Lloyd Worrall
ARCHITECTURAL SOLUTIONS

Architectural Solutions Guide: **Handrail and Balustrade**

Safe
Secure
Accessible

- Ironmongery
- Doorsets
- Access Control
- Door Automation
- Handrail & Balustrade

lloydworrall.co.uk

Lloyd Worrall
ARCHITECTURAL SOLUTIONS

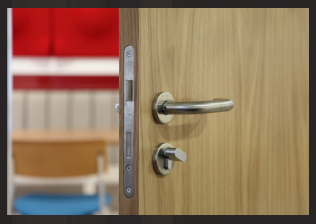
Safe Secure Accessible

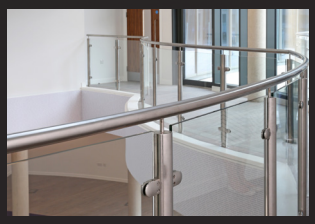
Lloyd Worrall is a premier architectural solutions provider to the commercial, education, health, retail, leisure, accommodation and housing sectors of the construction industry through consultation, specification and end-user interaction.

We provide the complete solution in:

- **Commercial Doorsets**
- **Architectural Ironmongery**
- **Access Control**
- **Door Automation**
- **Modular Handrail and Balustrade Systems**

Each business works closely with architects, key specifiers and construction design teams offering a comprehensive service including performance specifications, scheduling services, quotations, full ironmongery doorset packing and installation services for our handrail, balustrade, access control and door automation solutions.



Our goal at Lloyd Worrall is to ensure that we always deliver solutions that promote a safe, secure and accessible environment.

The Lloyd Worrall modular system is designed to help architects, engineers, specifiers, builders, and contractors ensure that all commercial and public buildings satisfy the requirements of the Equality Act 2010 and applicable Building Regulations. The system also complies with the guidance in Approved Document K in relation to guarding.

The modular range consists of polyamide, stainless steel and timber designs and harmonious combinations of these materials. Balustrade infill options include glass, HPL (high pressure laminate) and perforated panels.

Our Handrail and Balustrade Division offers a total supply and fix package for handrails and balustrades from initial conception through to final installation.

The package includes:

1. Technical advice from our fully qualified staff during preliminary design stages.
2. The total package quotation can be produced from architects drawings, Bills of Quantities or by ourselves taking site dimensions.
3. Preparation of specifications and Bills of Quantities if required.
4. Schematic drawings for project in Autocad format.
5. Site measurements taken by our contract engineers.
6. CAD fabrication drawings produced for approval.
7. Site fixing programme agreed with contractor.
8. All materials are transported in stout packaging to provide protection during transportation to site.
9. Installation carried out nationally by our qualified installers, co-ordinated by our contracts division.
10. Designs and types of infill's to clients choice.
11. Handover checklist signed by our installer and contractor on completion.

e: enquiries@lloydworrall.co.uk www.lloydworrall.co.uk

Contents

Polyamide Colour System

- 5mm thick seamless nylon sleeve.
- Offers colour contrast.
- Corrosion resistant core used throughout.
- Not cold to touch - Polyamide has a thermal conductivity of 0.25 w/mk.
- Available in 15 colours allowing a comprehensive design scope.
- Non-porous and easy to clean.
- Homogeneous, consistent full colouring and exceptionally pleasant to touch.
- Careful selection of colours enables handrails and balustrades to provide orientation functionality.
- Well suited for use in heavily frequented public areas such as educational institutions, hospitals and care homes.

Standards

Balustrades have been independently tested and satisfy the requirements of BS6180 and BS6399, as referred to in the Building Regulations Document K.

Handrails are fully compliant with Approved Document M 2004 and BS8300: 2010.

Fire Resistance - DIN 4102

Steel: non-flammable (Building Materials Class A2). Polyamide: normal flammability (Building Materials Class B2).

Product Specifics

Handrails are made of 5mm thick solid high quality polyamide sleeves coloured throughout in 15 standard colours with corrosion resistant steel core and are available in both 40mm and 33mm dia.

Balustrade uprights and top rails are 40mm dia only.

Wall mounted handrails with rose fixings are available with optional designs for the handrail brackets as illustrated on page 161.

For all bracket types the maximum centres of the brackets are as follows:
1250mm for 33mm dia. 1500mm for 40mm dia.

Balustrades are available with 6 alternative fixing types for uprights to suit most common conditions on staircases. These are fully illustrated on pages 164 to 166.

Infill panels secured with clamp function panel holders are available in 10mm toughened glass to BS EN12150 Class A in clear or tinted options. We can apply manifestations using acid etching or silk screen printing processes. Alternatively infill panels are available in both colour coated perforated metal or stainless steel.

Multi-rails in 40mm or 33mm dia rail parallel to top rail may also be used in certain situations.

Upright distance maximum 1000mm, railing height 900mm, 1000mm or 1100mm.

Applications

Educational establishments. Hospitals. Residential Care Homes. Public buildings with areas of high pedestrian traffic.

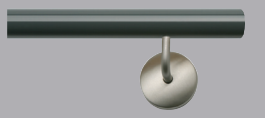
Polyamide Colour System

Colours:

Mustard Yellow (18)	Orange (24)	Coral (36)
Ruby Red (33)	Sand (86)	Umber (84)
Aqua Blue (55)	Steel Blue (50)	Apple Green (74)
May Green (72)	Signal White (98)	Light Grey (97)
Stone Grey (95)	Antracite Grey (92)	Jet Black (90)

Handrail Options

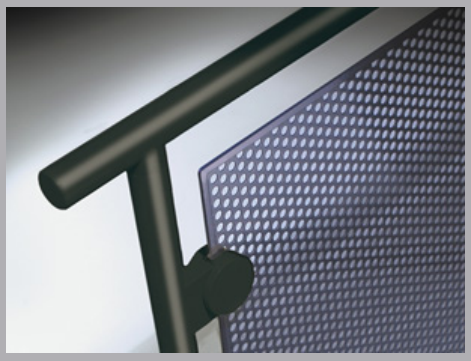
Straight handrail with end caps
Bracket W3 (concealed fixing) or
Bracket W23 (concealed fixing), 40mm dia or 33mm dia.



