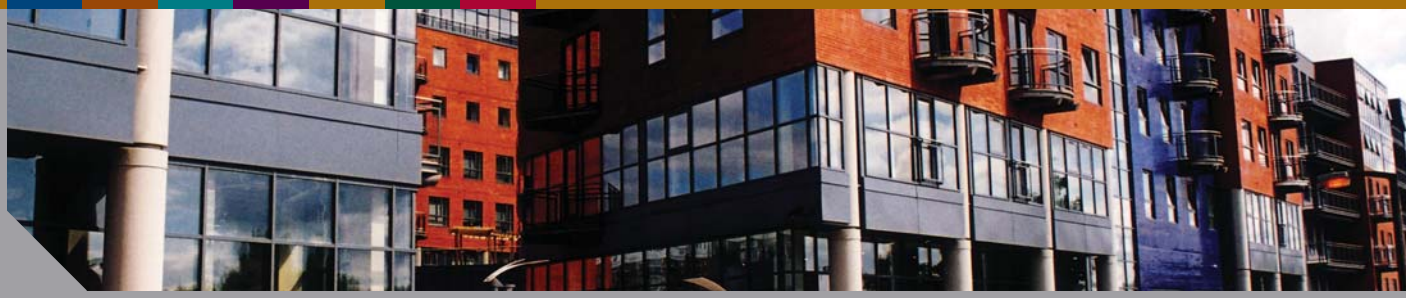
CI/SfB		X†6	
January 2006			

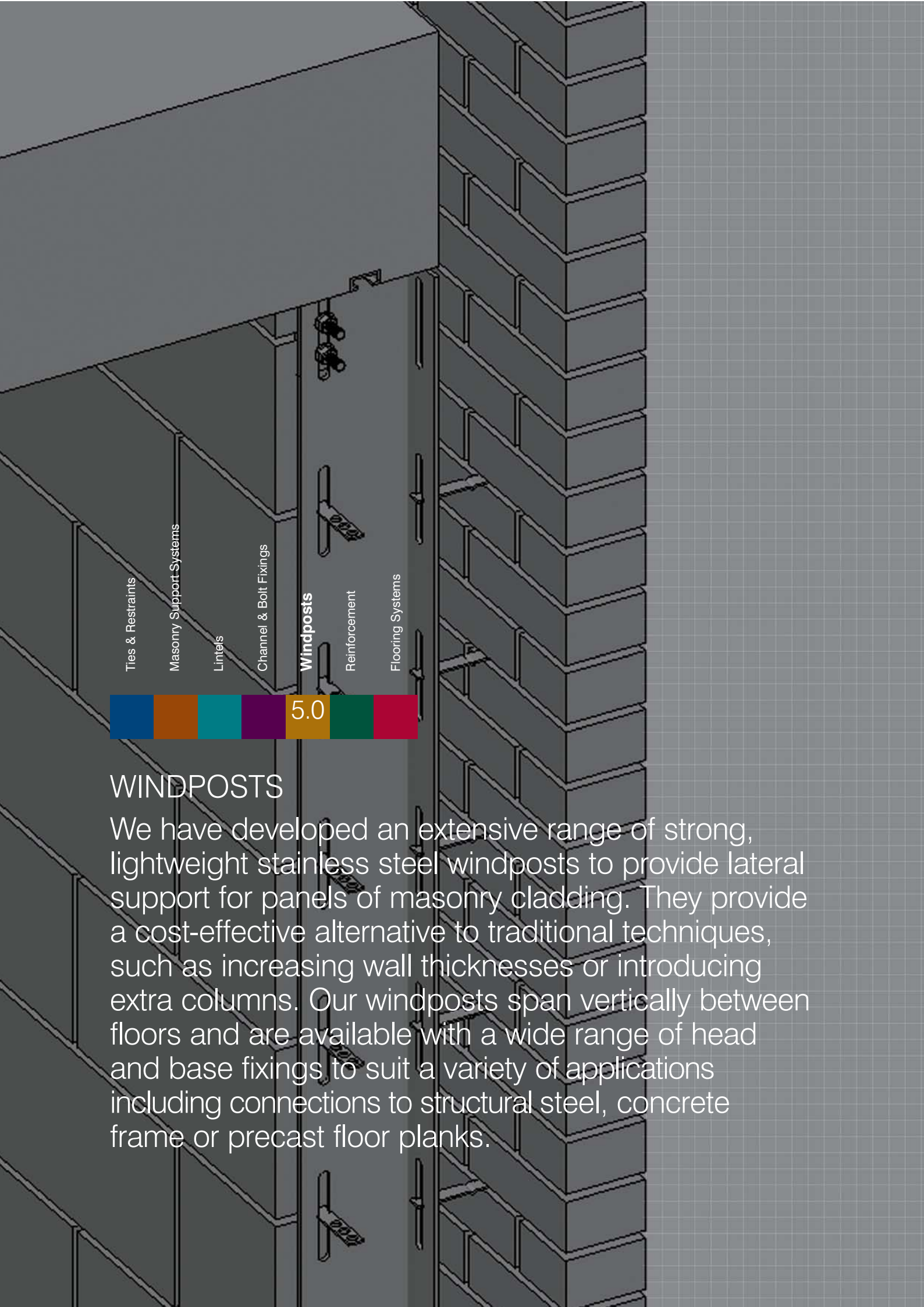
series/0.2

5.0

Windposts



WINCRO



WINDPOSTS

We have developed an extensive range of strong, lightweight stainless steel windposts to provide lateral support for panels of masonry cladding. They provide a cost-effective alternative to traditional techniques, such as increasing wall thicknesses or introducing extra columns. Our windposts span vertically between floors and are available with a wide range of head and base fixings to suit a variety of applications including connections to structural steel, concrete frame or precast floor planks.

COMPANY PROFILE

Wincro Metal Industries is a long established company founded on the principles of innovative design, quality manufacture and outstanding customer service. Our steadfast commitment to those values over the years has firmly established Wincro as one of today's leading designers and manufacturers of Stainless Steel Building Products. It has also earned the company an excellent reputation for quality and reliability amongst the many architects, specifiers, engineers and building contractors that the business serves.

Wincro is based in Sheffield, the home of stainless steel. We produce a wide range of corrosion resistant fixings, support systems, flooring and access equipment. Our range is constantly evolving and developing in order to keep pace with the demands of a fast-moving industry and the changing needs of our clients.

DESIGN SERVICE

All designs and details are supplied by Wincro's team of experienced technical design professionals who work closely with architects, engineers, specifiers, designers and contractors. Assistance can range from simple guidance or advice on standard product selection to a fully computerised design service and detailed consultations on incorporating special designs. Site visits can also be arranged.

MAINTAINING HIGH STANDARDS

We maintain the highest standards both in terms of the materials from which our products are made and the techniques we employ in manufacturing. Our products comply with and, in many cases, exceed all relevant British standards. We have invested in some of the most advanced machinery in the industry to help assure product quality and to enable us to provide a rapid turn-round of all orders, large or small, standard or bespoke.

QUALITY STAINLESS STEEL

All our masonry support systems are manufactured from high quality grade 1.4301 (304) stainless steel for optimum performance and long life. Grade 1.4401 (316) stainless steel can be specified for use in corrosive environments.

CONTENTS

NBS Plus

WINCRO

SYSTEM APPLICATIONS

Our range of Windposts comprises three standard design types. Wincro WPA Windposts are designed specifically to deal with high wind loads and reduced cavity applications. Wincro WPC Windposts are designed to fit cavities of 75mm and above and are used where wind load conditions are moderate. Both products can be specified for fixing to concrete, timber beam or steel beam.

We also manufacture Parapet and Spandrel Windposts. Designed for use as 'cantilevers', these Windposts usually measure no more than 1.4 metres in height.

1.0 / 1.1 / 1.2 / 1.3

Wincro WPA Windpost

1.0 WPA Windpost bolted to top and underside of concrete floor slabs

1.1 For fixing WPA Windposts to concrete, refer to page 4

1.2 For fixing WPA Windposts to timber beams, refer to page 6

1.3 For fixing WPA Windposts to steel beams, refer to page 8

2.0 / 2.1 / 2.2 / 2.3

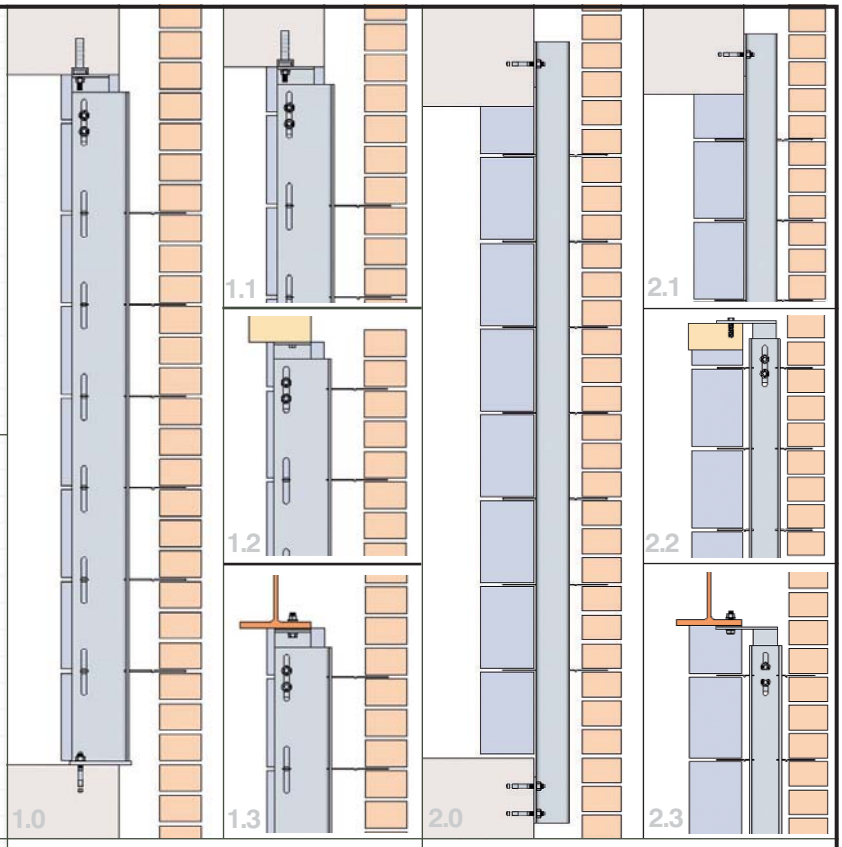
Wincro WPC Windpost

2.0 WPC Windpost bolted to face of concrete floor slabs

2.1 For fixing WPC Windposts to concrete, refer to page 5

2.2 For fixing WPC Windposts to timber beams, refer to page 7

2.3 For fixing WPC Windposts to steel beams, refer to page 9

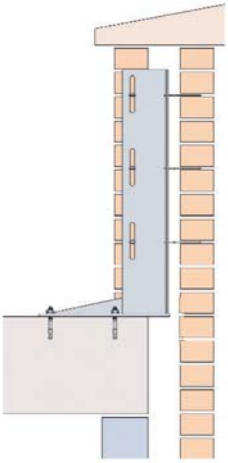


3.0

Parapet Posts

Wincro Parapet Windposts are designed as 'cantilevers' and include a large base connection to resist the imposed bending moment.

