balustrade providers our balustrading systems are supplied as a complete package, from initial site survey to detailed design, producing a bill of quantities and through to full installation. Balustrading Solutions trained staff are always on hand at every stage of the process to give advice on all aspects of specification, legislation and best practice guidance to ensure each project reaches the optimum level of quality, finish and performance.

Guidance on regulations and legislation

Laidlaw trained staff can offer guidance on all aspects of Building Regulations and legislation including all aspects of accessibility in accordance with The Equality Act.

Component based systems

Our component based systems have a number of fundamental advantages:

- Stock of key components ensure quick delivery
- Factory assembly enables quick installation
- Superior aesthetics to systems to which are built on-site because there are no unsightly welds, deformations of bends or poor aesthetic finish
- Consistently high quality finish
- Demountable components make it easy to repair
- All components are recyclable.

Installation

As the final stage in the process from site survey, through design and precision manufacturing, Balustrading Solutions offer a complete installation service for their factory-assembled handrail and balustrade systems. By adopting the best principles of supply chain management and using specialist fixing teams, Balustrading Solutions ensure that the final installation is in strict accordance with the original design.

FROM SITE SURVEY TO INSTALLATION

Why choose a Laidlaw system

Where the design and installation of a product affects the safety of its users, it is not an occasion for compromising on quality. There is no doubt that cheaper handrails and balustrades can be produced “on-site” but the true cost in terms of safety, performance and the life expectancy of such installations can not be compared to the highly engineered quality of a Balustrading Solutions handrail and balustrade. Not only is the finished Balustrading Solutions product superior aesthetically but the performance improvements make the alternative “on-site” construction unsuitable for most applications.

Laidlaw Timber Line balustrading with stainless steel supports and glass infill panels at St. Oswalds Hospice, Gosforth, Newcastle-upon-Tyne

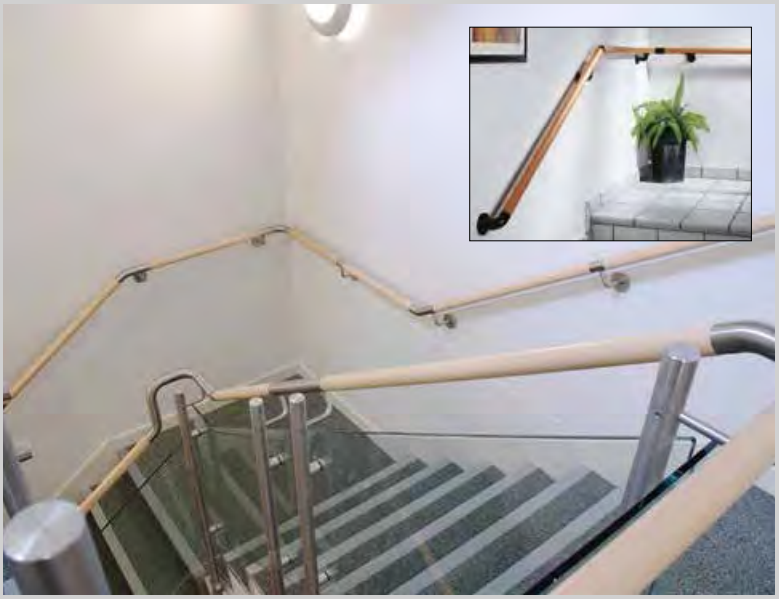
HANDRAIL & BALUSTRADE SYSTEM SUMMARY

LAIDLAW NYLON LINE

Material – 4mm Polyamide (PA) sleeve on galvanised steel core

Properties:

- High fracture resistance, high strength and thermal stability
- Smooth and brilliant surface with exceptionally high resistance to abrasion
- Coloured throughout
- High resistance to most solvents, chemicals, cleansing agents and disinfectants
- No electrostatic charge
- Does not attract dust
- Conforms to the requirement of BS 8300 requiring that handrails should not be cold to the touch
- Environmentally safe - cadmium and lead free colours
- Physiologically harmless, compliance with requirements of food law in Europe and USA (inert to bacteria)
- Completely recyclable
- Suitable for 0.74kN/m category loading (see page 21)



LAIDLAW TIMBER LINE

Mixed material combinations using a system of stainless steel or nylon supports and connectors:

Properties:

- Combination of timber rails with stainless steel or nylon supports and connectors
- Stainless steel support system gives high stability and long lasting performance
- Timber and stainless steel combination uses the strength and durability of stainless steel with the beauty and warmth of timber
- Timber and nylon combination has the inherent beauty and feel of timber rails with the additional colour option of nylon supports and connectors
- Suitable for 0.74kN/m category loading (see page 21)

LAIDLAW STAINLESS LINE

Material - Stainless steel with a brushed 320 grit finish

Properties:

- High mechanical strength, dimensionally stable and nearly indestructible
- High stability and durability suitable for areas subject to high levels of use and abuse
- Very good resistance to atmospheric corrosion and chemical corrosion (detergents and cleansing agents)
- High resistance to abrasion
- Very easy to clean and to disinfect
- Suitable for 0.74kN/m, 1.5kN/m and 3kN/m category loadings (see page 21)

LAIDLAW COMBI-LINE

Combining the structural stability of stainless steel uprights with nylon rails

Material - Rails are 4mm solid Polyamide sleeve over a galvanised steel core.

Material - Uprights are Stainless steel with a brushed 320 grit finish

Properties:

- Physical properties of the nylon handrailing as for Laidlaw Nylon Line
- Physical properties of the support structure as for Laidlaw Stainless Line
- Suitable for 0.74kN/m, 1.5kN/m and 3kN/m category loadings (see page 21)

LAIDLAW STRUCTURAL GLASS

Materials - Structural toughened glass with stainless steel capping and handrail

This beautiful balustrading solution is ideally suited to high end architectural applications where the simplicity of the structure and free open aesthetic are required. It also provides a continuous glass barrier which makes it ideally suited to areas where children are likely to be present

Properties:

- Continuous glass structure allows for free run of handrail or without handrail using laminated glass
- Simple lines with uninterrupted view through balustrade
- High levels of safety with minimal gaps to prevent small children squeezing through
- Handrail available in stainless steel or timber
- Nylon handrail available with offset supports
- Suitable for 0.74kN/m, 1.5kN/m and 3kN/m category loadings (see page 21)

LAIDLAW MODU-LINE SYSTEM

Material - Stainless steel support structure with a choice of nylon, timber or stainless steel handrail

Properties:

- Stainless steel guarantees high stability and permanent functioning
- Fully component based system allows components to be ordered and assembled on site with minimum site preparation and cutting
- Nylon and Stainless combination uses the strength and durability of stainless with the colour and warmth of nylon
- Timber and Stainless combination has the inherent beauty and feel of timber rails with the structural stability and durability of stainless steel
- Suitable for 0.74kN/m category loading (see page 21)

Balustrading Solutions

SYSTEM INTRODUCTION - **LAIDLAW NYLON LINE**

The Laidlaw Nylon Line range combines the structural strength and non-corrosive nature of a galvanised steel core with the pleasant feel and permanent colour of a 4mm thick nylon sleeve.