End bends without roses
Bracket W3 (concealed fixing) or
Bracket W23 (concealed fixing), 40mm dia or 33mm dia.

End bends with rose fixing
Bracket W11 (bend bracket with concealed fixing)
40mm or 33mm dia.

Balustrade Options



Balustrade with colour coated perforated infill panel.

Balustrade with toughened safety glass infill panel.

Circum Stainless Steel System

- Stainless steel system.
- Available in Grade 304 and Grade 316L.
- Standard satin finish. Polished finish is available.
- Can be combined with the Polyamide or Lignum Systems.
- Fulfils the highest function and design standards.
- Flexible system offering aesthetically pleasing and long lasting visual appeal.
- Often used to complement the stainless steel finish of other elements within the building such as door furniture and lighting.
- Suitable for areas subject to high levels of use and abuse due to its high stability and durability.

Standards

Balustrades have been independently tested and satisfy the requirements of BS6180 and BS6399, as referred to in the Building Regulations Document K.

Handrails and top rails to balustrades are also available (as an option to stainless steel) in hardwood or coloured polyamide. These options are fully compliant with Approved Document M 2004 and BS8300: 2010.

Fire Resistance - DIN 4102

Stainless steel: non-flammable (Building Materials Class A2).

Technology

Handrails and balustrades are assembled from standard components in compliance with ISO 9001 therefore ensuring the highest quality is achieved in manufacture and providing easy installation on site.

Product Specifics

Circum handrails and balustrades are made from stainless steel with a high quality satin finish (240 grain) and concealed connections. This system is made of grade 304 (1.4301) stainless steel as standard, grade 316L (1.4571) is also available upon request.

All handrails are 40mm dia. Wall fixed handrails, 40mm dia are mounted on 90° brackets (illustrated on page 161) For all bracket types the maximum centres are 1700mm.

Balustrades have 40mm diameter top rails with 48.3mm dia uprights mounted on 135mm dia x 10mm thick platform or side fixing plates.

Upright distance maximum 1000mm, railing height 900mm, 1000mm or 1100mm.

Various options are available for infill panels to balustrades. Infill panels secured with clamp function panel holders are available in 10mm toughened glass to BS EN12150 Class A in clear or tinted options. We can apply manifestations using acid etching or silk screen printing processes.

Multi-rails in 10mm dia stainless steel rods running parallel to top rail may also be used in certain situations.

Applications

Public buildings. Industrial businesses. Commercial buildings. Public and private housing.

Circum Stainless Steel System

Handrail Options

90° return end, open tube
Bracket W3 (concealed fixing).

Straight end, sealed tube, with impact cover (2mm convexed)
Bracket W3 (concealed fixing).

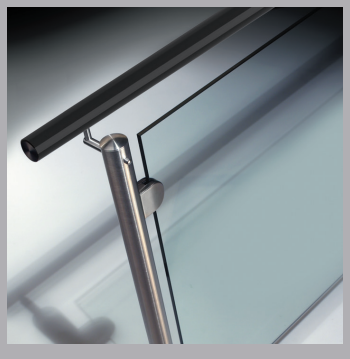
Balustrade Options

Standard Options:

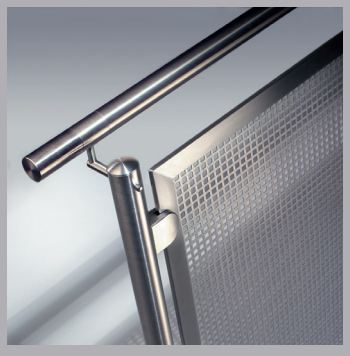
Balustrade with parallel steel rods and stainless steel top rail.

Balustrade with toughened safety glass infill panel and stainless steel top rail.

Non-standard Options:



Balustrade with toughened safety glass infill panel and polyamide top rail.



Balustrade with perforated stainless steel infill panel and stainless steel top rail.

Lignum Timber System

- Wooden handrail and bracket system.
- Combined with Polyamide or Circum brackets and bends.
- Available in a range of hardwoods including bamboo.
- Lignum can be visually linked with other interior designed objects such as doors and furniture.
- Flexible system offering aesthetically pleasing and long lasting visual appeal.
- Lignum Protect is designed for use in highly frequented corridors due to a shockproof inlay strip of HPL.
- Lignum Multiplex, a glued laminated wood is stronger than solid wood and gives a extraordinary look.

Standards

Fully compliant with Approved Document M 2004 and BS8300: 2010.

Fire Resistance - DIN 4102

Normal flammability (Building Materials Class B2).

Technology

Lignum is a high quality wall mounted handrail system made of 40mm dia solid European hardwoods. Only A Grade steamed and kiln dried timber is used.

The surface of the handrail is twice sanded and finished with 2 coats of clear protective varnish. All butt joints in the length of the rail have a 2mm chamfer and are dowelled and glued to provide a strong connection.

All handrails are assembled from standard components in compliance with ISO 9001 therefore ensuring the highest quality is achieved in manufacture and providing easy installation on site.

Product Specifics

Lignum handrails are manufacturing using high-grade, quality timbers which are kiln-dried. A UV-cured, solvent free varnish is used for the surface seal. Lignum is available in beech, maple, oak and steamed bamboo as well as the Multiplex variation. Other species are available upon request.

The bends to the rail are available in matching timber, satin stainless steel or coloured polyamide with handrail brackets in various designs.

The different designs of rose fixings are shown on the opposite page. Detailed sections of the handrail brackets are illustrated on page 161. For all bracket types the maximum centre of brackets is 1250mm.

Lignum Protect is complete with an insert strip made of HPL with a black and white core 10.6mm deep, projecting from the face of the handrail to provide impact protection. Lignum Protect has the added advantage of providing a wall protection system combined with a handrail which is fully compliant with Document M of the Building Regulations.

