A BRAND COMPANY

CUPLOK®

User Manual - UK version

SGB

Part of the Brand group of companies, dating back to 1919, SGB is one of the industry's best known and well respected names within the construction sector. Our partnership approach, together with our design capability enables us to work with our clients to complete projects safely, achieve programme deadlines and adhere to budget requirements.

SGB's CUPLOK® is one of the world's most widely used system scaffolds. It is a fully galvanised multi-purpose steel system suitable for providing general access and shoring vertical loads. CUPLOK's key feature is its unique circular node point which allows up to four blades to be connected to a vertical in a single fastening action.

The comprehensive range of CUPLOK components allows it to be used with traditional scaffold boards, decks or battens. It can be used to create a huge range of access and support structures, staircase towers, circular scaffolds, loading towers and mobile towers.

Hot-dipped galvanising is the finest practical coating that can be applied to a scaffold system, providing a long working life and better handling. SGB's CUPLOK is manufactured to strict quality standards, maintained and audited worldwide by strict quality control procedures.

This manual has been designed to enable CUPLOK users to become proficient in planning and erecting conventional CUPLOK scaffolds. It provides comprehensive details of components and guidance on the design and erection of access and support structures.

For further details on safe erection and dismantling procedures, please refer to other relevant SGB user manuals.
If you require further advice regarding the design of more complex applications, for UK enquiries please contact SGB on ukinfo@beis.com.

CUPLOK®

Contents

Our user manuals and datasheets are for use only in relation to genuine products and/or products supplied by Brand Energy, SGB, Hünnebeck or Aluma.

Any unauthorised use in relation to third party products could give rise to a risk of scaffold collapse, damage, injury or death.

When using this user manual and associated datasheets please bear in mind:

- This user manual and associated datasheets assume that any product combinations will be between genuine products or products supplied by SGB unless otherwise expressly stated.
- Overviews and diagrams are for illustrative purposes only and whilst we endeavour to ensure accuracy, we are not responsible for omissions or errors.
- This manual only covers unsheeted cases and limited support cases. Please refer to the data sheets for more information.
- You must ensure appropriate environment and conditions for the particular application.
- Due to continuous product development it is important that you only use our current user manuals and datasheets for the particular application.
- The purchase or hire of SGB products and/or products supplied by SGB is subject to the terms of sale or hire applicable at the time and are available on request.

The following guidance information symbols are used in our guides where appropriate:

Tip Note Warning

Components marked with NL or FR are only available in the Netherlands or France respectively.

NL FR

Important

As with all scaffolding, SGB's CUPLOK® system should only be erected by trained personnel.

Training with SGB

In today's construction industry, effective training for your staff has never been more important. Crucial for ensuring the safe operation of your site, good training will also ensure that your staff and operations comply with the latest health and safety legislation. However, training should not be seen just in terms of compliance, it will also boost staff confidence and morale, improve the quality and speed of work and increase the overall efficiency of your operation.

SGB provides an extensive programme of training courses and workshops to cover the safe use and application of SGB products and many other safety related issues.

Some training courses can be organised on site, at customers' premises, subject to suitability, or at one of SGB's own training centre locations.

For UK bookings and to discuss your requirements please contact your local Training Co-ordinator on 0844 335 8860.

For international enquiries please email ukinfo@beis.com.

Associated products

SGB supplies a comprehensive range of access and support systems as well as general site safety products and mechanical access equipment including:

- Traditional tube and fittings*
- Mobile access towers
- Steel ladders
- Edge protection systems including EXTRAGUARD™
- Scissor lifts, mobile booms and mast climbing work platforms*
- Site safety products
- Temporary roofs*
- Heavy-duty shoring systems for slab and soffit support

For UK enquiries, information can be obtained from your local SGB branch on 0844 335 8860, or at www.sgb.co.uk.

For international enquiries please email ukinfo@beis.com.

* Not available in all countries.

The CUPLOK® locking procedure

CUPLOK®

At the heart of the SGB CUPLOK® system is its unique node-point locking device.

This enables up to four blades to be loosely but safely connected to the standard then locked into position with a hammer.

The locking device is formed by fixed lower cups, welded to the verticals at 0.5m intervals, and sliding upper cups which drop over the blade ends of the horizontals and rotate to lock them firmly into place, giving a positive, secure connection.

It is this revolutionary node-point which makes CUPLOK one of the fastest and simplest system scaffolds to erect. Once a CUPLOK structure is 'based out' and levelled, subsequent lifts are automatically erected square and horizontal. The lack of loose components makes the system easy to use and exceptionally robust - its galvanised finish making it virtually immune to corrosion.