For further information go to pages 10-11

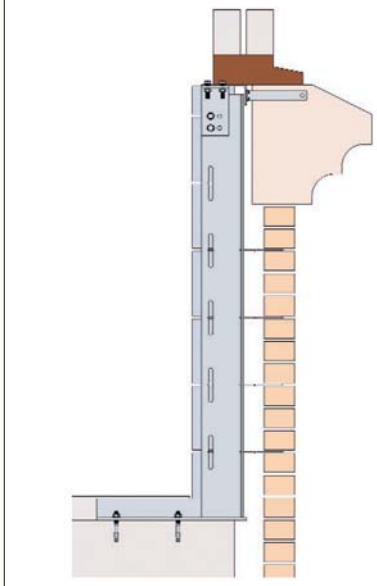


4.0

Spandrel Posts

Wincro Spandrel Windposts are designed as 'cantilevers' and include a large base connection to resist the imposed bending moment. Spandrel rails and connections are designed to suit specific circumstances.

For further information go to pages 10-11



DESIGN CONSIDERATIONS

Wincro Windposts span vertically between floors to provide lateral support for panels of masonry and are normally fixed as 'simply supported beams'. Deflection under wind load will often restrict the maximum loading. They provide increased stability for larger areas of cladding, masonry panels with two or more window openings and for structures subjected to high wind loads.

Our Windposts are available in a number of thicknesses and sizes to suit structural loading requirements. Please refer to pages 14-15 for safe working load tables. All are supplied complete with vertically adjustable ties to suit coursing levels and necessary fixing bolts.

Connections to the frame are designed to allow for vertical adjustment of the structure and site tolerances during installation via a loose top cleat.

Deflection can be reduced considerably by using the windposts as a 'propped cantilever' with a heavy-duty base connection. While this method must be used for parapet/spandrel windposts the larger base connection can be difficult to accommodate. Our Technical Design Team will be happy to advise you on the appropriate base plate connection.

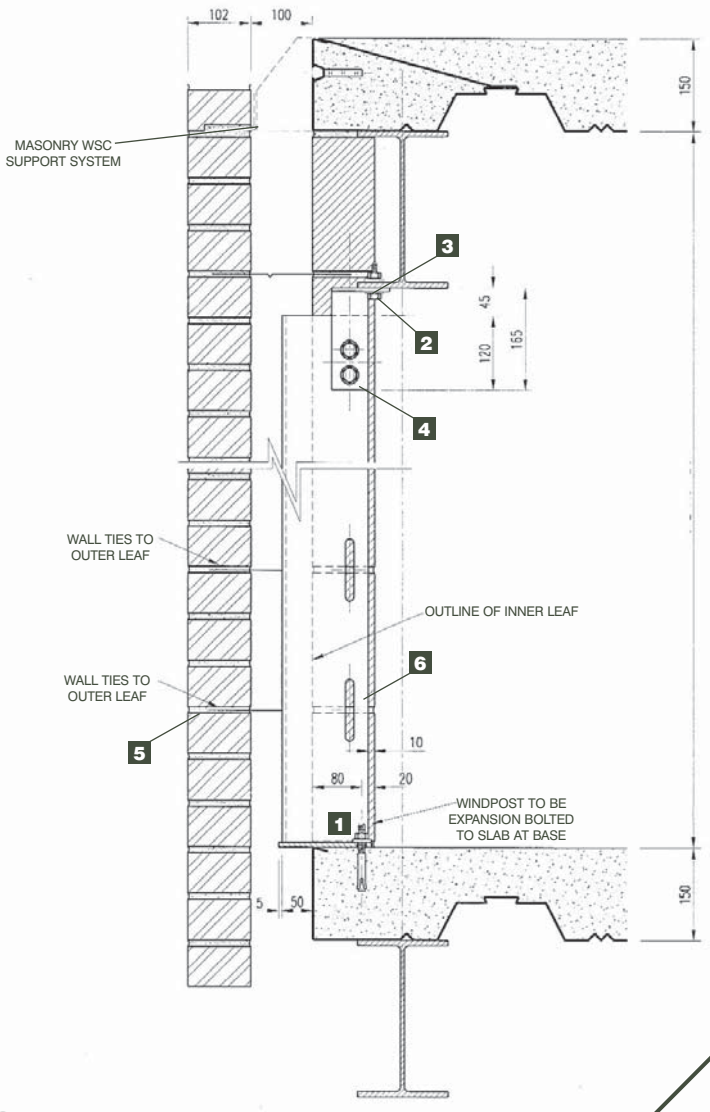
1.0
Typical Application Showing Spandrel Rails and Windposts

1. Vertical Windpost, spanning between floors
2. Spandrel Post with Spandrel Rails

2.0
Typical Setting of a Windpost

1. WPA Windpost fixed to top of concrete with WBEB Expansion Bolts
2. Fixed to steel beam with WBXS Xylan Coated Hex-Head Setscrew
3. WIP Isolation Patch
4. Top Cleat with vertically sliding top connection
5. One Way ties to outer leaf
6. Two Way ties to inner leaf

1.0



2.0

WPA Windpost Specification Guide:	
WP #[1] A/ #[2] / #[3] / other.	**Other**
***Example:* WP5A/130/70**	F = Designed as Propped Cantilever
WP = Wincro Windpost	P = Parapet Post
5 = Thickness in mm	S = Spandrel Post
A = Cold Formed Angle type	
130 = Longest leg dimension in mm	
70 = Shortest leg dimension in mm	

WINCRO SOLUTIONS FOR FIXING TO CONCRETE

WINCRO WPA WINDPOSTS

Our WPA Windposts are ideal for use in buildings subjected to high wind loads and for reduced cavity applications. The windpost leg is built into the inner leaf of the blockwork and tied using one-piece, two way ties. These allow vertical movement of the structure without internal cracking. In situations where you need to incorporate a vertical movement joint, we recommend the use of plain-end, two way ties with de-bonding sleeve. Various solutions are available for fixing to concrete framed structures including the use of T Head bolts into cast-in channels, site drilled expansion bolts or the use of resin anchor products. Tie slot holes are provided at 225mm vertical centres to suit coursing. For further information on ties, please refer to page 13.

1.0 / 1.1

WPA Windpost Fixed to Concrete

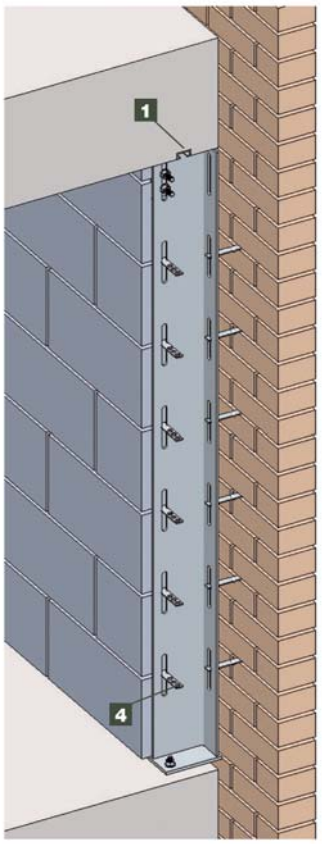
1. WC38 Cast-in Channel
2. WBT38 T Head Bolt
3. Sliding Top Cleat fixed with 2 No. WBSS Setscrews
4. WPT2SS Windpost Tie, Two Way, Safe Ended to inner leaf
5. WPT1S2 Windpost Tie, One Way, Safe End Indented to outer leaf
6. Base plate fixed with WBEB Expansion Bolts

Example specification: WP5A/130/70
Wincro WPA Windpost 130x70x5mm, 3000mm high overall, complete with necessary ties at 225mm centres. Base fixing to concrete with WBEB Expansion Bolts. Top Fixing to WC38 cast-in channel with WBT38 T Head Bolt. Manufactured from stainless steel 1.4301 (304).

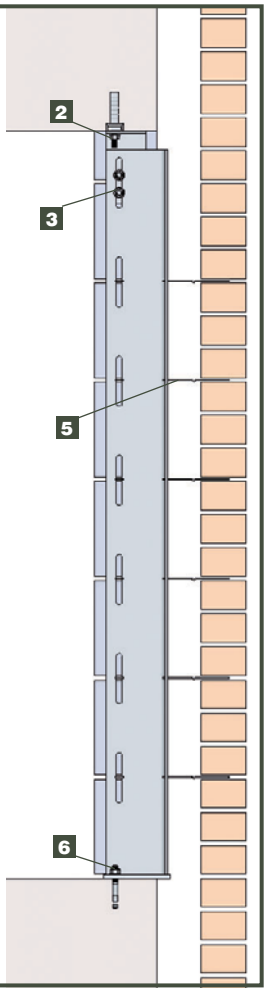
On-site Adjustment

Wincro top cleats are supplied loose with all relevant fixings, which give a vertical adjustment range of +/- 20mm to allow for site tolerances and vertical movement.