Lignum Multiplex is a high quality handrail system produced in beech or birch (40mm dia). The surface finishes are sanded twice and coated twice with a clear protective varnish. Waxed finishes are available on request. Our proven connecting system comprising glued and screwed joints guarantees stable and visually perfect connections between bends, straight elements and supports.

Applications

Residential Care Homes. Commercial Buildings. Schools and Domestic Housing.

Lignum Timber System


Beech


Wenge Beech


Maple


Oak


Steamed Bamboo


Beech Multiplex


Birch Multiplex

Handrail Options: Lignum

End bends and bends at change of directon made of wood.
Bracket W3 (concealed fixing) or
Bracket W6 (visible fixing).

End with caps and bends at change of direction made of wood.
Bracket W3 (concealed fixing) or
Bracket W6 (visible fixing).

Straight ends with chamfer and bends at change of direction made of wood.
Bracket W3 (concealed fixing) or
Bracket W6 (visible fixing).

End bends at change of directon made of stainless steel.
Bracket W3 (concealed fixing) or
Bracket W6 (visible fixing).

End bends and elbow bends made of polyamide.
Bracket W3 (concealed fixing) or
Bracket W11 (visible fixing).

Handrail Options: Lignum Protect

End bends and bends at change of direction made of polyamide.
Bracket W3 (concealed fixing) or
Bracket W6 (visible fixing).

Straight end with wooden cap, bends at change of direction
made of polyamide or stainless steel.
Bracket W3 (concealed fixing) or
Bracket W11 (visible fixing).

Handrail Options: Lignum Multiplex

End bends made of multiplex, bends at change of direction
made of multiplex bend or stainless steel.
Bracket W3 (concealed fixing) or
Bracket W6 (visible fixing).

Straight ends with chamfer, bends at change of direction
made of multiplex bend or stainless steel.
Bracket W3 (concealed fixing) or
Bracket W6 (visible fixing).

Bespoke Systems: Structural Glass Systems

In addition to our standard range of modular handrail and balustrade systems, LWG offer a range of bespoke structural glass systems.

Structural glass systems are ideally suited to high-end architectural applications where the simplicity of the structure and where a “clear view” is required through the balustrade to a staircase or a balcony, either for the interior or exterior of a building.

Created without the use of vertical supports, the glass system includes toughened or laminated glass in a range of colours and thicknesses dependant on the application together with a stainless steel handrail.

Our structural glass systems are designed to meet all current UK Building Regulations and as they are designed with no gaps they limit the risk of small children becoming trapped between balustrade bars or being seriously injured from climbing on a balustrade.

The most important factors to take into account when deciding to use structural glass are:

1. What will hold the glass, and is it proved as structurally fit for purpose?
2. Can sufficient fixing grounds be proven?
3. Do the fixing grounds have sufficient strength to meet Building Regulations and British Standards?

The specifier should consider all of the above when appointing sub-contractors to fulfil a structural glass requirement.

At LWG we will provide you with either structural calculations to demonstrate these important factors have been met or provide manufacturers certification to demonstrate this.

Structural glass systems gives the specifier endless design possibilities with a vast range of glass options including clear, low-iron, tinted, manifestations, laminated and laminated with coloured vinyl, to create a truly bespoke solution.

Please contact us for details on the complete range.

Technical Detail

Free-standing glass protective barrier requires 5 design loadings to be taken into consideration:

1. Line load (Horizontal UDL) kN/m.
2. UDL (Infill UDL) kN/m2.
3. Concentrated load kN.
4. Impact Force BS EN 12150.

Bespoke Systems: Balcony Systems

Balconies of all types are now enjoying a resurgence, both on new builds and as additions to existing properties.

Balconies can allow a seamless blend of external and internal living spaces, opening up rooms and bringing the outside in.

At LWG we work with developers, contractors and homeowners to provide the ideal balcony system, whether they are renovating a balcony or building a new one.

There are 3 main types of balcony:

1. Juliet balconies, usually in front of a pair of inward opening doors.
2. Fully cantilevered balconies without any posts.
3. Balconies supported by two or more posts or brackets.

Whether you decide on a frameless glass balustrade with laminated glass or a galvanised steel structure with composite decking and a powder coated steel balustrade, each individual element will be unique to the project.

All of our balcony systems and structures can be installed throughout the UK by our own installation team, or by a builder of your choice.

We offer a range of standard size balcony and canopy systems which are available in a wide choice of materials and finishes.

We can also accommodate bespoke styles or designs made to specific customer requirements.

With vast experience in technical design we offer a full survey and design package including:

- Site survey.
- System design.
- Technical drawings.
- Manufacture.
- Delivery and Installation.

Please contact us for details on the complete range.

Accessories

Tactile and Braille Handrails

Available as part of the Lignum range, tactile aids can be integrated onto the handrail to help users with vision restrictions to find their way around the buildings, or help with orientation to enable independence and limit confusion.

The signs can be individually designed with Braille and profiled lettering to communicate information such as door numbers or floor level.

Manifestation on Glass

Glass Manifestation is designed to ensure users are aware of the presence of the glass and help stop people walking into the glass and possibly being injured.

Options of manifestations include company names, logos, bespoke images and designs and emblems.

Our manifestations are produced by either acid-etching, silk screen printing or weatherproof film.

Smartrailing

Intelligent LED illuminated stair handrails, which can be modified in colour and frequency according to customers requirement.

This new innovative system is ideal for signposting escape routes, acting as an orientation aid and as access authorisation codes for corridors, floors or conference rooms by assigning different coloured LED lighting to each area.

Smartrailing is ideal for use in large public buildings where segmenting different areas is required. The system has recently been installed in the British Museum in London.

Wall Protection Systems

The LWG wall protection system is designed to protect walls against scratches or damage caused by impact in highly frequented areas - especially corridors - in hospitals, care and residential facilities, schools and hotels.

The Gard system is manufactured to DIN 4102 flame resistant (building materials Class B1), High Pressured Laminate (HPL) which is extremely durable, heat resistant and easy to clean.