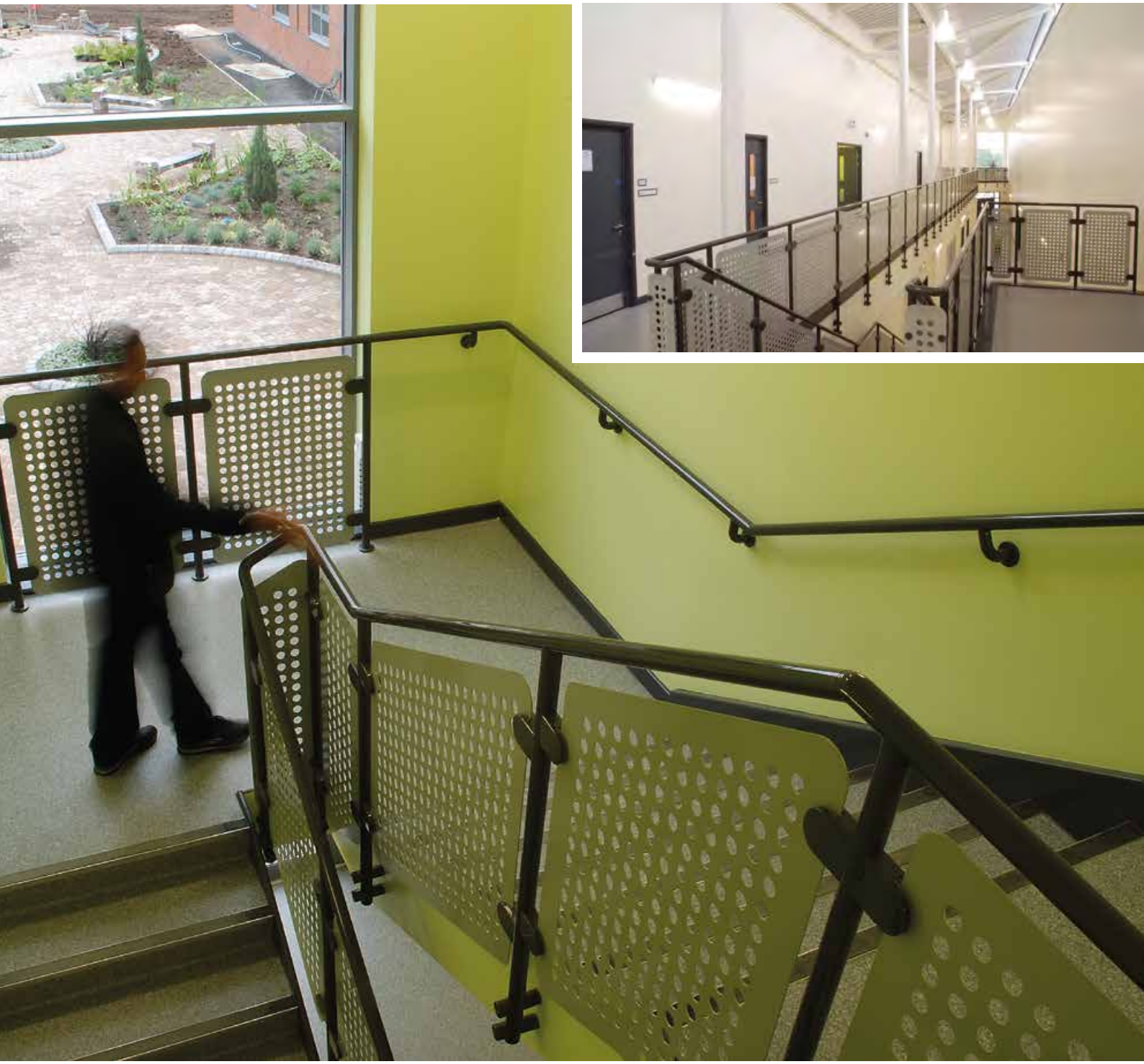
It is one of the most effective ways of complying with all aspects of the guidance in Approved Document M (2004).

Handrail construction features a fully galvanised tubular steel core with a solid nylon sleeve 40mm diameter with a 4mm wall thickness. A variety of wall fixing bracket options are available with straight supports and 90° bends.

Handrail ends can be with a 90° bend return to the wall with flat end cover cap or with a 90° bend return connected to the wall with or without rose fixing.

The handrail is supplied pre-assembled, including all corner pieces, connection elements, screws and fixings.

For colour and infill options please refer to pages 19 & 20.

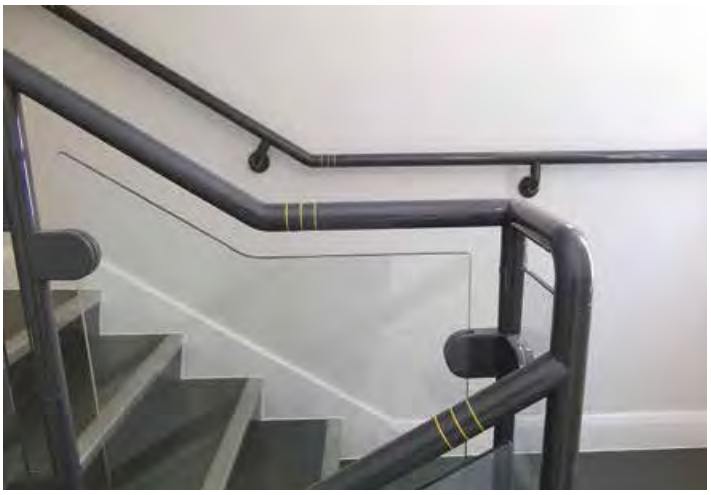


Laidlaw Nylon Line wall mounted handrail and side mounted balustrading at Builie Hill School - Salford

SYSTEM INTRODUCTION - **LAIDLAW NYLON LINE**

The **Laidlaw Nylon Line** system is capable of a wide range of colours and construction options including the following:

- Handrail terminations with 90° bends return to wall or floor
- Straight or offset intermediate supports
- Factory produced curved horizontal rails
- Wide range of panel supports and wall supports
- Multiple options for upright mounting
- Wide range of infill materials, intermediate rails or tension wires
- Tactile indicators for visually impaired users
- Optional anti-slip textured grip



Balustrading Solutions

SYSTEM INTRODUCTION - **LAIDLAW TIMBER LINE**

Laidlaw Timber Line provides the specifier with the ideal blend of traditional and modern styles, combining the crisp clean look of stainless steel with the inherent beauty of timber.