Health and safety

Safety comes first, always

Overview
As a Brand company, safety comes first, always. Our absolute commitement to a safe work environment is at the hart of our operating system and our comprehensive and in-depth safety policies, systems and programs are designed to engage the entire workforce in the delivery of safe work on all our projects.

Our safety values
We all work hard to ensure our employees come home in the same shape every day and that no one gets hurt, ever. With this value as the focus of our industry-leading safety culture, coupled with our award-winning safety record, we have come to know that Brand is more than a company with a great safety program, Brand is a safe company.

House of safety
Building a trully effective safety program is like a sturdy home and begins with a stable foundation. At Brand, we believe in the five pillars of safety, our EHS Management Process & Systems, which are the solid base for our outstanding safety performance and culture and aid in helping us create strategic and effective safety initiatives company-wide.

- Brand's incentive-based, voluntary Employee Intervention System (EIS) is our field employee behavioral-based safety program, utilising the "Kaizen" method of continuous improvement.

- The Supervisor Observation System (SOS) fosters an atmosphere of proactive ownership and accountability at the supervisor level through peer-to-peer observation and review, while affecting positive leadership development.

- Management Safety Reviews (MSRs) are an integral part of Brand's safety system and are required by all management. MSRs employ the "Go See" method of management and are field observation based, allowing for much more than superficial understanding of the safety processes in the field.

- Brand's Gold Link Audit System is an indepth an multi-level internal evaluation of a site's safety management system and processes through inspection, interview and documentation review.

- The Brand Learning Network (BLN) is our state of the art web based Learning Management System for compliance, regulatory, craft and carrer path training, making all training and education easily accessible to all Brand employees.

Safety information including harness requirement (SG4:15)

- CUPLOK® complies with BS EN 12811 and 12810
- Safe working loads (SWL) on platforms will vary between 1.5kN and 3kN per square metre depending on the configuration of the scaffold. See the relevant section in this manual or contact your local branch for further information
- To ensure safe erection, alteration and dismantling of scaffolding, it is important that the procedures in the UK's NASC Guidance Note SG4:15 are followed. SG4 describes several safe methods of work, including the use of advanced guardrailing methods, or by the creation of safe temporary work platforms
- The UK's work at height regulations 2005 require that work at height is properly planned, organised and carried out by competent persons. For scaffolding work this would include those who design, procure, supply, erect and dismantle the scaffolding.

Equipment checks following fall incidents

Should any SGB CUPLOK equipment be damaged in any way as the result of a fall from a scaffold involving a harness, those components must be taken out of service immediately and inspected by a competent person.

For your own safety and that of all those working on the scaffold it is important that the following rules are obeyed:

- If the scaffold is on rough or uneven ground, ensure that it is erected on adequate timber sole boards, properly bedded and levelled on firm ground
- Make sure that the work platform contains no trip hazards or projections
- If ladders are used for access, ensure that they stand on a firm base, and are securely fixed at or near the top. Also ensure that there is a safe handhold for getting on and off the working platform
- Staircases provide safe and convenient access for personnel and additional materials to be transported onto the scaffold
- Internal ladder access openings shall be suitably guarded. Ladders are for access and egress only, not materials.

General site safety

- All working platforms shall be fitted with a double guardrail and toeboards
- Do not overload the platform with bricks or other material. If materials are to be placed on the platform, load all heavy items as close to standards as possible and use brick-guard panels to prevent any possibility of materials falling. If there is a need to stack large quantities of materials at platform level, use a CUPLOK loading tower
- All scaffolds require adequate bracing and tying in. No ties should ever be removed without adequate supervision. If necessary alternative ties or bracing should be added first to ensure the continued safety of the scaffold
- CUPLOK has been designed from the outset to provide safety to scaffolders and users during erection, use and dismantling. The lower fixed cups that locate the ledgers and guardrails are automatically positioned at the appropriate heights for the working platforms. However, the safety of the scaffold depends both on the people who erect it and that the scaffolding structure is not interfered with during use
- A purpose designed scaffolders'safety platform is available and advanced guardrails are available in some countries.