Combined with other components from the handrail range together with corner edge protection the Gard system is an attractive way of providing protection and continuity of design throughout the building.

Gard System

The solid wall protection has chamfered edges (2mm / 45°).
Made from 8mm thick HPL panels.
Fixed with a visible threaded connection.
Finishes: white, grey, beech, maple.

Dimensions:
The panel blank is approx. 3m long.
Standard heights:
210mm/250mm/320mm/430mm.
Other dimensions available upon request.

Circum Corner Edge System

Made of high quality stainless steel.
Invisibly fixing with glue.

Dimensions:
Standard angle: 90°.
Other angles available upon request.
Side length: 60mm long, top and bottom rounded with 15mm radius.
Material thickness: 2mm.
Height: 250-1000mm.
Other heights available upon request.

Polyamide Corner Edge System

Made of through-dyed and abrasion-resistant polyamide to match the handrail system.
Concealed screw fixing.

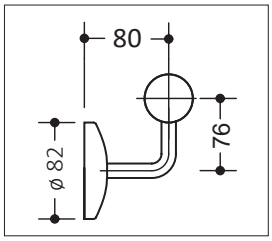
Dimensions:
Angle: 90° or 135°.
Dia: 40mm.
End: optionally with flat caps or spherical caps.
Height: 250-1000mm.
Other heights available upon request.

Lignum Corner Edge System

Made from solid timber (maple or beech).
Apart from wall-side edges, all other edges are rounded to minimise injury risk.
Visible screw fixing.

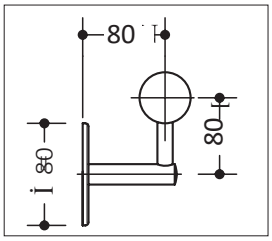
Dimensions:
Standard angle: 90°.
Other angles available upon request.
Side length: inside 50mm, outside 68mm.
Total thickness: 18mm.
Height: 250-1000mm.
Other heights available upon request.

Handrail Brackets



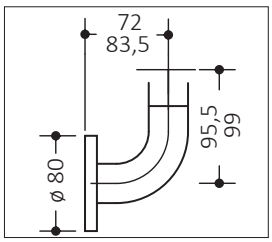
Bracket W3

As illustrated with 12mm dia curved satin stainless steel stem mounted on 80mm dia zinc-plated steel inner fixing rose with 3 screw holes, complete with clip in stainless steel outer cover to conceal fixings.



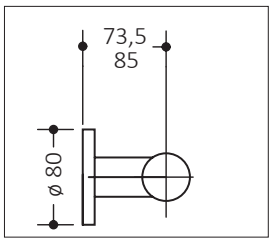
Bracket W6

As illustrated in satin stainless steel comprising 16mm dia horizontal arm and 12mm vertical stem mounted on 80mm dia stainless steel rose with 2 holes for exposed screw fixings.



Bracket W11

As illustrated, seamless abrasion resistant polyamide, coloured throughout comprising of a 33mm dia bend mounted on 80mm dia zinc plated steel inner fixing rose with 11 screw holes, complete with clip on polyamide outer cover to conceal fixings. The projection is approximately 64mm with a 40mm dia handrail. The projection is approximately 56mm with a 33mm dia handrail.



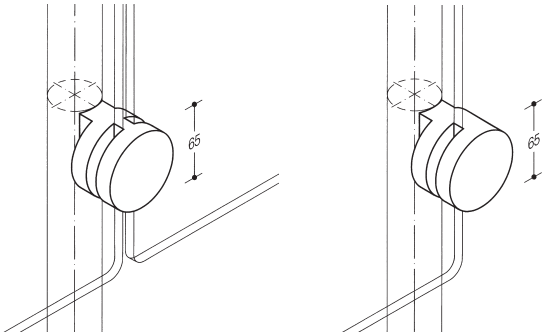
Bracket G11

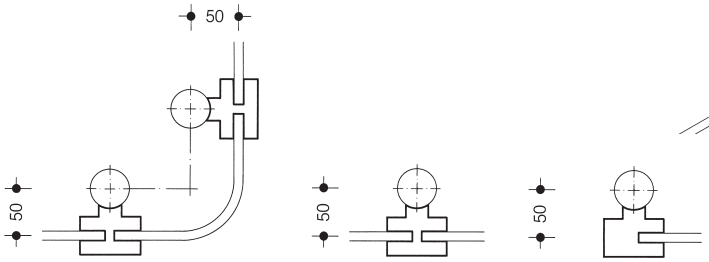
As illustrated, seamless abrasion resistant polyamide, coloured throughout comprising of a 33mm dia straight section mounted on 80mm dia zinc plated steel inner fixing rose with 11 screw holes, complete with clip on polyamide outer cover to conceal fixings. The projection is approximately 64mm with a 40mm dia handrail. The projection is approximately 56mm with a 33mm dia handrail.

Panel Holders: Polyamide and Circum Systems

Panel Holder 40.1155 40.1156

Panel holder with removable polyamide cover and corrosion resistant steel insert, prepared to clamp 6, 8, 9.5, 10, 12 or 13mm thick infill panels.
All infill panels require a torque of 12Nm per clamp screw.
A 2.5mm gap between panel holder and infill panel should be allowed.