To aid installation where cast-in channels are used parallel to the slab edge, serrated slotted holes, perpendicular to the edge, will be provided with serrated washers and necessary fixing bolts.



1.0



1.1

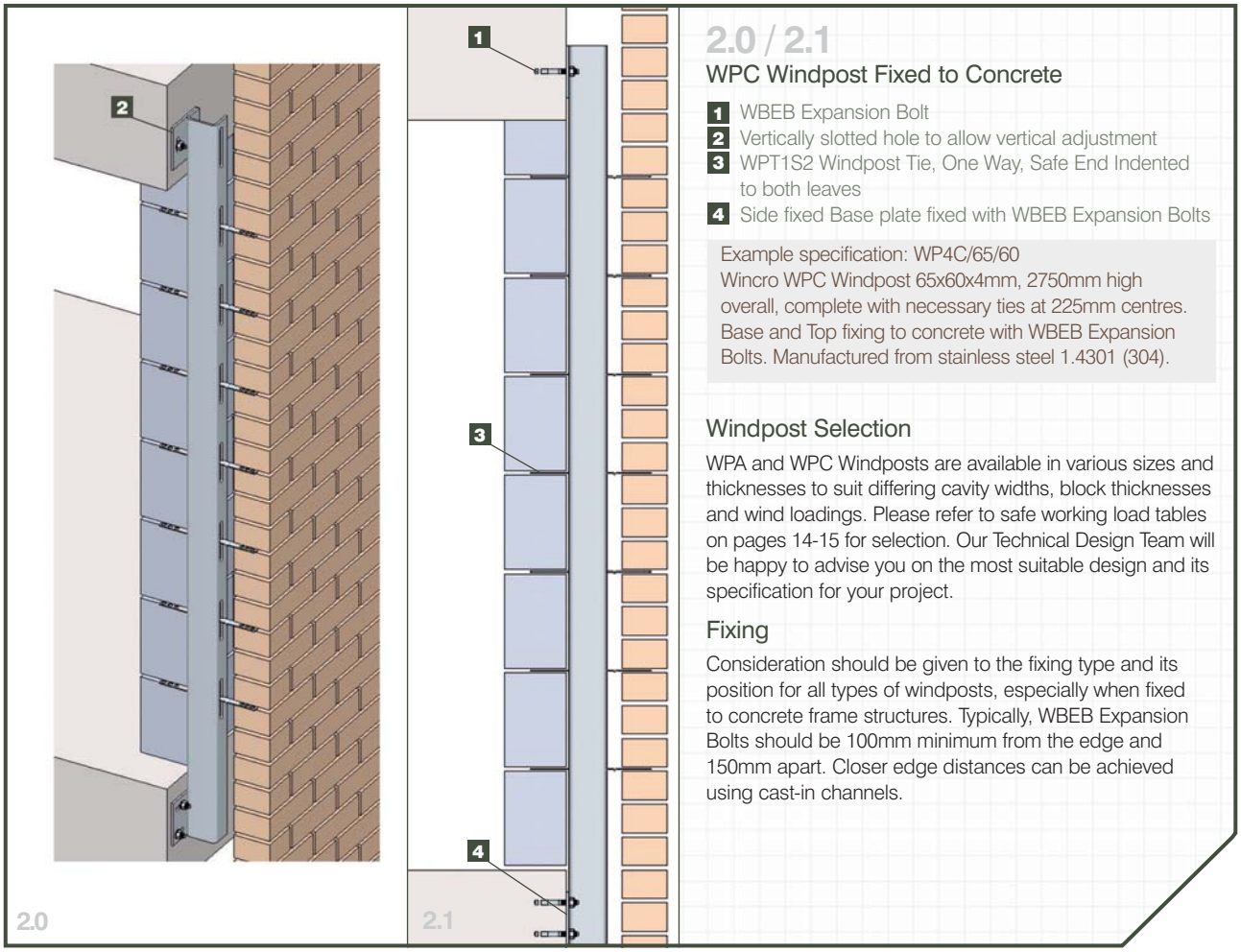
WPC Windpost Specification Guide:	
WP #[1] C/ #[2] / #[3] / other.	**Other**
***Example:* WP4C/65/60**	F = Designed as Propped Cantilever
WP = Wincro Windpost	P = Parapet Post
4 = Thickness in mm	S = Spandrel Post
C = Cold Formed Channel type	
65 = Web dimension in mm	
60 = Leg dimension in mm	

WINCRO WPC WINDPOSTS

Our WPC Windposts are ideal for use in cavities of 75mm and above in buildings subjected to moderate wind loads. One way ties at 225mm centres secure the post to both the inner and outer leaves of masonry.

WINCRO 'PROPPED CANTILEVER' WINDPOSTS

Using Windposts as 'propped cantilevers' can reduce considerably the deflection of the post whilst increasing the loading capacity when compared with a simply supported post. Windposts used in this way require a fixed base with four bolts and a standard simply supported head cleat.



2.0 / 2.1
WPC Windpost Fixed to Concrete

1. WBEB Expansion Bolt
2. Vertically slotted hole to allow vertical adjustment
3. WPT1S2 Windpost Tie, One Way, Safe End Indented to both leaves
4. Side fixed Base plate fixed with WBEB Expansion Bolts

Example specification: WP4C/65/60
Wincro WPC Windpost 65x60x4mm, 2750mm high overall, complete with necessary ties at 225mm centres. Base and Top fixing to concrete with WBEB Expansion Bolts. Manufactured from stainless steel 1.4301 (304).

Windpost Selection

WPA and WPC Windposts are available in various sizes and thicknesses to suit differing cavity widths, block thicknesses and wind loadings. Please refer to safe working load tables on pages 14-15 for selection. Our Technical Design Team will be happy to advise you on the most suitable design and its specification for your project.

Fixing

Consideration should be given to the fixing type and its position for all types of windposts, especially when fixed to concrete frame structures. Typically, WBEB Expansion Bolts should be 100mm minimum from the edge and 150mm apart. Closer edge distances can be achieved using cast-in channels.

WPA Windpost Specification Guide:	
WP #[1] A/ #[2] / #[3] / other.	**Other**
***Example:* WP6A/140/70**	F = Designed as Propped Cantilever
WP = Wincro Windpost	P = Parapet Post
6 = Thickness in mm	S = Spandrel Post
A = Cold Formed Angle type	
140 = Longest leg dimension in mm	
70 = Shortest leg dimension in mm	

WINCRO SOLUTIONS FOR FIXING TO TIMBER BEAM

WINCRO WPA WINDPOSTS

Our WPA Windposts are ideal for use in buildings subjected to high wind loads and for reduced cavity applications. The windpost leg is built into the inner leaf of the blockwork and tied using one-piece, two way ties. These allow vertical movement of the structure without internal cracking. In situations where you need to incorporate a vertical movement joint, we recommend the use of plain-end, two way ties with de-bonding sleeve. Various solutions are available for fixing to timber beams/wall plates including the use of coachscrews or threaded studs with plate washers. Tie slot holes are provided at 225mm vertical centres to suit coursing. For further information on ties, please refer to page 13.

1.0 / 1.1

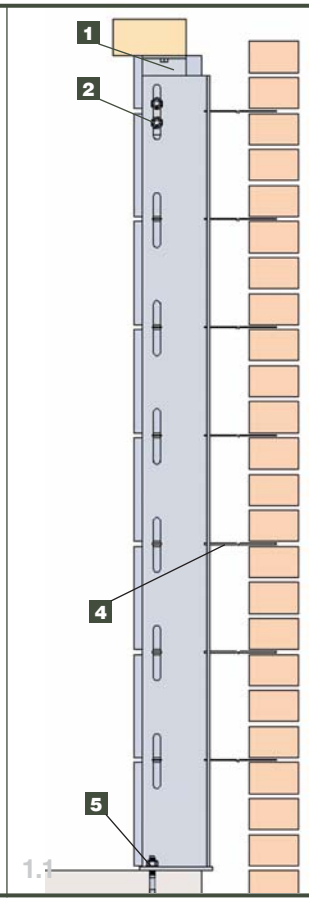
WPA Windpost Fixed to Timber Beam

1. WBCS Coachscrew
2. Sliding Top Cleat fixed with 2 No. WBSS Setscrews
3. WPT2SS Windpost Tie, Two Way, Safe Ended to inner leaf
4. WPT1S2 Windpost Tie, One Way, Safe End Indented to outer leaf
5. Base plate fixed with WBEB Expansion Bolts

Example specification: WP4A/125/70
Wincro WPA Windpost 125x70x4mm, 2600mm high overall, complete with necessary ties at 225mm centres.
Base fixing to concrete with WBEB Expansion Bolts.
Top Fixing to timber with WBCS Hex-Head Coachscrew.
Manufactured from stainless steel 1.4301 (304).

On-site Adjustment

Wincro top cleats are supplied loose with all relevant fixings, which give a vertical adjustment range of +/- 20mm to allow for site tolerances and vertical movement.