CUPLOK® approvals

Design
SGB CUPLOK® loading capacity data sheets for access scaffolds have been calculated using a 3D computer model developed using the finite element structural packages ANSYS, Robot and SCIA. System imperfections inclinations, force coefficients and loads used in the model have been taken from European Codes of Practice:

- BS EN 12811-1 2003 (Scaffolds performance requirements and General Design)
- BS EN 12810 - 2003 (Façade Scaffolds made of prefabricated components)
- BS EN 1993 -1 : 2005 (Eurocode 3 Design of steel structures)

Verification
In Germany the DIBT (The German Institute for Building Technique) grants approval of scaffolding systems.
The relevant codes for approval are EN 12810 and EN 12811. The DIN approval specifies which CUPLOK scaffolds can be built according to the approval without further design.
CUPLOK has the following DIN approval certificate:

- Z-8.22-208

Manufacture
Under the SGB Quality Management System, manufacturers of CUPLOK are regularly audited and accredited. Approved manufacturers use only SGB drawings and materials specified by SGB. Certificates of conformity are issued by an independent third party and are available on request.

CUPLOK®

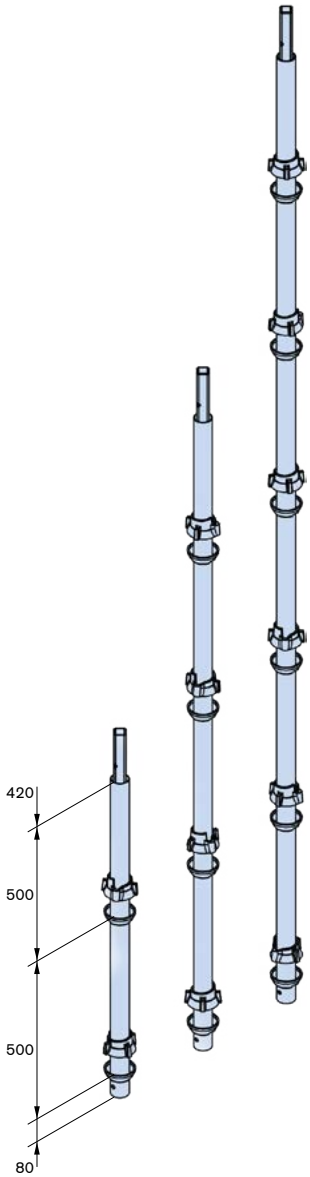
One of the key strengths of the SGB CUPLOK® system is the simplicity of the component range. Basic horizontals, verticals and braces form the core of all structures. However, with the addition of a small number of components, complex scaffolds can be constructed which safely address awkward access requirements.

Access verticals

Made from 48.3mm diameter x 3.2mm thick high grade steel tube, all standards incorporate lower fixed cups at 0.5m intervals with captive rotating top-cups securing up to four components. The lowest bottom cup is 80mm from the base of the vertical to give the scaffold improved structural strength and reduce the need for base bracing in support structures. Access verticals incorporate a 150mm long spigot at the top to allow the vertical connection of further verticals. (CUPLOK support verticals do not have the spigot, allowing the insertion of jacks with various support components). Provision for a locking pin or bolt is also provided.

Verticals are available in 3 sizes

Code	Length (m)	Overall length (m)	Weight (kg)
270100	1.0	1.150	5.8
270200	2.0	2.150	11.2
270300	3.0	3.150	16.5

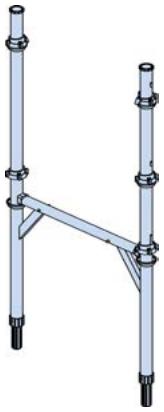


Aluminium H-Frame 2.0m x 0.73m

NL

Aluminium frames 0.73m wide for narrow-width CUPLOK applications. Used with both modular steel decks and alu-fibre decks. Locate into spigotless standards to simplify base levelling.

Code	Description	Weight (kg)
340101	Aluminium H-Frame 2.0m x 0.73m	11.0

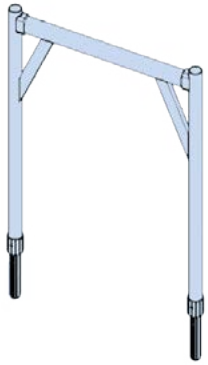


Aluminium H-Frame 0.8m x 0.73m

NL

The 0.8m aluminium frame is designed to create a 2.8m scaffold lift. Used exclusively at ground level.

Code	Description	Weight (kg)
340102	Aluminium H-Frame 0.8m x 0.73m	5.55



CUPLOK® scaffold system components

Universal jack

The universal jack has an adjustment of approximately 0.5m and is used for both access and support structures to accommodate variations in ground and soffit levels. It can be secured to the base and head plate, forkhead or adaptor by using a nut and bolt if required. For support structures a load bearing capacity of up to 74kN*. (For access scaffolds see section on maximum heights).