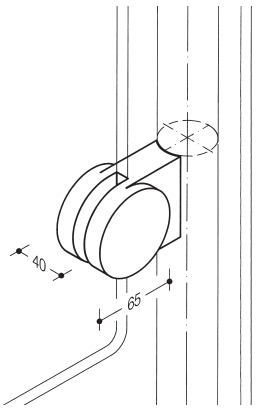


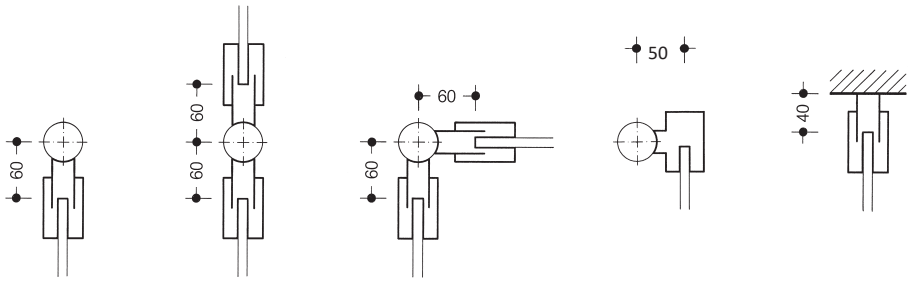


40.1155 40.1156 40.1156

Panel Holder 40.1150 40.1151

Panel holder with removable polyamide cover and corrosion resistant steel insert, prepared to clamp 6, 8, 9.5, 10, 12 or 13mm thick infill panels.
All infill panels require a torque of 12Nm per clamp screw.
A 2.5mm gap between panel holder and infill panel should be allowed.

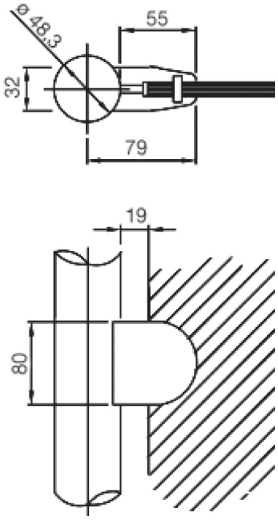




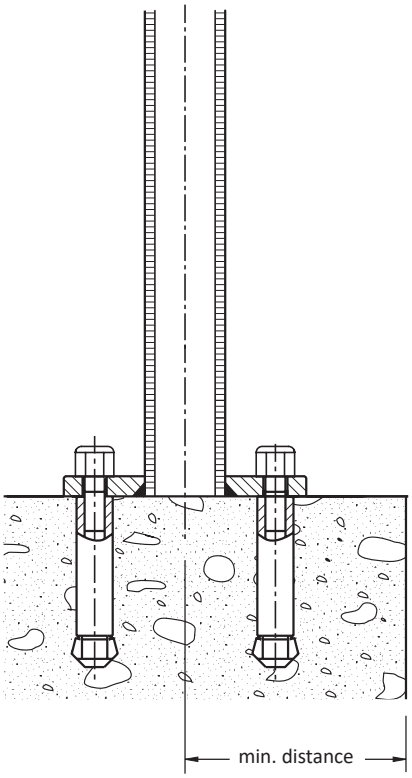
40.1150 40.1150 40.1150 40.1150 40.1151

Panel Holder Circum

Panel holders to clamp infill panels of 8 or 10mm thickness, clamp screws require a torque of 12Nm to be applied to each screw.
Panel holder made of zinc decasting, stainless steel finish, to clamp infill panels of 8 or 10mm thickness, like toughened glass or perforated stainless steel with large frame.
The top clamp holders are fitted with a locking pin (6x18mm dia) to avoid slippage of panels. Therefore two holes (12mm dia) are required in the infill panels.
A 2.5mm gap between panel holder and infill panel should be allowed.



Fixing Detail: Circum System



Circum Stainless Steel Platform Fixing Plate (surface fastening)

135mm dia x 10mm thick surface mounting plate suitable for 48.3mm dia posts with a maximum rail height of 110mm.

Application: On treads, landings, upstand kerbs and ramps.

Concrete thickness: 130mm.

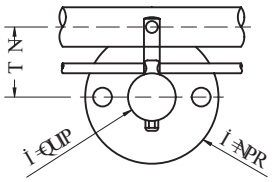
Minimum distance from edge of concrete to centre of post: 110mm.

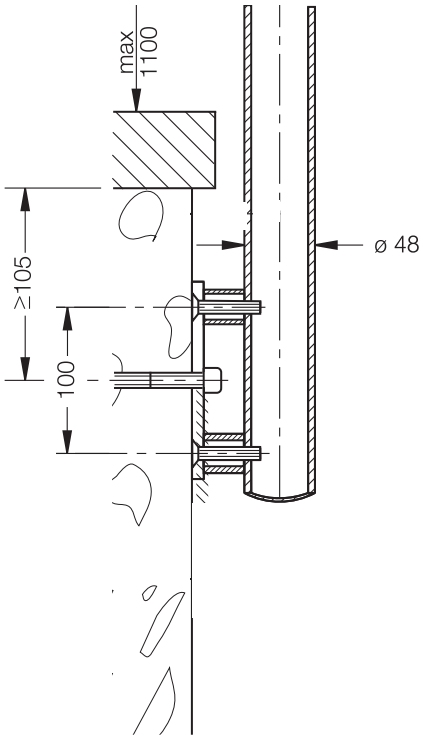
Drilling: 2 holes for the appropriate 12mm anchors.

Distance between holes: 100mm.

Anchoring in concrete: 12mm dia bolts and chemical anchors.

Anchoring in steel: Bolts M12.





Circum Stainless Steel Side Fixing Plate

135mm dia x 10mm thick surface mounting plate suitable for 48.3mm dia posts with a maximum rail height of 110mm.

Application: Stair strings, landing edges, upstand, kerbs and walls.

Concrete thickness: 130mm.

Minimum distance from edge of concrete to centre of post: 105mm.

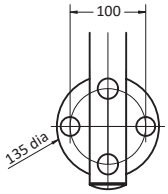
Minimum distance from edge of concrete to centre of plate: 60mm.

Drilling: 2 holes for the appropriate 12mm anchors.