WPC Windpost Specification Guide:	
WP #[1] C/ #[2] / #[3] / other.	**Other**
***Example:* WP5C/75/60**	F = Designed as Propped Cantilever
WP = Wincro Windpost	P = Parapet Post
5 = Thickness in mm	S = Spandrel Post
C = Cold Formed Channel type	
75 = Web dimension in mm	
60 = Leg dimension in mm	

WINCRO WPC WINDPOSTS

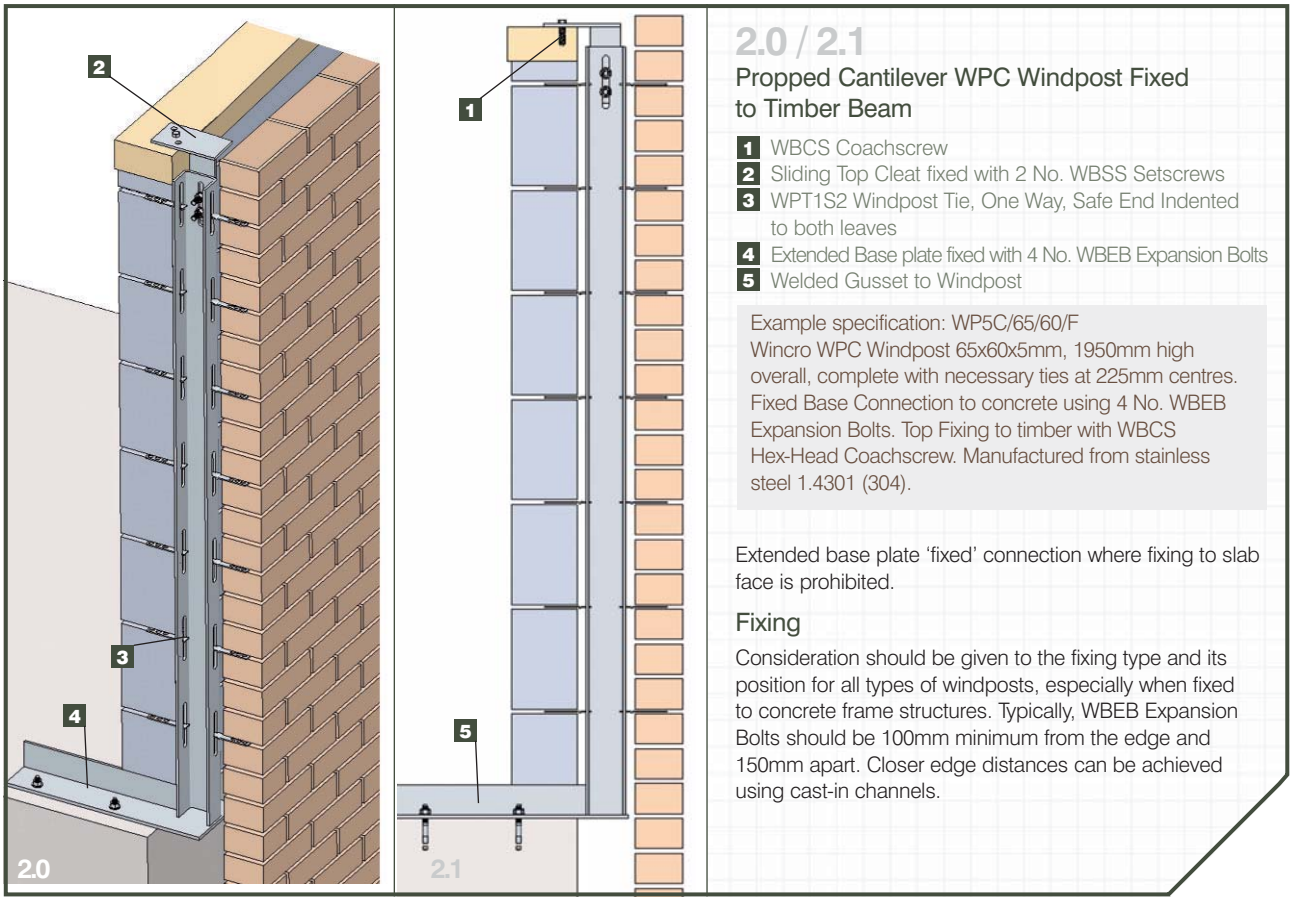
Our WPC Windposts are ideal for use in cavities of 75mm and above in buildings subjected to moderate wind loads. One way ties at 225mm centres secure the post to both the inner and outer leaves of masonry.

WINCRO 'PROPPED CANTILEVER' WPC WINDPOSTS

Using Windposts as 'propped cantilevers' can reduce considerably the deflection of the post whilst increasing the loading capacity when compared with a simply supported post. Windposts used in this way require a fixed base with four bolts and a standard simply supported head cleat.

WINDPOST SELECTION

WPA and WPC Windposts are available in various sizes and thicknesses to suit differing cavity widths, block thicknesses and wind loadings. Please refer to safe working load tables on pages 14-15 for selection. Our Technical Design Team will be happy to advise you on the most suitable design and its specification for your project.



2.0 / 2.1

Propped Cantilever WPC Windpost Fixed to Timber Beam

1. WBCS Coachscrew
2. Sliding Top Cleat fixed with 2 No. WBSS Setscrews
3. WPT1S2 Windpost Tie, One Way, Safe End Indented to both leaves
4. Extended Base plate fixed with 4 No. WBEB Expansion Bolts
5. Welded Gusset to Windpost

Example specification: WP5C/65/60/F
Wincro WPC Windpost 65x60x5mm, 1950mm high overall, complete with necessary ties at 225mm centres. Fixed Base Connection to concrete using 4 No. WBEB Expansion Bolts. Top Fixing to timber with WBCS Hex-Head Coachscrew. Manufactured from stainless steel 1.4301 (304).

Extended base plate 'fixed' connection where fixing to slab face is prohibited.

Fixing

Consideration should be given to the fixing type and its position for all types of windposts, especially when fixed to concrete frame structures. Typically, WBEB Expansion Bolts should be 100mm minimum from the edge and 150mm apart. Closer edge distances can be achieved using cast-in channels.

WPA Windpost Specification Guide:	
WP #[1] A/ #[2] / #[3] / other.	**Other**
***Example:* WP5A/180/70**	F = Designed as Propped Cantilever
WP = Wincro Windpost	P = Parapet Post
5 = Thickness in mm	S = Spandrel Post
A = Cold Formed Angle type	
180 = Longest leg dimension in mm	
70 = Shortest leg dimension in mm	

WINCRO SOLUTIONS FOR FIXING TO STEEL BEAM

WINCRO WPA WINDPOSTS

Our WPA Windposts are ideal for use in buildings subjected to high wind loads and for reduced cavity applications. The windpost leg is built into the inner leaf of the blockwork and tied using one-piece, two way ties. These allow vertical movement of the structure without internal cracking. In situations where you need to incorporate a vertical movement joint, we recommend the use of plain-end, two way ties with de-bonding sleeve. Various solutions are available for fixing to steel framed structures including the use of Xylan coated setscrews or Wincro grip bolts, together with isolation patches. To ensure ease of installation, horizontal slotted holes should be incorporated into the steelwork, parallel to the structural fixing position. Tie slot holes are provided at 225mm vertical centres to suit coursing. For further information on ties, please refer to page 13.

1.0 / 1.1

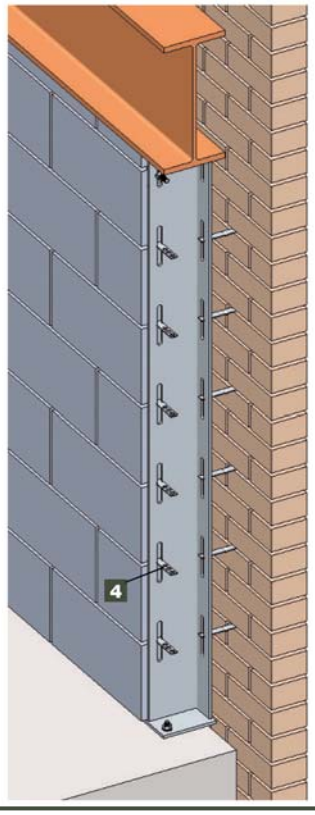
Propped Cantilever WPA Windpost Fixed to Steel Beam

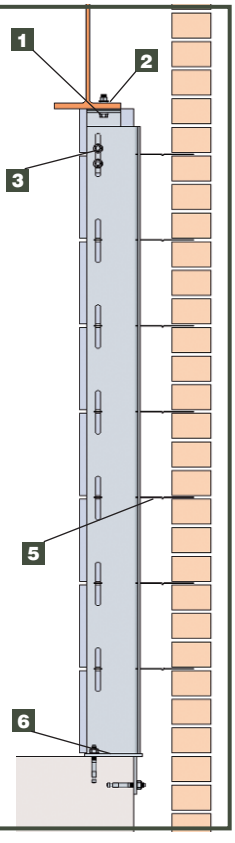
1. WBXS Xylan Coated Hex-Head Setscrew
2. WIP Isolation Patch
3. Sliding Top Cleat fixed with 2 No. WBSS Setscrews
4. WPT2SS Windpost Tie, Two Way, Safe Ended to inner leaf
5. WPT1S2 Windpost Tie, One Way, Safe End Indented to outer leaf
6. Heavy Duty 'T' type Base plate fixed with 4 No. WBEB Expansion Bolts

Example specification: WP5A/150/70/F
Wincro WPA Windpost 150x70x5mm, 3200mm high overall, complete with necessary ties at 225mm centres. Fixed Base Connection to concrete using 4 No. WBEB Expansion Bolts. Top Fixing to steel beam with WBXS Xylan Coated Hex-Head Setscrew and WIP Isolation Patch. Manufactured from stainless steel 1.4301 (304).

On-site Adjustment

Wincro top cleats are supplied loose with all relevant fixings, which give a vertical adjustment range of +/- 20mm to allow for site tolerances and vertical movement.