Code	Adjustment (m)	Weight (kg)
279540	0.4	2.2
279550	0.5	4.0

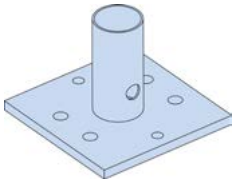
Max. SWL = 74kN*
*Can be achieved under certain circumstances
Please refer to data sheets for specific conditions of use.

Base and head plate

Used in conjunction with the Universal jack. The socket allows for the insertion of securing bolts if required.

(Note: Not for use on top of a spigotted vertical).

Code	Size (mm)	Height (mm)	Weight (kg)
279500	152 x 152	100	2.3

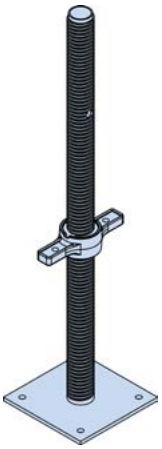


Combined Jack and base plate

Used for access only.

Code	Adjustment (m)	Length (m)	Weight (kg)
279555	0.5	0.66	3.8

Max. SWL = 60kN
Please refer to data sheets for specific conditions of use.

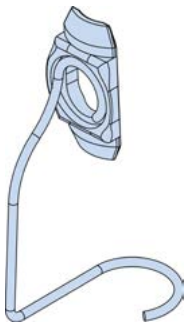


Jack retention device

FR

To secure the jack and base plate (secure base plate to jack when using universal jack and separate base plate) when the structure needs to be lifted or crane handled. Locked into the bottom cup to provide a firm, fixed connection.

Code	Description	Weight (kg)
340102	Jack retainer	0.34



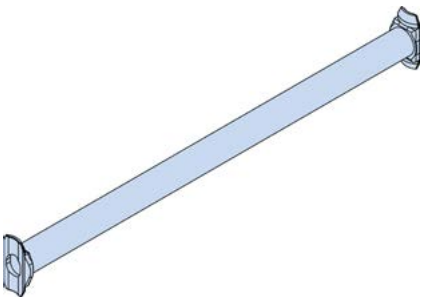
Ledgers and transoms (horizontals)

All ledgers and transoms incorporate symmetrical forged blade ends making assembly quick and simple, allowing components to be completely interchangeable. Horizontals locate in the bottom cups of the verticals and are secured by locking the top cup.

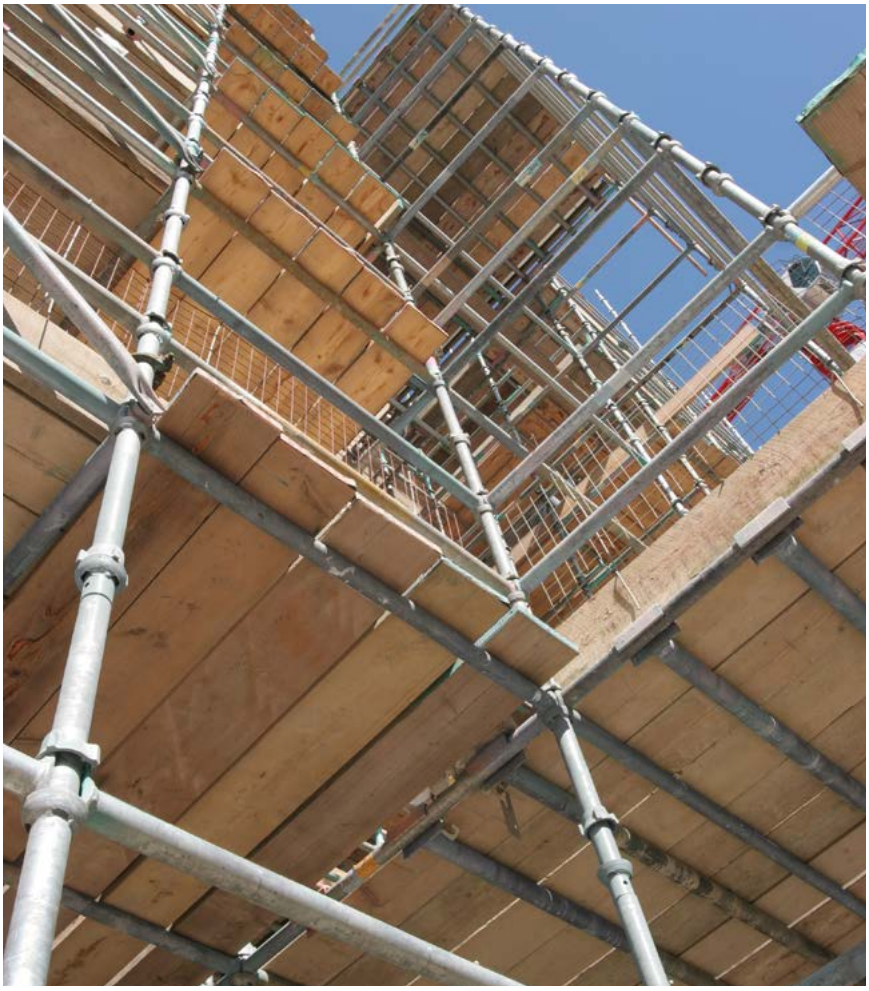
- 2.5m horizontals provide the basic bay length in a CUPLOK® access structure. This is a suitable bay size for all common access loading conditions.
- 1.8m horizontals provide a make-up bay size for added flexibility.
- 1.3m transoms support a five board wide platform. This transom can also be used as a ledger for extra flexibility and to create corner returns without overlapped boards.
- All horizontals also act as guardrails.