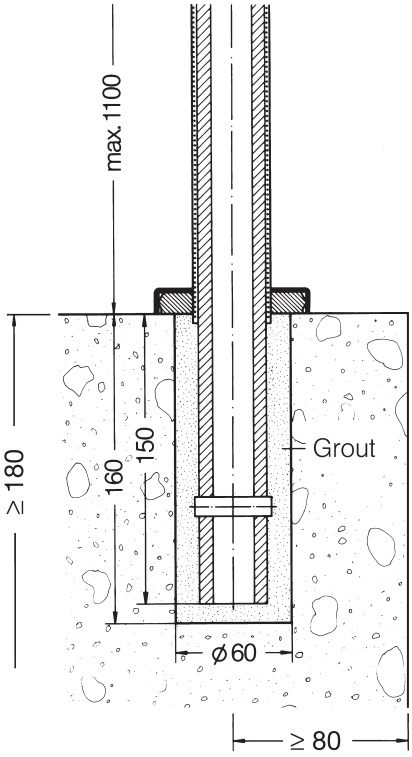
Distance between holes: 100mm.

Anchoring in concrete: 12mm dia bolts and chemical anchors.

Anchoring in steel: Bolts M12.



Fixing Detail: Polyamide System



HEWI Post Fastening (concrete anchor)

Continous steel core with cross lug.
Rose to cover core drilled hole.
For 40mm dia posts with max. rail height of 1100mm.

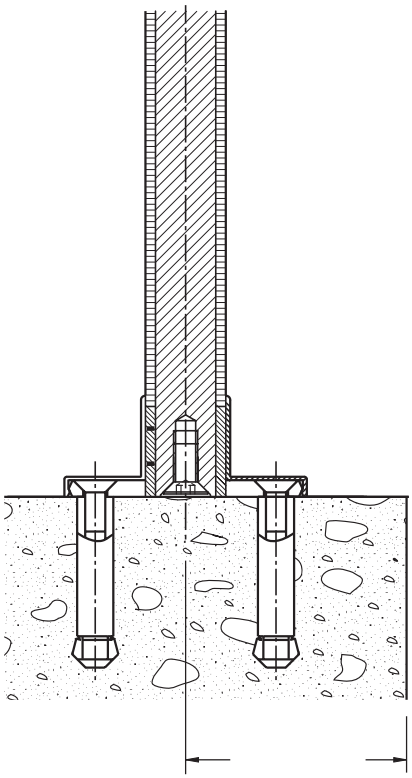
Application: On treads, landings and curbs.

Anchoring Material (floor construction): Minimum concrete strength B25 (25N/mm^2).

A reduction of the min. distance from edge of concrete to centre of post might be possible, but each individual situation must be approved by a qualified technician.

Note: Check if min. distance from the edge of the tread or landing reduces the min. required stair width applicable to Building Regulations.

Filler: Non-shrink grout.



HEWI Post Fastening (surface fastening)

Surface mounting with dia 120mm x 10mm steel base plate with steel socket and polyamide outer cover.
Continous steel core into steel socket secured with M12 screw and four M6 set screws to prevent vertical and horizontal movement.
For 40mm dia posts with max. rail height of 1100mm.

Concrete thickness: 130mm.

Minimum distance from edge of concrete to centre of post: 110mm.

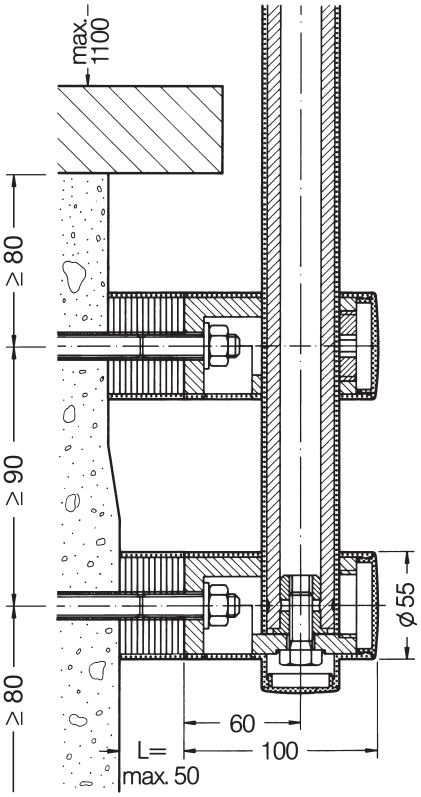
Drilling: 3 holes to appropriate 10mm anchors.

Distance between holes: 78mm.

Anchoring in concrete: 10mm screws and anchors.

Anchoring in steel: Bolts M10.

Fixing Detail: Polyamide System



HEWI Post Fastening (two point side mount)

Side mounting with two fastening points.
Continuous steel core into lower fastening point, secured with M12 bolt and clamping plate to prevent vertical and horizontal movement.

Application: On stringers, landings and walls.

Anchoring Foundation: Concrete B25, steel, wood (bolt through).

Concrete thickness: 250mm.

Minimum distance from edge of concrete to centre of post: 80mm. A reduction of the min. distance might be possible, but each individual situation needs to be approved by a qualified technician.

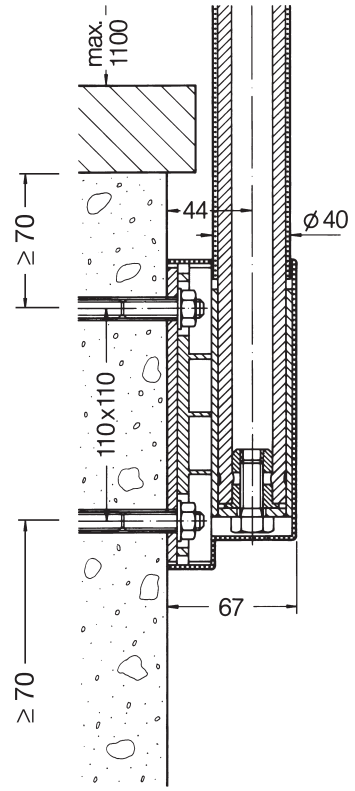
Note: Standard dimension from wall to centre of post = 60mm. Fastening points can be extended up to 50mm, therefore the maximum tread or landing overhang can be 85mm.

Drilling: 2 holes for the appropriate 12mm anchors.

Distance between holes: 90mm min.

Anchoring in concrete: Appropriate chemical anchor M12 (or expansion anchor M12).

Anchoring in steel: Appropriate bolts M12.