Timber Line systems are characterised by the use of stainless steel or nylon uprights and components with timber handrails.

The straight handrail sections are 40mm diameter solid beech as standard (alternative materials include ash, oak, maple). All handrails are A-grade material without red core, steamed and kiln dried, with a clear polyurethane surface finish.

A variety of wall fixing brackets, rail ends and connectors are available straight or with 90° bends in tubular stainless steel with a brushed satin finish. Alternatively, fittings and uprights can be supplied in coloured nylon.

All handrails are supplied pre-assembled, including all corner pieces, connection elements, screws and fixings.

For material and infill options please refer to pages 19 & 20.

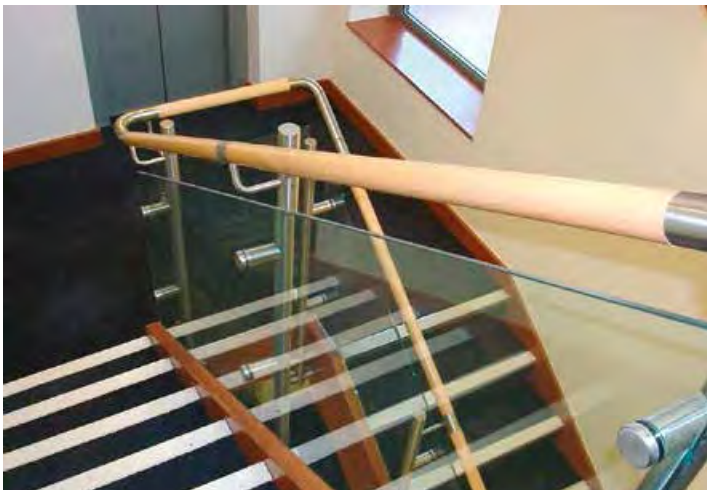
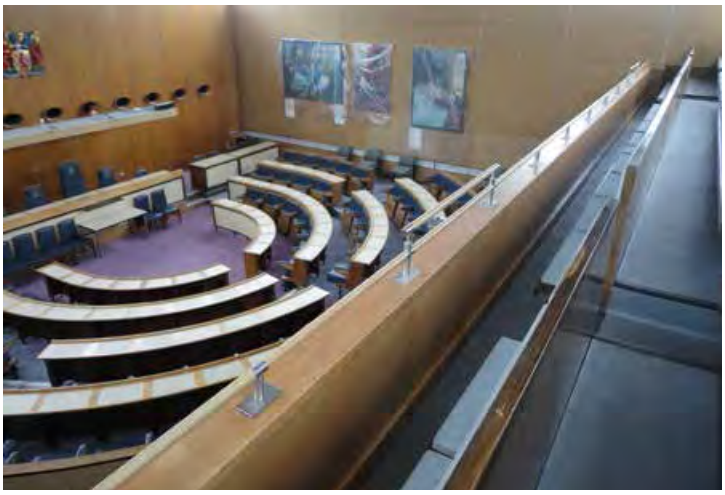
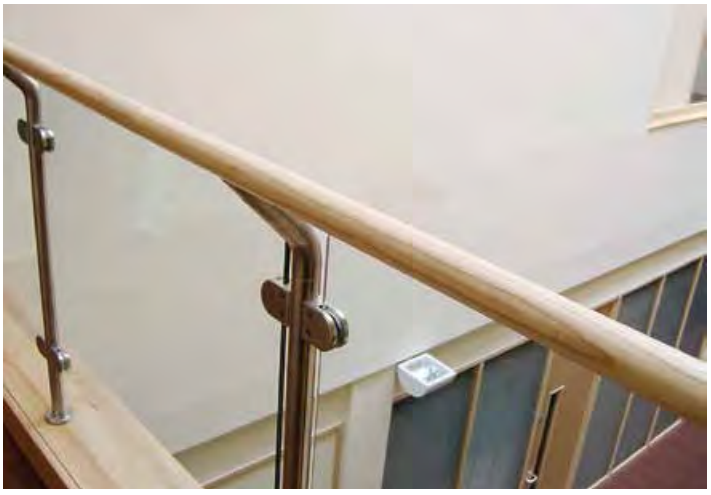
Ash Laidlaw Timber Line handrail and balustrading with glass infill at St. Oswalds Hospice, Gosforth, Newcastle-upon-Tyne

SYSTEM INTRODUCTION - **LAIDLAW TIMBER LINE**

The **Laidlaw Timber Line** system is capable of a wide range of material and construction options including the following:

- Handrail joints and components in stainless steel or nylon
- Straight or offset intermediate supports
- Wide range of solid timber rails
- Wide range of infill panel supports and wall supports
- Multiple options for upright mounting
- Wide range of infill materials, intermediate rails or tension wires
- Tactile indicator for visually impaired users





Balustrading Solutions

SYSTEM INTRODUCTION - LAIDLAW STAINLESS LINE

The Laidlaw Stainless Line range of handrail and balustrade systems achieves the cool, sleek look often favoured in the design of modern buildings.

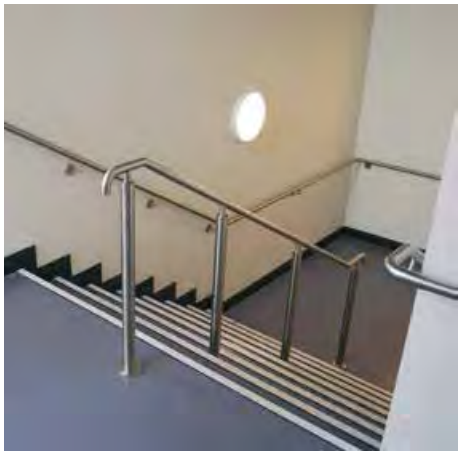
This high quality engineered system is often used to complement the stainless steel finish of other elements of the building such as lighting and architectural hardware.

The straight or curved handrail sections are 40mm or 32mm diameter as standard with a fine brushed satin finish.

A variety of wall fixing brackets, rail ends and connectors are available straight or with 90° bends in tubular stainless steel with a brushed satin finish.

All handrails are supplied pre-assembled, including all corner pieces, connection elements, screws and fixings.

For infill options please refer to page 20.