WPC Windpost Specification Guide:	
WP #[1] C/ #[2] / #[3] / other.	**Other**
***Example:* WP6C/85/60**	F = Designed as Propped Cantilever
WP = Wincro Windpost	P = Parapet Post
6 = Thickness in mm	S = Spandrel Post
C = Cold Formed Channel type	
85 = Web dimension in mm	
60 = Leg dimension in mm	

WINCRO WPC WINDPOSTS

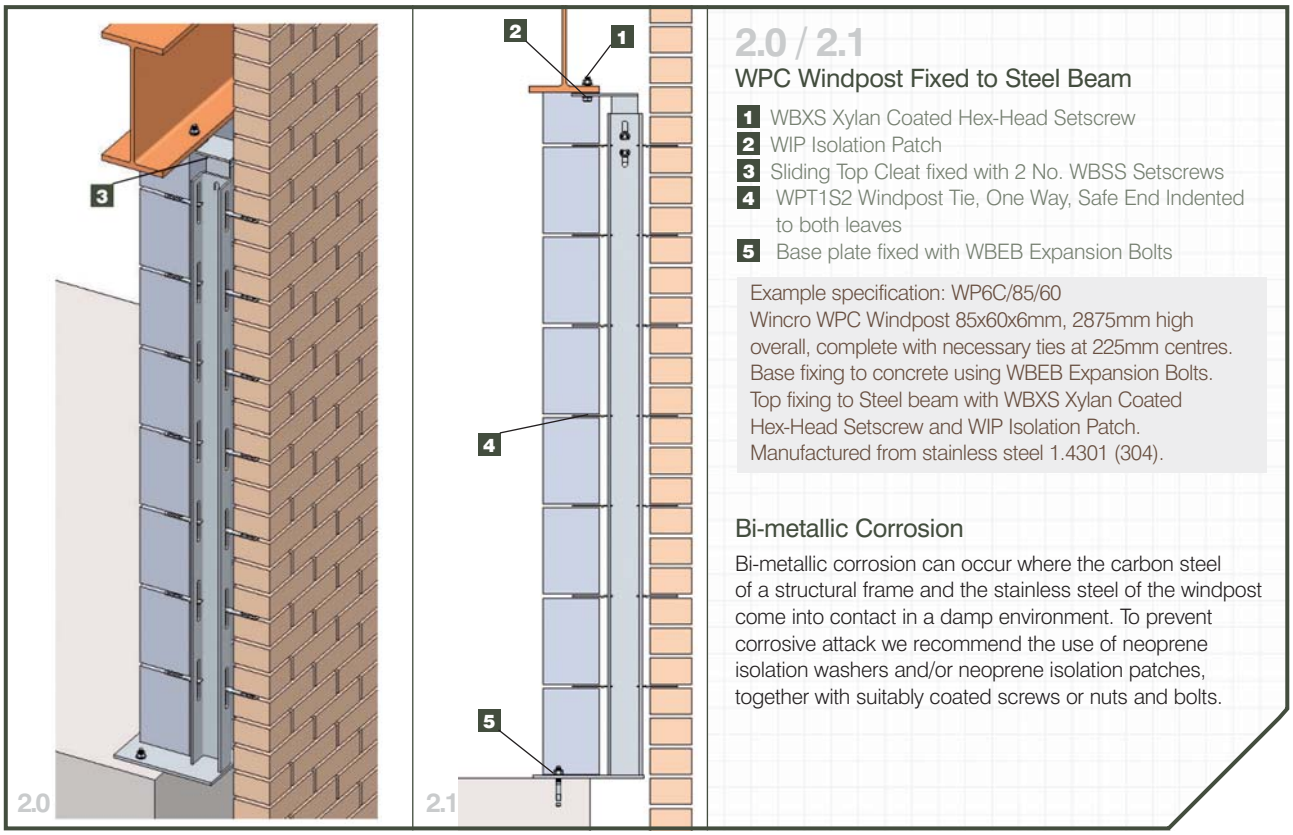
Our WPC Windposts are ideal for use in cavities of 75mm and above in buildings subjected to moderate wind loads. One way ties at 225mm centres secure the post to both the inner and outer leaves of masonry.

WINCRO 'PROPPED CANTILEVER' WINDPOSTS

Using Windposts as 'propped cantilevers' can reduce considerably the deflection of the post whilst increasing the loading capacity when compared with a simply supported post. Windposts used in this way require a fixed base with four bolts and a standard simply supported head cleat.

WINDPOST SELECTION

WPA and WPC Windposts are available in various sizes and thicknesses to suit differing cavity widths, block thicknesses and wind loadings. Please refer to safe working load tables on pages 14-15 for selection. Our Technical Design Team will be happy to advise you on the most suitable design and its specification for your project.



2.0 / 2.1

WPC Windpost Fixed to Steel Beam

1. WBXS Xylan Coated Hex-Head Setscrew
2. WIP Isolation Patch
3. Sliding Top Cleat fixed with 2 No. WBSS Setscrews
4. WPT1S2 Windpost Tie, One Way, Safe End Indented to both leaves
5. Base plate fixed with WBEB Expansion Bolts

Example specification: WP6C/85/60
Wincro WPC Windpost 85x60x6mm, 2875mm high overall, complete with necessary ties at 225mm centres. Base fixing to concrete using WBEB Expansion Bolts. Top fixing to Steel beam with WBXS Xylan Coated Hex-Head Setscrew and WIP Isolation Patch. Manufactured from stainless steel 1.4301 (304).

Bi-metallic Corrosion

Bi-metallic corrosion can occur where the carbon steel of a structural frame and the stainless steel of the windpost come into contact in a damp environment. To prevent corrosive attack we recommend the use of neoprene isolation washers and/or neoprene isolation patches, together with suitably coated screws or nuts and bolts.

PARAPET AND SPANDREL APPLICATIONS

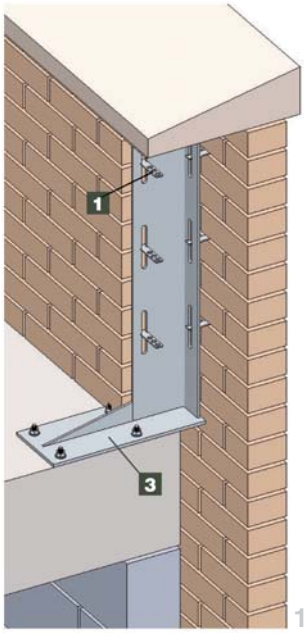
Wincro Parapet and Spandrel Windposts are designed for use as 'cantilevers' and do not usually exceed 1.4 metres in height. In order to resist the 'bending moment', a large base connection is needed and this may often be impractical to incorporate within the floor construction. Our Technical Design Team will be pleased to calculate the 'bending moment' for you and advise you on the size of base plate required. Please refer to the safe working load tables on pages 14-15 for selection.

1.0 / 1.1
WPA Parapet Post

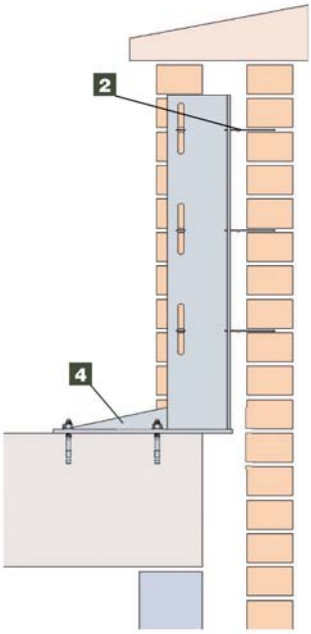
Gusseted heavy-duty base plate fixed to top of slab. This fixing is used where site conditions restrict access to face of slab.

1. WPT2SS Windpost Tie, Two Way, Safe Ended to inner leaf
2. WPT1S2 Windpost Tie, One Way, Safe End Indented to outer leaf
3. Extended Base plate fixed with 4 No. WBEB Expansion Bolts
4. Welded Gusset to Windpost

Example specification: WP5A/130/70/P
Wincro WPAP Parapet post 130x70x5mm, 900mm high overall, complete with necessary ties at 225mm centres. Fixed Base Connection to concrete using 4 No. WBEB Expansion Bolts. Manufactured from stainless steel 1.4301 (304).



1.0



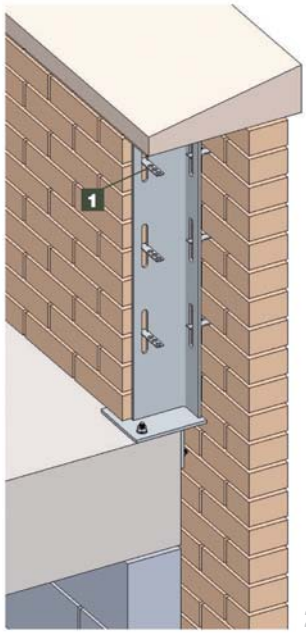
1.1

2.0 / 2.1
WPA Parapet Post

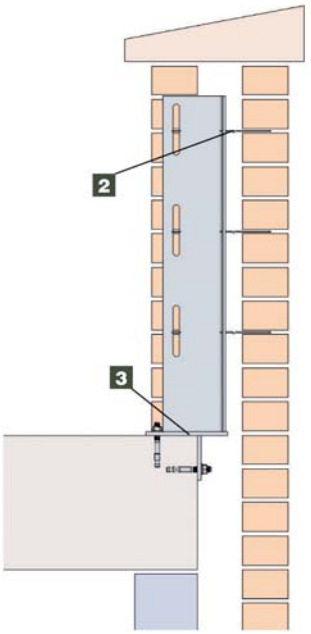
Base plate fixed to top and face of slab.

1. WPT2SS Windpost Tie, Two Way, Safe Ended to inner leaf
2. WPT1S2 Windpost Tie, One Way, Safe End Indented to outer leaf
3. Heavy Duty 'T' type Base plate fixed with 4 No. WBEB Expansion Bolts

Example specification: WP6A/130/70/P
Wincro WPAP Parapet post 130x70x6mm, 1025mm high overall, complete with necessary ties at 225mm centres. Fixed Base Connection to concrete using 4 No. WBEB Expansion Bolts. Manufactured from stainless steel 1.4301 (304).



2.0



2.1

Parapet/Spandrel Windpost Specification Guide:

See pages 6-9 depending on windpost type.