HEWI Post Fastening (four point side mount)

Side mounting with four fastening points.
Continuous steel core into steel sleeve, secured with M12 bolt and M6 set screw to prevent vertical and horizontal movement. For 40mm dia posts max. rail height of 1100mm.

Application: On stringers, landings and walls.

Anchoring Foundation: Concrete B25, steel, wood.

Concrete thickness: 250mm.

Minimum distance from edge of concrete to centre of post: 70mm. A reduction of the min. distance might be possible, but each individual situation needs to be approved by a qualified technician.

Note: The max. overhang on treads and landings to be 20mm.

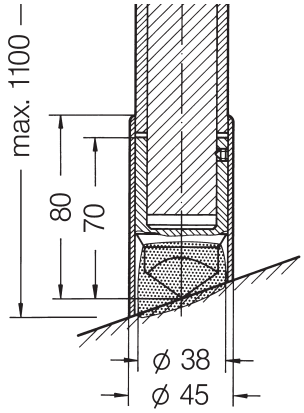
Minimum distance between fastening points: 110mm x 110mm.

Drilling: 4 holes for the appropriate 12mm anchors.

Anchoring in concrete: Chemical anchor M10.

Anchoring in steel: Appropriate bolts M10.

Fixing Detail: Polyamide System



HEWI Post Fastening (welded fastening)

Surface mounting with welded steel socket.
Continuous steel core into steel socket, secured with four M6 set screws to prevent vertical and horizontal movement.
For 40mm dia posts max. rail height of 1100mm.

Application: Steel stringers and plates.

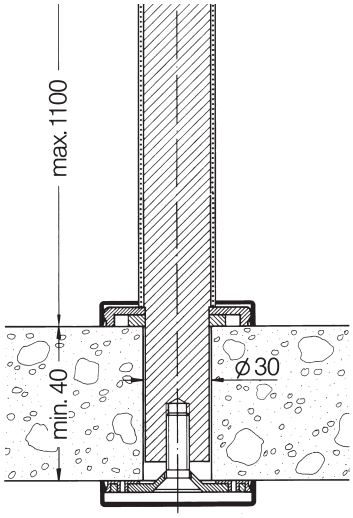
Minimum stringer/plate width: 52mm.

Weld requirements: Multiple pass weld w/chipping to achieve required build up of weld.

Certified welder required to execute this joint.

Nylon must be protected by wet towels during welding.

Joint to be filled with petroleum jelly after welding.



HEWI Post Fastening (through bolt fastening)

Continuous steel core and two steel roses.
Rose to cover core drilled hole.
Application: On open tread stairs and landings with access to the underside.

Anchoring material (floor construction): Concrete, marble, hardwood and steel.

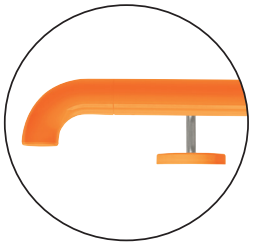
Minimum distance from edge of concrete to centre of post: 70mm.

A reduction of the min. distance might be possible, but each individual situation needs to be approved by a qualified technician.

Note: Check if min. distance from the edge of the tread or landing reduces the min. required stair width.

Core drilling: 30mm dia.

NBS Specification Guidance:
HEWI Polyamide Colour



L30 STAIRS/WALKWAYS/BALUSTRADES

560 BALUSTRADES

REFER TO DRAWINGS:

MANUFACTURER AND REFERENCE: Hewi Polyamide Colour

LWG, Handrail & Balustrade Division, The Technology Centre, Wolverhampton Science Park, Glasier Drive, Wolverhampton, WV10 9RU t: 01902 866 562 e: handb@lloydworrall.co.uk w: www.lloydworrall.co.uk Contact: Roy Bradburn.

Balustrade - HEWI Balustrade design with a handrail comprising of a 40 o/d seamless nylon sleeve with a 5mm wall thickness over a corrosion resistant steel core 30mm dia x 4.5mm.

Posts - connected to uprights of 40mm o/d seamless nylon sleeve with a 5mm wall thickness over a 30mm dia solid steel corrosion resistant steel core.

Infill - Infill panels to be 10mm thick clear float glass toughened to BS EN 12150 with radius corners and flat polished edges.

Fixings - extended for 1.2 anchor fixing set into pockets with non-shrink grout, all fixings complete with nylon outer covers to conceal fixings. Pockets 160mm deep x 60mm diameter core drilled by main contractor on site to receive anchor fixing.

Or

Extended for 1.3 surface mounting plates with 120mm dia x 10mm steel base plate with steel socket and polyamide outer cover.

Or

Extended for 1.4 two point side mounting with two fastening points and polyamide outer covers.

Or

Extended for 1.5 four point side mounting plate with four fastening points and polyamide outer covers.

Or

Extended for 1.7 surface mounting with welded steel socket and polyamide outer cover.

Or

Extended for 2.2 through bolt fastening, continuous steel core and two steel roses with polyamide outer covers.

STANDARDS & REGS: ADM, ADK, ADB, BS5395, BS8300, BS6180, BS EN 12150, BS EN1991.

570 HANDRAILS

REFER TO DRAWINGS:

MANUFACTURER AND REFERENCE: Hewi Polyamide Colour.

LWG, Handrail & Balustrade Division, The Technology Centre, Wolverhampton Science Park, Glasier Drive, Wolverhampton, WV10 9RU t: 01902 866 562 e: handb@lloydworrall.co.uk w: www.lloydworrall.co.uk Contact: Roy Bradburn.

Handrail - Hewi Polyamide Colour Wall fixed handrail with a 40mm dia seamless nylon sleeve with a 5 mm wall thickness over a corrosion resistant steel core 30mm diameter x 2mm mounted on handrail brackets type W11 plugged and screwed to walls via 80mm dia steel roses complete with nylon outer covers to conceal fixings.

All bends and connectors included as necessary, all steel will be corrosion resistant steel throughout.

STANDARDS & REGS: ADM, ADK, ADB, BS5395, BS8300, BS6180, BS EN12150, BS EN1991, Equality Act 2010.