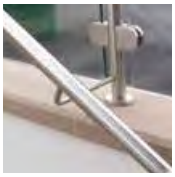


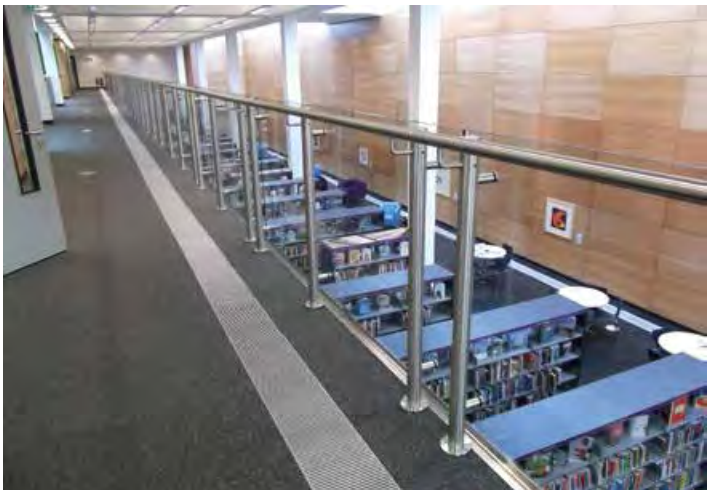
SYSTEM INTRODUCTION - **LAIDLAW STAINLESS LINE**

The **Laidlaw Stainless Line** system is capable of producing long and complex continuous handrails using high quality componentry. A range of construction options are available including the following:

- Handrails can be straight or curved (horizontal only)
- Straight or offset intermediate supports
- 40mm or 32mm handrail diameters
- Wide range of infill panel supports and wall supports
- Multiple options for upright mounting
- Wide range of infill materials, intermediate rails or tension wires
- Tactile indicator for visually impaired users






Balustrading Solutions

SYSTEM INTRODUCTION - **LAIDLAW COMBI LINE**

The Laidlaw Combi Line range of handrail and balustrade systems achieves the cool, sleek look often favoured in the design of modern buildings.

This high quality engineered system is often used to complement the stainless steel finish of other elements of the building such as lighting and architectural hardware.

The straight or curved horizontal handrail sections are 40mm or 32mm diameter nylon or stainless steel.

A variety of wall mounting brackets, straight or 90° return rail terminations, straight and angled connectors are available in stainless steel with a high quality brushed finish.

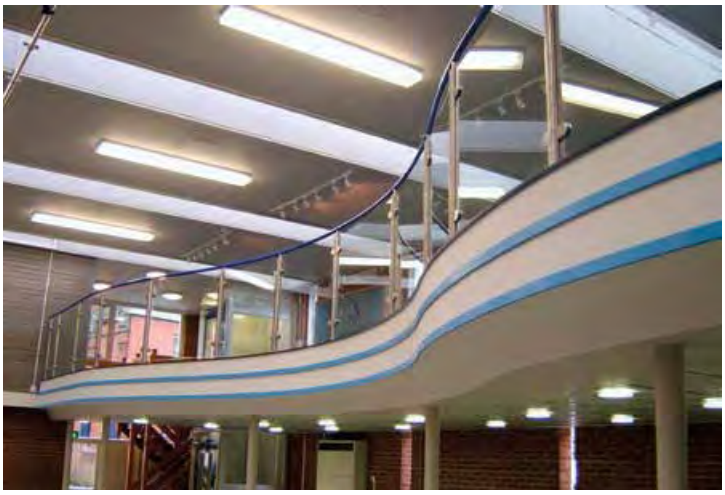
All handrails are supplied pre-assembled, including all corner pieces, connection elements, screws and fixings.

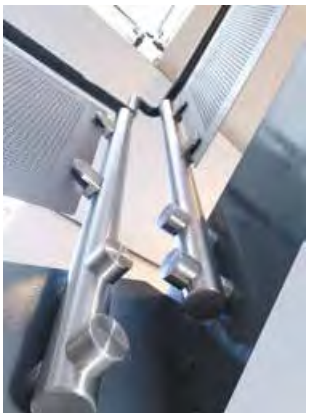
For material and infill options please refer to pages 19 & 20.

SYSTEM INTRODUCTION - **LAIDLAW COMBI LINE**

The **Laidlaw Combi Line** system is capable of producing long and complex continuous handrails using high quality componentry.
A range of construction options are available including the following:

- Handrails can be straight or curved
- Straight or offset intermediate supports
- 40mm or 34mm handrail diameters
- Wide range of infill panel supports and wall supports
- Multiple options for upright mounting
- Wide range of infill materials, intermediate rails or tension wires
- Tactile indicators for visually impaired users
- Optional anti-slip textured grip





Balustrading Solutions

SYSTEM INTRODUCTION - **LAIDLAW STRUCTURAL GLASS**

The Laidlaw Structural Glass system is a perfect example of a technical solution providing exceptional levels of visual simplicity combined with high levels of safety.

The desire to create a system which is based on the concept of a free-standing balustrade with no visible uprights and infill panels has led to the creation of a system with a high degree of safety & security. The ability to minimise gaps below the infill or between uprights by the use of a continuous glass support structure negates the chances of a child squeezing through or climbing onto the balustrade.

The system is available with a number of handrail possibilities in stainless steel or timber and the structural glass element can be treated with a variety of tints or manifestations

For material and infill options please refer to pages 19 & 20.

SYSTEM INTRODUCTION - LAIDLAW STRUCTURAL GLASS

The **Laidlaw Structural Glass** system has the following features:

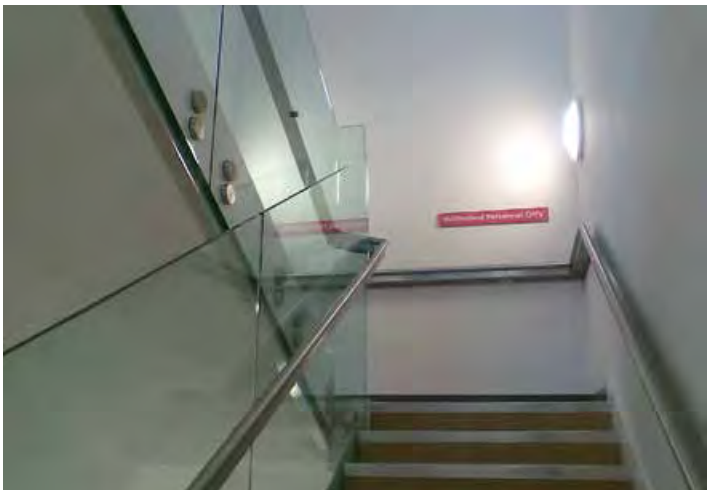
- Handrails can be stainless steel or timber
- Glass is clamped between steel sections bolted to the floor or side fixed with stainless steel bosses
- Designed to meet the most demanding line loading requirements of BS 6180:2011
- Suitable for internal or external applications
- Multiple options for glass treatment
- Complies with the guidance of Approved Doc. K

The glass balustrade

The toughened glass balustrade is the structural element that supports the top rail, which can be of solid timber or stainless steel with a satin brushed finish. In each case, the top rail has a groove in the underside to locate onto the glass balustrade. In order to accommodate the groove, the diameter of the top rail is between 40 - 50mm.