Example: **WP4C/85/60/P**

WP = Wincro Windpost

6 = Thickness in mm

C = Cold Formed Channel type

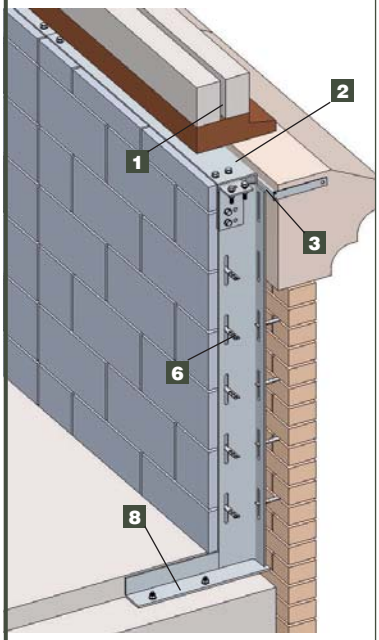
85 = Web dimension in mm

60 = Leg dimension in mm

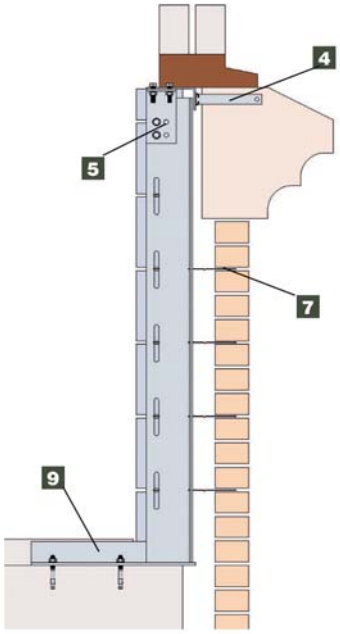
Other

P = Parapet Post

S = Spandrel Post



3.0



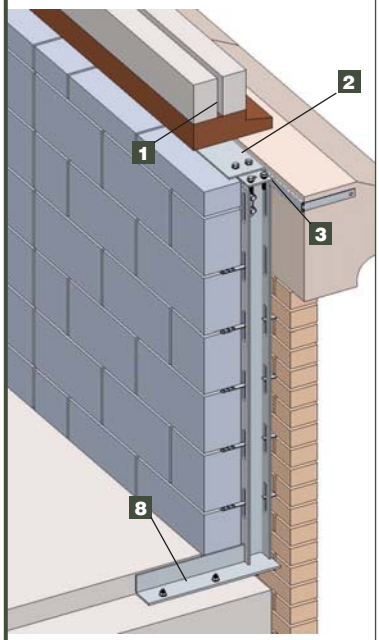
3.1

3.0 / 3.1

WPA Spandrel Post and Rail

1. Window
2. Spandrel Rail
3. WC36 Channel
4. WTDP3C36 Channel Tie with dowel pin
5. Top Cleat fixing Spandrel Rails to Spandrel Post with WBSS Setscrews
6. WPT2SS Windpost Tie, Two Way, Safe Ended to inner leaf
7. WPT1S2 Windpost Tie, One Way, Safe End Indented to outer leaf
8. Extended Base plate fixed with 4 No. WBEB Expansion Bolts
9. Welded Gusset to Windpost

Example specification: WP6A/130/70/S
Wincro WPAS Spandrel post 130x70x6mm, 1250mm high overall, complete with necessary ties at 225mm centres. System complete with Spandrel rails with WC36 Channel and ties for restraining stone band. Fixed Base Connection to concrete using 4 No. WBEB Expansion Bolts. Manufactured from stainless steel 1.4301 (304).



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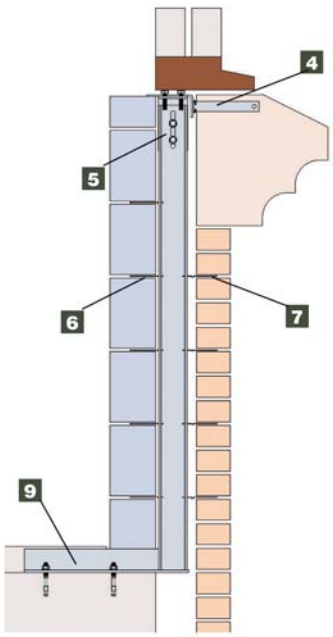


4.1

4.0 / 4.1

WPC Spandrel Post and Rail

1. Window
2. Spandrel rail
3. WC36 Channel
4. WTDP3C36 Channel Tie with dowel pin
5. Top Cleat fixing Spandrel Rails to Spandrel Post with WBSS Setscrews
6. WPT1S2 Windpost Tie, One Way, Safe End Indented to inner leaf
7. WPT1S2 Windpost Tie, One Way, Safe End Indented to outer leaf
8. Extended Base plate fixed with 4 No. WBEB Expansion Bolts
9. Welded Gusset to Windpost

Example specification: WP4C/65/60/S
Wincro WPCS Spandrel post 65x60x4mm, 1320mm high overall, complete with necessary ties at 225mm centres. System complete with Spandrel rails with WC36 Channel and ties for restraining stone band. Fixed Base Connection to concrete using 4 No. WBEB Expansion Bolts. Manufactured from stainless steel 1.4301 (304).

WINDPOST FIXING METHODS

This section illustrates some of the head, base and side fixing methods used to secure Wincro WPA and WPC Windposts to concrete, steel and timber. Specific connections to the frame can vary according to the demands of the site and will also depend on the windpost used, the structure and the fixings.

Our Technical Design Team can work with you to develop bespoke solutions for all given applications.

All the following applications are used for Simply Supported, Propped Cantilever, Parapet and Spandrel Windposts.

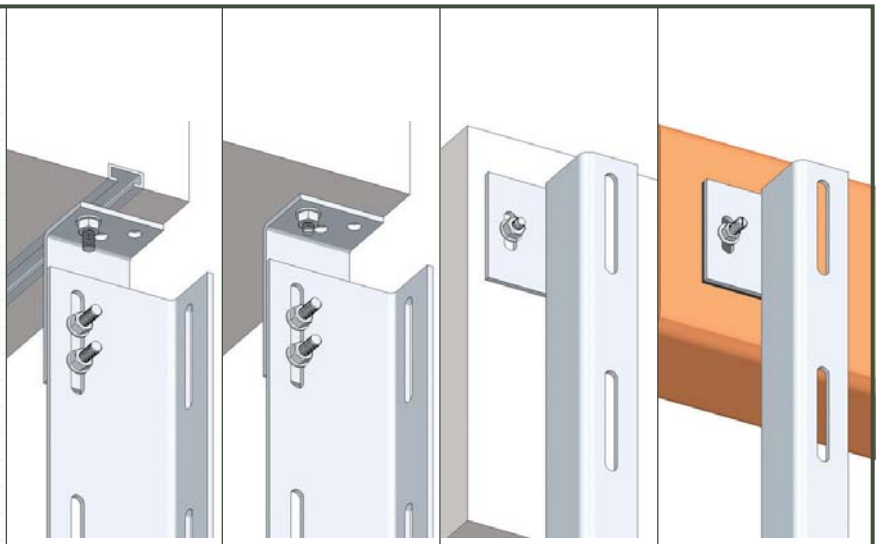
1.0 / 1.1 / 1.2 / 1.3

1.0 Head Fixing of WPA Windpost – loose formed Top Cleat fixed into WC38 Channel using WBT38 T Head Bolt. Top Cleat secured using 2 No. WBSS Setscrews

1.1 Head Fixing of WPA Windpost – loose formed Top Cleat fixed directly into concrete using WBEB Expansion Bolt complete with nut and washer. Top Cleat secured using 2 No. WBSS Setscrews

1.2 Side Fixing of WPC Windpost – welded side plate fixed directly into concrete using WBEB Expansion Bolt complete with nut and washer

1.3 Side Fixing of WPC Windpost – welded side plate fixed directly into a mild steel box section using Wincro WBGB Grip Bolt and WIP Isolation Patch



1.0 1.1 1.2 1.3

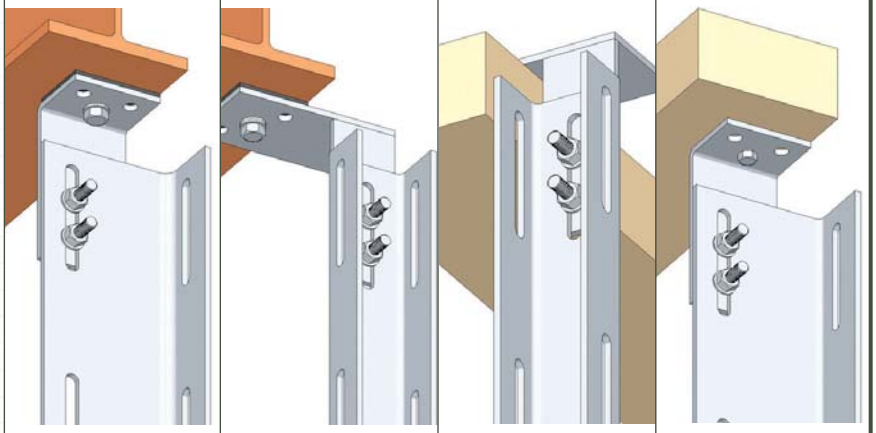
2.0 / 2.1 / 2.2 / 2.3

2.0 Head Fixing of WPA Windpost – loose formed Top Cleat fixed directly into mild steel beam using WBXS Xylan Coated Setscrew and WIP Isolation Patch. Top Cleat secured using 2 No. WBSS Setscrews and Isolation Patch

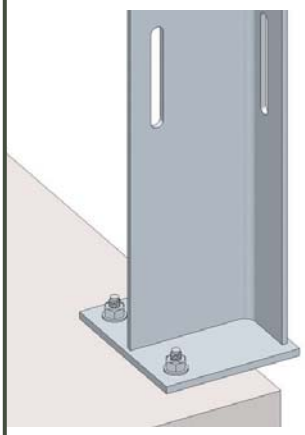
2.1 Head Fixing of WPC Windpost – loose Welded Top Cleat fixed directly into mild steel beam using WBXS Xylan Coated Setscrew and WIP Isolation Patch. Top Cleat secured using 2 No. WBSS Setscrews

2.2 Head Fixing of WPC Windpost – loose Welded Top Cleat fixed directly to top of timber beam using WBCS Coachscrew. Top Cleat secured using 2 No. WBSS Setscrews

1.3 Head Fixing of WPA Windpost – loose formed Top Cleat fixed to underside of timber beam using WBCS Coachscrew. Top Cleat secured using 2 No. WBSS Setscrews



2.0 2.1 2.2 2.3



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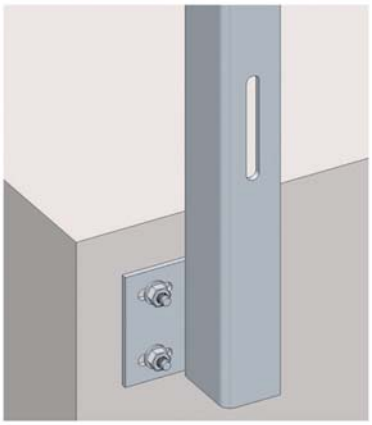