CRITICAL REQUIREMENTS: Not cold to touch, consider LRV's, scratch resistant & inert to bacteria.

NBS Specification Guidance:
HEWI Circum

L30 STAIRS/WALKWAYS/BALUSTRADES

560 BALUSTRADES

REFER TO DRAWINGS:

MANUFACTURER AND REFERENCE: Hewi Circum

LWG, Handrail & Balustrade Division, The Technology Centre, Wolverhampton Science Park, Glasier Drive, Wolverhampton, WV10 9RU t: 01902 866 562 e: handb@lloydworrall.co.uk w: www.lloydworrall.co.uk Contact: Roy Bradburn.

Balustrade - HEWI Circum balustrade design comprising of 40mm Satin Polished Grade 304 or 316 Stainless Steel Handrail System, connected to posts.

Posts - connected to 48.3 diameter satin stainless steel uprights @ maximum 1000mm c/c.

Infill - Infill panels to be 10mm thick clear float glass toughened to BS EN 12150 with radius corners and flat polished edges.

Fixings - extended for Circum Satin Stainless Steel anchor fixing set into pockets with non-shrink grout, all fixings complete with covers to conceal fixings. Pockets 160mm deep x 60mm dia core drilled by main contractor on site to receive anchor fixing.

Or

Extended for Circum Satin Stainless Steel platform fixing plate with 135mm dia x 10mm thick steel base plate.

Or

Extended for Circum Satin Stainless Steel side fixing plate with 135mm dia x 10mm thick surface mounting plate.

STANDARDS & REGS: ADM, ADK, ADB, BS5395, BS8300, BS6180, BS EN 12150, BS EN1991, Equality Act 2010.

CRITICAL REQUIREMENTS: Mechanical fixings, no welded joints accepted.

570 HANDRAILS

REFER TO DRAWINGS:

MANUFACTURER AND REFERENCE: HEWI Circum

LWG, Handrail & Balustrade Division, The Technology Centre, Wolverhampton Science Park, Glasier Drive, Wolverhampton, WV10 9RU t: 01902 866 562 e: handb@lloydworrall.co.uk w: www.lloydworrall.co.uk Contact: Roy Bradburn.

Handrail - HEWI Circum wall mounted handrails design comprising 40 dia x 2mm satin stainless steel tube, mounted on satin stainless steel handrail brackets type W3 @ max 1700 c/c plugged and screwed to walls via 80mm dia steel roses with satin stainless steel outer covers to conceal fixings.

All bends and connectors included as necessary.

STANDARDS & REGS: ADM, ADK, ADB, BS5395, BS8300, BS6180, BS EN12150, BS EN1991, Equality Act 2010.

CRITICAL REQUIREMENTS: Mechanical fixings, no welded joints accepted.

NBS Specification Guidance:
HEWI Lignum

L30 STAIRS/WALKWAYS/BALUSTRADES

560 BALUSTRADES

REFER TO DRAWINGS:

MANUFACTURER AND REFERENCE: HEWI Lignum

LWG, Handrail & Balustrade Division, The Technology Centre, Wolverhampton Science Park, Glasier Drive, Wolverhampton, WV10 9RU t: 01902 866 562 e: handb@lloydworrall.co.uk w: www.lloydworrall.co.uk Contact: Roy Bradburn.

Balustrade - HEWI Lignum Balustrade design comprising of 40mm Satin Polished Grade 304 stainless steel system complete with Beech handrail internally, connected to posts. (Other species are available to choose from: Maple, Oak, Steamed Bamboo or Wenge stained beech, Walnut stained beech or Birch multiplex, Beech multiplex. Further types of timber on request).

HEWI Lignum Balustrade design comprising of 40mm Satin Polished Grade 304 Stainless Steel Handrail System, connected to posts.

Posts - connected to 48.3 diameter satin stainless steel uprights @ maximum 1000mm c/c.

Infill - Infill panels to be 10mm thick clear float glass toughened to BS EN 12150 with radius corners and flat polished edges.

Fixings - extended for Lignum Satin Stainless Steel anchor fixing set into pockets with non-shrink grout, all fixings complete with covers to conceal fixings. Pockets 160mm deep x 60mm dia core drilled by main contractor on site to receive anchor fixing.

Or

Extended for Lignum Satin Stainless Steel Platform fixing plate with 135mm dia x 10mm thick steel base plate.

Or

Extended for Lignum Satin Stainless Steel side fixing plate with 135mm dia x 10mm thick surface mounting plate.

STANDARDS & REGS: ADM, ADK, ADB, BS5395, BS8300, BS6180, BS EN 12150, BS EN1991, Equality Act 2010.

CRITICAL REQUIREMENTS: Mechanical fixings, no welded joints accepted.

570 HANDRAILS

REFER TO DRAWINGS:

MANUFACTURER AND REFERENCE: HEWI - Lignum

LWG, Handrail & Balustrade Division, The Technology Centre, Wolverhampton Science Park, Glasier Drive, Wolverhampton, WV10 9RU t: 01902 866 562 e: handb@lloydworrall.co.uk w: www.lloydworrall.co.uk Contact: Roy Bradburn.

Handrail - HEWI Lignum 40mm dia Beech handrail factory finished with 2 coats of clear lacquer mounted on stainless steel handrail brackets type W3 @ max 1250 c/c plugged and screwed to walls via 80mm dia steel roses with stainless steel convex outer covers to conceal fixings. (Other species are available to choose from: Maple, Oak, Steamed Bamboo or Wenge stained beech, Walnut stained beech or Birch multiplex, Beech multiplex. Further types of timber on request). All bends at change of direction and ends in stainless steel (alternatively all bends at change of direction and ends available in timber).

All bends and connectors included as necessary.

STANDARDS & REGS: ADM, ADK, ADB, BS5395, BS8300, BS6180, BS EN12150, BS EN1991, Equality Act 2010.

CRITICAL REQUIREMENTS: Mechanical fixings, no welded joints accepted.

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