Alternatively an offset timber, stainless steel or nylon handrail with separate supports may also be incorporated.

At the base, the glass is clamped between steel sections which are bolted to the floor structure following the principles set out in BS 6180:2011 on free-standing toughened glass balustrades.



The illustrations show some of the variations which are possible with the Laidlaw Structural Glass system.

Left: Round stainless steel handrail with structural glass.

Above Top: High structural glass balustrade combined with specially designed handrail support structure to provide an anti-ligature solution.

Above: Square section stainless handrail fitted to this balustrade in Marks & Spencer at White City London.

Above Right: Transformation of this block of apartments using simple structural glass balustrades on the balconies.

Right: Structural glass balustrade with offset stainless steel handrail.

Far Right: Timber handrail combined with structural glass

Balustrading Solutions

SYSTEM INTRODUCTION - **LAIDLAW MODU-LINE**

A system which is available as a pre-assembled handrail or balustrade or can be supplied in component form for on-site assembly, requiring minimal cutting.

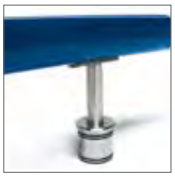
The precision manufactured components of the Laidlaw Modu-Line systems can be used to create a high quality installation normally only achievable from a bespoke made to measure system. The handrail can be supplied in stainless steel, timber or nylon and can be mounted centrally above the uprights or offset.

The system incorporates a wide range of joining, mounting and angled connectors which negate the requirement to cut or drill the uprights. This makes for a quick, simple and attractive installation.

SYSTEM INTRODUCTION - LAIDLAW MODU-LINE

The **Laidlaw Modu-Line** system has the following features:

- Handrails can be stainless steel, timber or nylon
- Minimal cutting of rails with end caps and connectors to finish cut ends
- Unique ball joint connectors allow angles to be set on-site
- No cutting or drilling of uprights is required
- Precision height adjustment is built in to wall or upright connectors
- Multiple options for upright fixing with ground anchor or side fixing
- Range of mid rails or infill panel holders








Balustrading Solutions

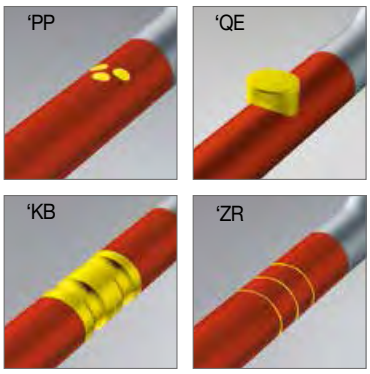
SYSTEM OPTIONS, FINISHES, & SPECIAL FEATURES

Having selected the most appropriate system for your application, a number of options are available for handrail materials and colour, infill panel types and finishes.

Tactile Indicators

Although not included in Building Regulation guidance, tactile indicators can help to make a building more 'inclusive'. When incorporated into handrails, they can indicate to a visually impaired person the presence of the first and last riser on a staircase as well as floor levels. Braille indicators can also be included to highlight a floor number.

Different types of indicator are available, as projecting buttons, rings or grooves.



Coloured Nylon

All nylon handrails, uprights and connectors are available in a range of solid colours. The colours are fully compatible with the Normbau range of coloured nylon architectural ironmongery allowing specifiers to match other hardware elements in the building.

19 *White*
NCS S 0500-N
RAL-DS 000 95 00
RAL 9016

67 Manhattan
NCS S 2502-Y
RAL-DS 080 70 05
RAL 7038

18 *Dark Grey*
NCS S 7500-N
RAL-DS 000 35 00
RAL 7043

63 Slate Blue
NCS S 4020-B
RAL-DS 240 50 15
RAL 5014

37 Dark Blue
NCS S 7020-R80B
RAL-DS 270 20 25
RAL 5003

22 Yellow
NCS S 1080-Y10R
RAL-DS 080 80 90
RAL 1023

16 *Black*
NCS S 9000-N
RAL-DS 000 15 00
RAL 9005

11 *Blue*
NCS S 3560-R80B
RAL-DS 270 30 40
RAL 5002

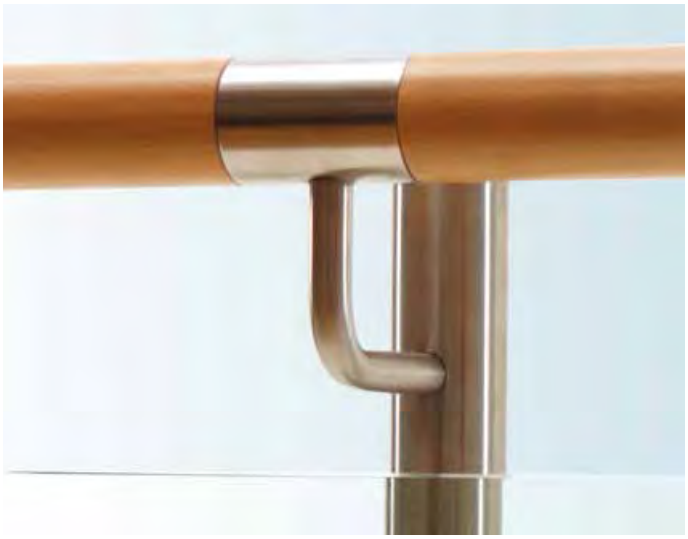
35 Dark Red
NCS S 1080-Y10R
RAL-DS 080 80 90
RAL 3005

12 *Red*
NCS S 2570-R
RAL-DS 030 30 45
RAL 3003

13 *Green*
NCS S 5540-G
RAL-DS 160 30 38
RAL 6016

Timber handrails

A quality beech wood, steamed and kiln dried, surface treated with colourless SH-lacquer. Timber is used in combination with Nylon and stainless steel elements for indoor handrails and balustrades. Other timber handrails are also available, in American White Oak, European Ash and Maple.




Beech


*Maple


*American White Oak


*European Ash

*available to special order

SYSTEM OPTIONS, FINISHES, & SPECIAL FEATURES

Types of infill

Balustrade infill is available in three basic forms:

- Bottom rails & midrails, vertical bars or mesh infills
- Solid infill panels using a variety of materials
- Tension cables

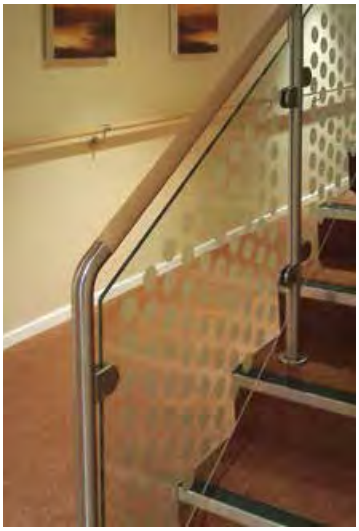
Infill panels

The most common infill material is 10mm toughened glass. It maintains an open character and helps to maximise the amount of light which falls onto the staircase. However, in some circumstances a more enclosed feel is required and several forms of solid infill panels are available including perforated metal sheet and solid laminate which gives possibilities of colour and finish combinations to be achieved.