3.1

3.0 / 3.1 / 3.2 / 3.3 / 3.4

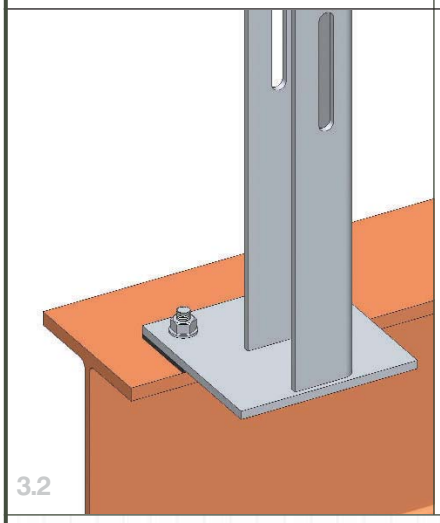
3.0 WPA Windpost – base fixed to top of slab using 2 No. WBEB Expansion Bolts

3.1 WPC Windpost – base fixed to side of slab using 2 No. WBEB Expansion Bolts

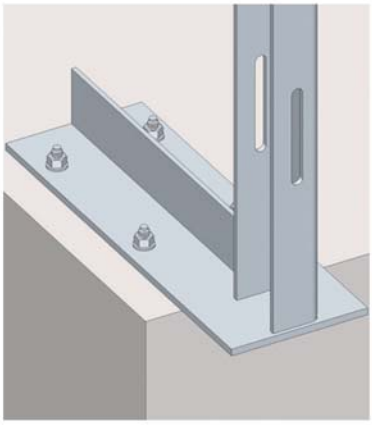
3.2 WPC Windpost – base fixed to top of steel using 2 No. WBXS Xylan Coated Setscrews and WIP Isolation Patch

3.3 WPC Windpost – fixed base connection to top of slab using 4 No. WBEB Expansion Bolts

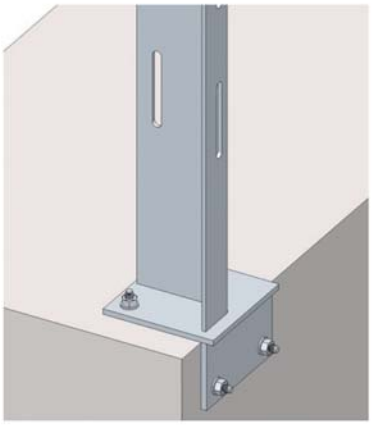
3.4 WPA Windpost – fixed base connection (T-type base) to top and side of slab using 4 No. WBEB Expansion Bolts



3.2

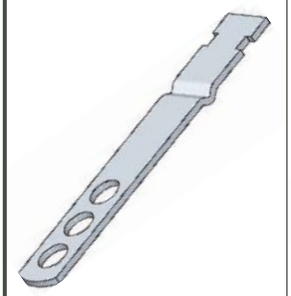


3.3

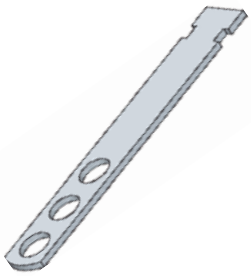


3.4

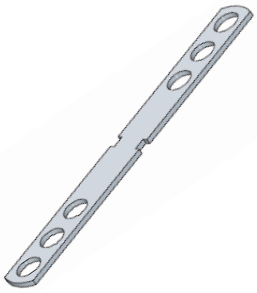
WINCRO WINDPOST TIES: We manufacture a wide range of ties for use with our Windposts. These are available for use in the inner and outer leaf of masonry and for fixing across with the Windpost. Ties are also available with debonding sleeves for use in inner blockwork where there is a vertical movement joint.



4.0



4.1



4.2

4.3

4.4

4.0 / 4.1 / 4.2 / 4.3 / 4.4

4.0 WPT1S2

4.1 WPT1S3

4.2 WPT2SS

4.3 WPT2SP with WDS

4.4 WPT2PP with 2 No. WDS

The minimum embedded part of a tie into a mortar joint must be 50mm (BS5628), though normal practice is to allow 62.5-75mm. All Wincro Windpost Ties are manufactured from 75mm projection, and in increments of 25mm. Our Technical Design Team will be happy to advise you in selecting the correct tie for your specific application.

SAFE WORKING LOADS

The following tables show a selection of WPA and WPC Windposts and Parapet/Spandrel posts.

Our Technical Design Team is available to provide further information and bespoke designs for particular Windpost requirements.

WPA WINDPOSTS

1.0 WPA PROPERTIES AND UDL PERFORMANCE

Wincro WPA Windposts are designed to a maximum deflection of span/360 and a maximum stress of 174 N/mm² (139 N/mm²+ 25% wind loading).

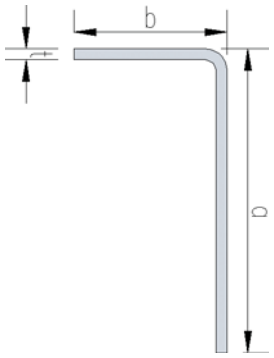
Size mm a x b x t	Ixx cm4	Zxx cm3	Maximum Uniformly Distributed Load (UDL) for height of Windpost (kN)											
			2.5m		3.0m		3.5m		4.0m		5.0m		6.0m	
125x70x4	128.4	15.4	8.56	(8.56)	6.09	(7.13)	4.47	(6.11)	3.42	(5.35)	2.19	(4.28)	1.52	(3.57)
130x70x5	176.2	20.5	11.41	(11.41)	8.36	(9.51)	6.14	(8.15)	4.70	(7.14)	3.00	(5.71)	2.09	(4.76)
130x70x6	208.9	24.4	13.59	(13.59)	9.90	(11.32)	7.28	(9.70)	5.57	(8.50)	3.56	(6.79)	2.48	(5.66)
140x70x5	215.5	23.6	13.11	(13.11)	10.21	(10.92)	7.51	(9.36)	5.75	(8.19)	3.68	(6.56)	2.55	(5.46)
140x70x6	255.6	28.1	15.61	(15.61)	12.18	(13.01)	8.90	(11.15)	6.82	(9.76)	4.36	(7.80)	3.03	(6.50)
150x70x5	259.9	26.8	14.90	(14.90)	12.32	(12.42)	9.05	(10.64)	6.93	(9.32)	4.44	(7.45)	3.08	(6.21)
150x70x6	308.4	31.9	17.76	(17.76)	14.62	(14.80)	10.74	(12.69)	8.22	(11.10)	5.26	(8.88)	3.66	(7.40)
160x70x5	309.5	30.2	16.80	(16.80)	14.00	(14.00)	10.78	(12.00)	8.25	(10.50)	5.28	(8.40)	3.67	(7.00)
180x70x4	344.0	30.3	16.80	(16.80)	14.00	(14.00)	11.98	(12.00)	9.17	(10.52)	5.87	(8.40)	4.08	(7.01)
180x70x5	425.9	37.6	20.92	(20.92)	17.43	(17.43)	14.83	(14.94)	11.36	(13.07)	7.27	(10.46)	5.05	(8.71)

Windpost loadings shown in brackets have been designed with a fixed base and act as propped cantilevers. The Windpost code should be suffixed with an 'F' when specifying (please refer to pages 4-11 for further information).

2.0 WPAP PARAPET WINDPOST UDL PERFORMANCE

Wincro WPAP Parapet Windposts are designed to a maximum deflection of span/180 and a maximum stress of 174 N/mm² (139 N/mm² + 25% wind loading).

a x b x t	Maximum Uniformly Distributed Load (UDL) for height of Parapet post (kN)			
	800mm	1000mm	1200mm	1400mm
125x70x4	6.61	5.28	4.41	3.77
130x70x5	8.91	7.13	5.94	5.81
130x70x6	10.61	8.49	7.10	6.06
140x70x5	10.27	8.21	6.84	5.87
140x70x6	12.22	9.77	8.15	6.98
150x70x5	11.66	9.32	7.77	6.66
150x70x6	13.87	11.10	9.25	7.92
160x70x5	13.13	10.50	8.75	7.50
180x70x4	13.18	10.54	8.78	7.53
180x70x5	16.85	13.08	10.90	9.34



3.0 WPAP PARAPET WINDPOST POINT LOAD PERFORMANCE

Wincro WPAP Parapet Windposts are designed to a maximum deflection of span/180 and a maximum stress of 174 N/mm² (139 N/mm² + 25% wind loading).

a x b x t	Maximum point load at top of Parapet post (kN)			
	800mm	1000mm	1200mm	1400mm
125x70x4	3.31	2.64	2.20	1.88
130x70x5	4.45	3.56	2.97	2.54
130x70x6	5.31	4.24	3.53	3.03
140x70x5	5.13	4.10	3.42	2.93
140x70x6	6.11	4.88	4.07	3.49
150x70x5	5.83	4.66	3.88	3.33
150x70x6	6.93	5.55	4.62	3.96
160x70x5	6.56	5.25	4.37	3.75
180x70x4	6.59	5.27	4.39	3.76
180x70x5	8.17	6.54	5.45	4.67

The above tables also apply to WPAS Spandrel posts with a point load only. Please consult our Technical Design Team for further information regarding additional infill and horizontal loads acting on the post.

WPC WINDPOSTS

4.0 WPC PROPERTIES AND UDL PERFORMANCE

Wincro WPC Windposts are designed to a maximum deflection of span/360 and a maximum stress of 174 N/mm² (139 N/mm² + 25% wind loading).