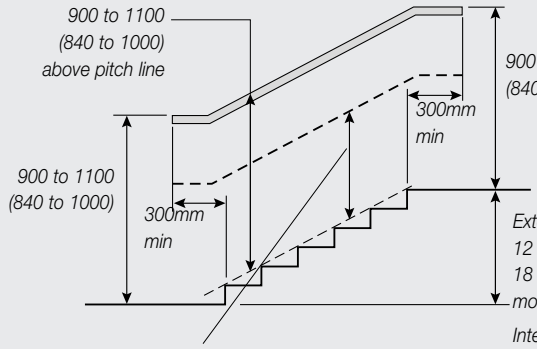
Manifestations

Glass infill panels can be enhanced further by the use of manifestations applied to the glass to fulfil a variety of purposes:

- To provide full or partial screening but still allow light passage
- To distinguish surfaces for visually impaired users
- To provide information, for example at an entrance
- To display logos or other identification symbols



Handrail heights for steps and stairs



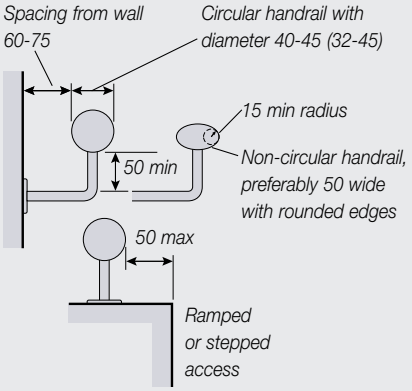
600 where a second handrail is provided for children or people of short stature – install only where there is a full height structural guarding to prevent accidents if the handrail were climbed by a child

Externally
12 risers max. for a going less than 350mm
18 risers max. for a going of 350mm or more (generally, 16 risers maximum)

Internally
12 risers max.
16 risers max, in small premises where space is restricted (generally, 16 risers maximum)

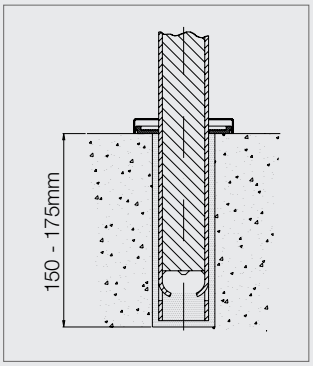
Note: Dimensions for Scotland in brackets

Handrail design



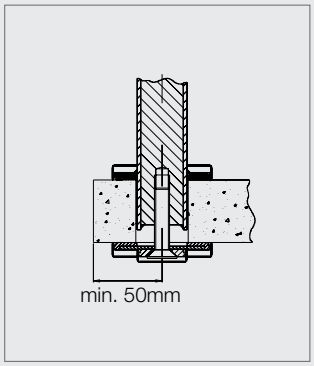
Note: Dimensions from BS 8300 in brackets

Horizontal 'characteristic' design loads on balustrades **Load conditions**	*U.D. horizontal line load* [kN/m]	*U.D load on the infill* [kN/m2]	*Point load on infill* [kN]
Areas, such as stairs, landings, corridors, ramps, external balconies and edges of roofs, where people congregate without overcrowding.	0.74	1.0	0.5
Restaurants and bars, retail and public areas not subject to overcrowding and pedestrian areas in car parks.	1.5	1.5	1.5
Retail areas, theatres, cinemas, bars, auditoria, shopping malls, discothèques and assembly areas, subject to overcrowding.	3.0	1.5	1.5



Type A

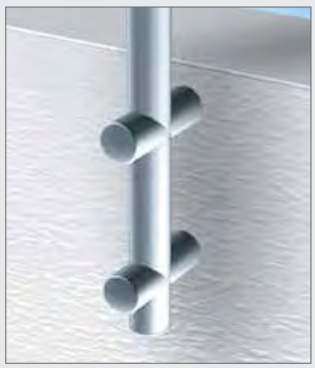
Anchor fixing supplied with anchor and rose. Dimensions may vary according to loading requirements.

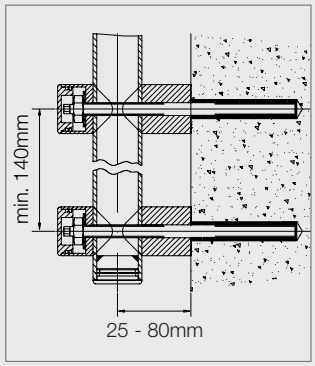


Type B

Bolt-through fixing with steel reinforced roses.

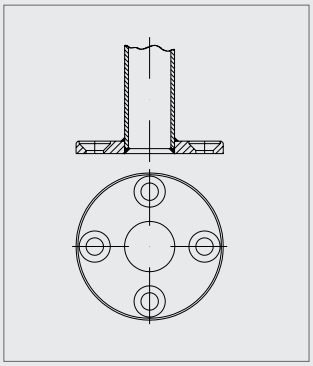
Supplied with roses and screws.





Type C

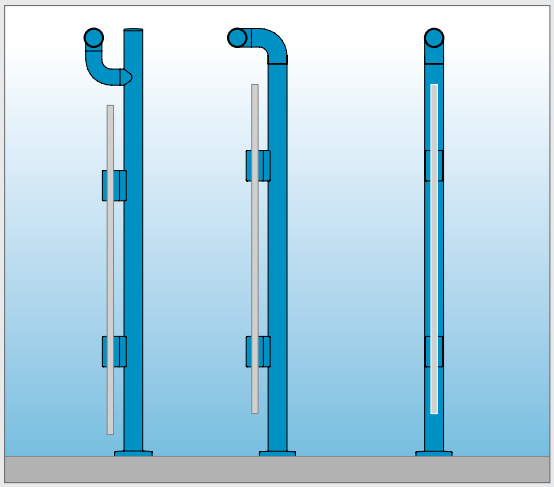
2-point side fixing with clearance and spacing as shown above.



Type E

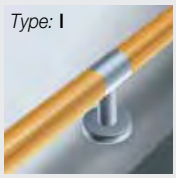
Plate fixing for securing uprights onto a timber deck or a concrete tread/landing.
Dimensions of plate may vary according to loading requirements.

In-line and offset handrail options



Laidlaw Nylon Line

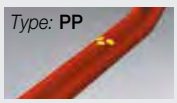
Laidlaw Timber Line

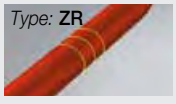


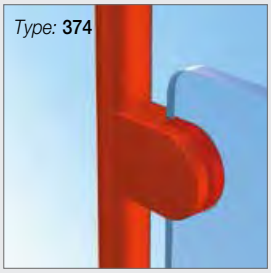
Laidlaw Combi Line

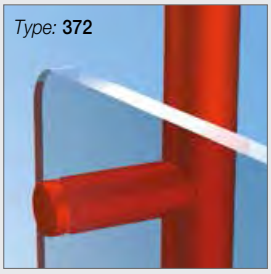
Laidlaw Stainless Line

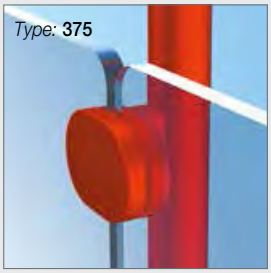
Tactile indicators





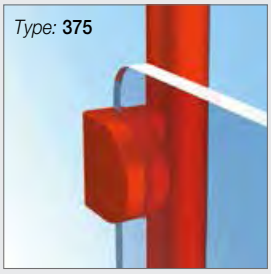






Midrails

Midrails are available in nylon in 40mm and 34mm diameter. Stainless steel midrails are available in 40mm and 26mm diameter.



TECHNICAL DETAILS - **NBS SPECIFICATIONS**

To help specify the Balustrading Solutions range of handrail and balustrade systems, the following specification paragraphs are provided in a format compatible with NBS. These are also available electronically on the Balustrading Solutions website at **www.balustradingsolutions.com**, on NBS Plus or by contacting the Balustrading Solutions Enquiry Line on 01902 600420.

They can be cut and pasted into an NBS specification.

HANDRAILS (Section L30 clause 580 of NBS)

Laidlaw Nylon system

Wall fixed handrail to be 40mm o/d nylon with a 4mm wall thickness over a galvanised steel tube core of 32mm o/d x 2.0mm connected to 34mm dia. steel-cored nylon elbow supports ref. 34.90V complete with steel rosettes and clip on 70mm nylon cover caps at 1300mm centres.

Laidlaw Timber system (*Timber handrail/nylon supports*)

Wall fixed handrail to be:

- 40mm dia. Beech, A quality, without foxiness steamed and kiln dried, surface treated with colourless lacquer,
- 40mm dia. American White Oak, A quality, without sap parts kiln dried surface treated with colourless lacquer,
- 40mm dia. European Ash, A quality, with brown parts kiln dried surface treated with colourless lacquer,
- 40mm dia. Canadian Maple, US quality FAS 1-2, white/ kiln dried surface treated with colourless lacquer, connected to 34mm dia. steel-cored nylon elbow supports ref. 34.90V complete with steel rosettes and clip on 70mm nylon cover caps at 1200mm centres.

Laidlaw Timber system (*Timber handrail/stainless steel or nylon supports*)

Wall fixed handrail to be:

- 40mm dia. Beech, A quality, without foxiness steamed and kiln dried, surface treated with colourless lacquer
- 40mm dia. American White Oak, A quality, without sap parts kiln dried surface treated with colourless lacquer,
- 40mm dia. European Ash, A quality, with brown parts kiln dried surface treated with colourless lacquer,
- 40mm dia. Canadian Maple, US quality FAS 1-2, white/kiln dried surface treated with colourless lacquer,connected to 40mm o/d x 2.0mm brushed stainless steel connected to 14mm dia. elbow supports ref. 14.90V complete with rosettes at 1200mm centres.

Laidlaw Stainless Steel system

Wall fixed handrail to be 40mm o/d x 2.0mm brushed stainless steel with concealed connections in running lengths connected to 14mm dia. elbow supports ref. 14.90V or 26mm dia. ref. 26.90V complete with rosettes at 1300mm centres.

Laidlaw Combi system

Wall fixed handrail to be 40mm o/d nylon with a 4mm wall thickness over a galvanised steel tube core of 32mm o/d x 2.0mm connected to 14mm dia. brushed stainless steel elbow supports ref. 14.90V or 26mm dia. ref. 26.90V complete with rosettes at 1300mm centres, or stainless tube with nylon elbows 34/90V at 1300mm centres.

Laidlaw 3kN system

Wall fixed handrail to be 40mm o/d nylon with a 4mm wall thickness over a galvanised steel tube core of 32mm o/d x 2.0mm connected to 34mm dia. steel cored nylon elbow supports ref. 34.90V complete with steel rosettes and clip on 70mm nylon cover caps at 1500mm centres, or 40mm o/d x 2.0mm brushed stainless steel with concealed connections in running lengths connected to 14mm dia. elbow supports ref. 14.90V or 26mm dia. ref. 26.90V complete with rosettes at 1300mm centres.

Laidlaw Modu-Line system

Wall fixed handrail to be 40mm o/d nylon with a 4mm wall thickness over a steel tube core of 32mm o/d x 2.0mm connected to 14mm dia. brushed stainless steel elbow supports ref. 14.90V complete with rosettes at 1500mm centres.

All bends connectors and glass clips included as necessary. All steel to be galvanised throughout.

All in accordance with BS 8300, BS 6180, BS 6399, BS 5395, BS EN 12150, Building Regulations Approved Documents B, K and M (England and Wales).

BALUSTRADES (Section L30 clause 560 of NBS)

The specification of balustrades is based around three key items:

- A detailed description of the required system
- A statement of the required fixing method
- A description of the balustrade infill.

REQUIRED SYSTEM

Laidlaw Nylon system
Balustrade with removable top rail to be 40mm o/d nylon sleeve with a 4mm wall thickness over a galvanised steel tube core of 32mm o/d x 2.0mm connected to 40mm o/d uprights with a 32mm x 4.0mm galvanised steel tube core extended for fixing using the appropriate method from the list of Fixing alternatives.

Laidlaw Timber system (*Timber balustrade/nylon uprights***)**
Balustrade top rail to be selected from one of four options:

- 40mm dia. Beech, A quality, without foxiness steamed and kiln dried, surface treated with colourless lacquer,
- 40mm dia. American White Oak, A quality, without sap parts kiln dried surface treated with colourless lacquer,
- 40mm dia. European Ash, A quality, with brown parts kiln dried surface treated with colourless lacquer,
- 40mm dia. Canadian Maple, US quality FAS 1-2, white/kiln dried surface treated with colourless lacquer,

connected to 40mm o/d x 2.0mm nylon connections.
Uprights to be 40mm o/d x 4.0mm thick with a 32mm x 4.0mm galvanised steel tube core extended for fixing using the appropriate method from the list of Fixing alternatives.