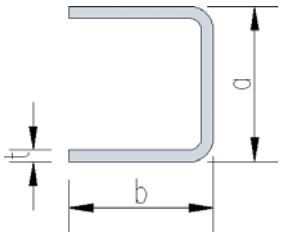
Size mm a x b x t	Ixx cm4	Zxx cm3	Maximum Uniformly Distributed Load (UDL) for height of Windpost (kN)					
			2.5m	3.0m	3.5m	4.0m	5.0m	6.0m
65x60x4	50.9	15.7	3.47 (8.36)	2.41 (5.81)	1.77 (4.27)	1.35 (3.26)	— (2.09)	— (1.45)
65x60x5	61.1	18.8	4.11 (10.04)	2.89 (6.97)	2.13 (5.12)	1.62 (3.92)	— (2.51)	— (1.74)
75x60x4	70.6	18.8	4.82 (10.40)	3.34 (8.06)	2.46 (5.92)	1.88 (4.53)	— (2.90)	— (2.01)
75x60x5	85.1	22.7	5.80 (12.61)	4.03 (9.71)	2.96 (7.13)	2.27 (5.46)	1.37 (3.50)	— (2.43)
85x60x4	94.0	22.1	6.41 (12.30)	4.45 (10.25)	3.27 (7.88)	2.50 (6.03)	1.60 (3.86)	— (2.68)
85x60x5	113.7	26.8	7.76 (14.86)	5.39 (12.37)	3.96 (9.54)	3.03 (7.30)	1.94 (4.67)	1.35 (3.25)
85x60x6	132.0	31.0	9.00 (16.77)	6.25 (14.31)	4.59 (11.07)	3.52 (8.47)	2.25 (5.43)	1.56 (3.77)

Windpost loadings shown in brackets have been designed with a fixed base and act as propped cantilevers. The Windpost code should be suffixed with an 'F' when specifying (please refer to pages 4-11 for further information).

5.0 WPCP PARAPET WINDPOST UDL PERFORMANCE

Wincro WPCP Parapet Windposts are designed to a maximum deflection of span/180 and a maximum stress of 174 N/mm² (139 N/mm² + 25% wind loading).

a x b x t	Maximum Uniformly Distributed Load (UDL) for height of Parapet post (kN)			
	800mm	1000mm	1200mm	1400mm
65x60x4	6.82	5.46	4.55	3.90
65x60x5	8.17	6.54	5.45	1.95
75x60x4	8.17	6.54	5.45	4.67
75x60x5	9.87	7.89	6.58	5.64
85x60x4	9.61	7.69	6.40	5.49
85x60x5	11.65	9.32	7.77	6.66
85x60x6	13.48	10.78	8.99	7.70



6.0 WPCP PARAPET WINDPOST POINT LOAD PERFORMANCE

Wincro WPCP Parapet Windposts are designed to a maximum deflection of span/180 and a maximum stress of 174 N/mm² (139 N/mm² + 25% wind loading).

a x b x t	Maximum point load at top of Parapet post (kN)			
	800mm	1000mm	1200mm	1400mm
65x60x4	3.41	2.73	2.27	1.95
65x60x5	4.08	3.27	2.72	2.33
75x60x4	4.08	3.27	2.72	2.33
75x60x5	4.93	3.94	3.29	2.82
85x60x4	4.80	3.84	3.20	2.74
85x60x5	5.82	4.66	3.88	3.33
85x60x6	6.74	5.39	4.49	3.85

The above tables also apply to WPCS Spandrel posts with a point load only. Please consult our Technical Design Team for further information regarding additional infill and horizontal loads acting on the post.

FOR FURTHER TECHNICAL DETAIL – SEE CHANNEL AND BOLT FIXINGS SECTION

FIXINGS FOR WINCRO WINDPOST SYSTEMS

1.0 WINCRO CHANNELS

Wincro channel	Pull out (kN)	Shear (kN)	Longitude (kN)	T Head bolt size	Bolt length (mm)	Torque (Nm)	Minimum edge distant (mm)	Minimum bolt spacing (mm)	Standard length (mm)
WC28	**3.75**	**4.25**	1.00	M10	40, 50	15	50	200	100,150,200, 3000
WC38	**6.00**	**7.50**	2.00	M12 M16	40,50,60 50	25 60	75 75	200	100, 150 200, 3000
WC40	**8.00**	**10.00**	2.50	M16	40.50,60	60	100	200	3000
WC49	**12.50**	**15.00**	2.75	M12 M16 M20	40 50 50	25 60 120	150 150 150	200	3000 3000 3000
WC41*	**10.5** **10.3**	**4.0** **5.15**	– –	M12 M16	50 50	25 70	100 100	200	100 100

*Shear loads for the Wincro WC41 are taken in the direction of the channel. All other shear loads are right angle to the channel.

2.0 WBEB WINCRO EXPANSION BOLT

Product code	Bolt size /hole in (concrete)	Bolt length	Washer dia. steel (SS)	Thread length	Hole dia. in fixture	Standard Embedment		Reduced Embedment		Rcomm. torque
						Depth	Max fixture thickness	Depth	Max fixture thickness	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Nm
M1080	10	80	21	30	11	60	7	50	16	25
M10115	10	115	21	30	11	60	42	50	52	25
M10130	10	130	21	30	11	60	57	50	67	25
M12100	12	100	24	40	13	80	12	60	24	45
M12135	12	135	24	40	13	80	39	60	58	45
M12150	12	150	24	40	13	80	54	60	73	45
M16105	16	105	30	47	18	100	-	80	5	110
M16140	16	140	30	60	18	100	20	80	40	110
M16180	16	180	30	60	18	100	60	80	80	110
M16220	16	220	30	60	18	100	100	80	120	110

3.0 WBEB PERFORMANCE DATA

	In concrete 30N/mm²										
	Standard embedment depth				Reduced embedment depth						
	Safe working load (kN)		Failure load (kN)		Safe working load (kN)		Failure load (kN)		Normal edge distance (mm)		Normal spacing (mm)
Size	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension & Shear
M10	**5.8**	**6.6**	19.5	22.8	3.1	4.5	14.0	20.1	100	100	120
M12	**9.0**	**10.5**	30.5	32.2	5.2	6.5	19.6	29.2	120	120	150
M16	**14.2**	**16.3**	47.6	61.4	7.1	12.8	30.0	57.8	160	160	180

4.0 WBEB BOLT SPACING (CONCRETE)

Spacing	Tensile & Shear reduction factors		
mm	M10	M12	M16
60	0.65		
80	0.77	0.65	
100	0.88	0.77	0.65
120	1.0	0.88	0.77
150		1.0	0.88
180			1.0

$$\frac{\text{Applied tensile load}}{\text{Safe static tensile load}} + \frac{\text{Applied shear load}}{\text{Safe static shear load}} \leq 1.2$$

5.0 WBEB EDGE DISTANCE (CONCRETE)

Spacing mm	Tensile: Edge reduction factors			Shear: Edge reduction factors		
	M10	M12	M16	M10	M12	M16
60	0.65			0.60		
80	0.83	0.65		0.80	0.67	
100	1.0	0.83	0.65	1.0	0.84	0.62
120		1.0	0.77		1.0	0.74
140			0.88			0.87
160			1.0			1.0

6.0 WBXS/WBSS HEXAGON HEAD SETSCREWS

Nominal size (mm)	Pitch (mm)	Tensile mm² stress area	Class	Tightening torque (Nm)	Yield load kN	Safe working load (kN)		Min dist. between centres
						Tension	Shear	
M8	1.25	36.60	70	17.00	16.40	**10.90**	**7.52**	20
M10	1.50	58.00	70	33.00	26.10	**17.40**	**12.00**	25
M12	1.75	84.30	70	57.00	37.90	**25.30**	**17.45**	30
M16	2.00	157.00	70	140.00	70.60	**47.00**	**32.43**	40

7.0 WBSS THREAD DATA DIMENSIONS IN MM

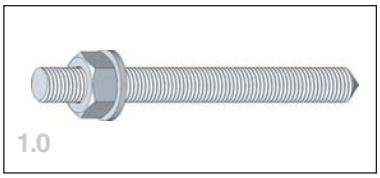
Major dia.	Core dia.	Pitch	Effective dia.	Tapping drill	Clearance drill
8.00	6.4664	1.25	7.188	6.80	8.20
10.00	8.1596	1.50	9.026	8.50	10.20
12.00	9.8530	1.75	10.863	10.20	12.20
16.00	13.5462	2.00	14.701	14.00	16.25

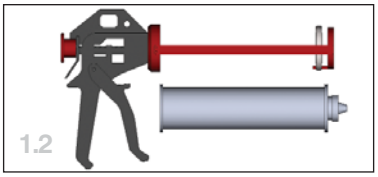
8.0 PERFORMANCE DATA WBRB RESIN ANCHOR BOLT USING WBRC INJECTION RESIN

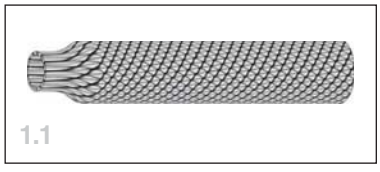
	In concrete 30N/mm²							Brickwork 20.5 N/mm²	Blockwork 7 N/mm²	Blockwork 3.5 N/mm²	Blockwork 2.8 N/mm²	Recommended torque (Nm)	
	Safe working load (kN)		Failure load (kN)		Normal edge distance (mm)		Normal spacing (mm) tension & shear	Safe working load (kN) tension & shear				Concrete 30 N/mm²	Brickwork 20.5 N/mm²
Size	Tension	Shear	Tension	Shear	Tension	Shear							
M10	**4.2**	**4.6**	20.8	13.9	70	90	90	2.9	**1.3**	**0.9**	0.7	9	6
M12	**6.6**	**6.7**	33.0	20.2	80	110	110	4.0	**2.0**	**1.1**	0.9	17	11
M16	**11.2**	**12.6**	56.0	37.7	90	130	130	5.0	**3.0**	Sizes above M12 are not recommended		36	24

9.0 CURING TIME

Temp (°c)	Gel time	Cure time
30	4 mins	30 mins
25	7 mins	60 mins
15	15 mins	120 mins
5	30 mins	180 mins







1.0 WBRB Resin Anchor Bolt
1.1 Wincro Mesh Sleeve
1.2 WBRC Injection Resin and Resin Gun

10.0 WBGB GRIP BOLT

Bolt Size	Steel grade	Hole dia. mm	Fixing thickness (mm)		Safe working load (kN)	
			min	max	Tensile	Shear
M12 x 60	8.8	12	7	41	**9.8**	**9.8**

Wincro WBGB Grip bolts should not be re-used on safety critical locations, unless a guarantee of their previous loading can be obtained.

FOR FURTHER TECHNICAL DETAIL – SEE CHANNEL AND BOLT FIXINGS SECTION

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