Laidlaw Timber system (*Timber balustrade/stainless steel or nylon uprights***)**
Balustrade top rail to be selected from one of four options:

- 40mm dia. Beech, A quality, without foxiness steamed and kiln dried, surface treated with colourless lacquer,
- 40mm dia. American White Oak, A quality, without sap parts kiln dried surface treated with colourless lacquer,
- 40mm dia. European Ash, A quality, with brown parts kiln dried surface treated with colourless lacquer,
- 40mm dia. Canadian Maple, US quality FAS 1-2, white/kiln dried surface treated with colourless lacquer,

connected to 40mm o/d x 2.0mm brushed stainless steel connections.
Uprights to be 40mm o/d x 3.0mm thick brushed stainless steel extended for fixing using the appropriate method from the list of Fixing alternatives.

Laidlaw Stainless Steel system
Balustrade with removable top rail facility to be 40mm o/d x 2.0mm brushed stainless steel with concealed connections in running lengths connected to 40mm o/d x 3mm uprights extended for fixing using the appropriate method from the list of Fixing alternatives.

Laidlaw Combi system
Balustrade with removable top rail facility to be 40mm o/d nylon-sleeved tube connected to 40mm o/d brushed stainless steel uprights, or stainless steel tube connected to nylon-sleeved uprights extended for fixing using the appropriate method from the list of Fixing alternatives.

Laidlaw 3kN system
Balustrade with removable top rail facility to be 40mm o/d nylon with a 4mm wall thickness over a galvanised steel tube core of 32mm o/d x 4.0mm, or 40mm o/d
x 4.0mm brushed stainless steel, with concealed connections in running lengths connected
to 60mm o/d x 2.5mm brushed stainless steel uprights extended for fixing using the appropriate method from the list of Fixing alternatives.

Laidlaw Structural Glass system
Balustrade with fixed top rail 50mm o/d to be selected from one of two options:

- 50mm dia. solid timber, A quality, selected from Beech, American White Oak, European Ash or Canadian Maple, kiln dried, surface treated with colourless lacquer, with continuous groove for fixing to,
- 50mm o/d brushed stainless steel with continuous groove for fixing to,

10mm toughened or laminated glass, clamped between stainless steel sections bolted to the floor structure in accordance with BS 6180.

Laidlaw Modu-Line system
Balustrade with removable top rail facility to be 40mm o/d nylon with a 4mm wall thickness over a steel tube core of 32mm o/d x 2.0mm connected to 40mm uprights extended for plate fixing ref. 1.12E to comply with 0.74kN loading.

Fixing alternatives

- Anchor fixing Type A
- Clamp through fixing Type B
- 2 point side fixing Type C
- Plate fixing Type E.

Infill alternatives

- Infill panels to be 10mm thick clear/grey/bronze/green float glass toughened to BS EN 12150 with radiussed corners and flat polished edges.
- Anti Vandal Panels to be 13mm thick solid laminate with radiussed corners and smooth edges.
- Infill panels to be 3mm thick perforated mild steel panels with 30mm dia. holes at 50mm centres with a 60mm clear border all round and 75% clear area. Polyester powder-coated. Held in position using panel holders to uprights.
- Infill panels to be 50mm x 50mm x 4mm weld-mesh all within a 10mm dia. frame. Polyester powder-coated to match balustrade. Held in position using panel holders to uprights.
- Mid rail(s) to be 34mm or 40mm o/d nylon with a 4mm wall thickness over a galvanised steel tube core of 26mm or 32mm o/d x 2.0mm connected to uprights (excluding stainless steel).
- Mid rail(s) to be 26mm, 32mm or 40mm o/d x 2.0mm brushed stainless steel connected to uprights. (stainless steel only).
- 5mm thick stainless steel tension wires including swageless terminals.
- Infill panels to be 10mm dia. vertical bar construction within a 10mm dia. frame – bars at no more than 100mm centres. Polyester powder-coated to match balustrade. Held in position using panel holders to uprights.

Other options can be considered. The maximum thickness of a panel used with a nylon in-line panel holder is 14mm and for a stainless steel in-line panel holder is 12mm. When using screw-stud panel holders, the maximum panel thickness is 14mm.

Laidlaw Stainless Line balustrading with glass infill and offset handrail used at The Life Centre, Wigan

INTEGRATED ARCHITECTURAL INTERIOR PRODUCTS

Balustrading Solutions is part of the Laidlaw Interiors Group, one of the UK's leading specifiers, manufacturers and installers of integrated architectural interiors products.

With a product portfolio which now incorporates the most comprehensive programme of architectural interiors products we are able to support the broadest range of construction projects with industry leading brands, backed up by the legendary Laidlaw technical support.

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- Automatic door packages

The Laidlaw Interiors Group product and service offering includes the following:

- Solid, glazed and demountable partitioning
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- Veneered, laminate and glass doors
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- Fast track sanitaryware installations
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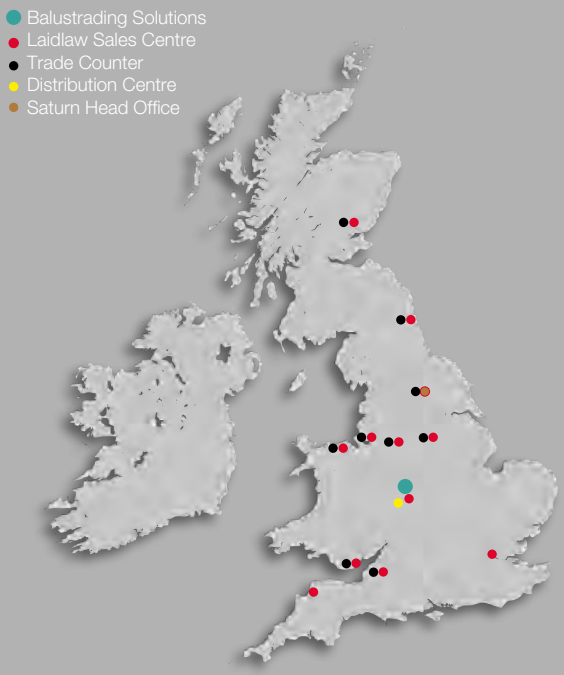
www.laidlaw.net



Balustrading Solutions is a division of Laidlaw Solutions Ltd and part of the Laidlaw Interiors Group of companies

The Laidlaw Interiors Group specialises in architectural interiors, with a comprehensive portfolio of market leading brands supplying doorsets, ironmongery, access control, handrail and balustrading, architectural glass, washrooms and partitioning systems.

Proud of its manufacturing heritage, the group champions independent testing and believes in the value of collaborative working through a cohesive, integrated supply chain. The group consists of Cubicle Systems, Fitzpatrick, Komfort, Laidlaw Solutions, Leaderflush Shapland, Longden, Saturn Architectural, TDSL and Tufwell Glass.

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