Code	Length (m)	Overall length (m)	Weight (kg)
271127	1.25	1.202	4.8
271130	1.3	1.252	4.9
271180	1.8	1.752	6.9
271250	2.5	2.452	9.5
271300	3.0	2.952	11.5

Other sizes are available - see page 79.

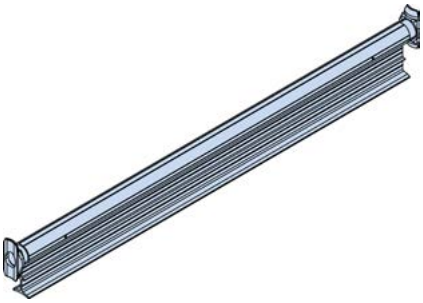


CUPLOK®



Heavy duty aluminium ledgers
Specially strengthened beam ledger for use where heavier working loads are required, such as loading bay areas, to support board bearers at deck level eliminating the need for knee bracing when supporting live loads.

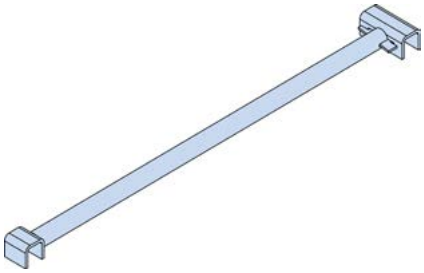
Code	Description	Weight (kg)
271137	1.8m Heavy duty ledger	8.5
271254	2.5m Heavy duty ledger	14.5



Intermediate transoms
Provide mid-bay support for 38mm scaffold boards by spanning between the inner and outer ledgers. The jaw section at each end is turned downwards to prevent dislocation. One end is provided with an integral locking device to prevent movement along the ledgers during use.
In addition to the standard 1.3m wide unit, shorter intermediate transoms are available for use where scaffold boards require support between hop-up brackets. They span between the inside ledger of the main scaffold and the ledger linking the hop-up brackets.

Code	Length (m)	Overall length (m)	Weight (kg)
272056	0.565	0.631	2.8
272078	0.795	0.861	3.7
272120	1.2	1.266	5.2
272130	1.3	1.366	5.5
272180	1.8	1.866	7.3
272250	2.5*	2.566	16.5

* Diameter of tube 60.3mm.



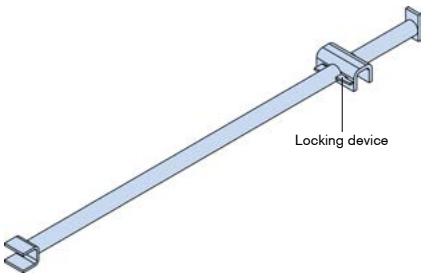
Further units are provided for use when CUPLOK® is erected to form birdcage access scaffolds using 38mm scaffold boards and when CUPLOK is erected to form mobile access towers in modular sizes. Also used when temporary access is required in support structures where bay widths exceed the safe span of boards.

CUPLOK® scaffold system components

Inside board transom: one and two board

Drops into place over the ledgers and are secured with a locking device to prevent movement. They act as conventional intermediate transoms but extend beyond the inside ledger to provide intermediate support to one or two inside boards for 1.3m wide scaffolds.

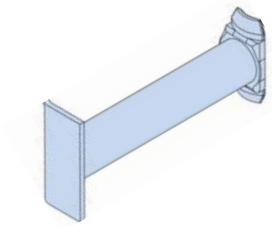
Code	Description	Overall length (m)	Weight (kg)
273101	1 board	1.62	9.0
273200	2 board	1.895	11.5



Inside board supports: Single board support

Locates in the cup joint and provides support for a single inside board at a vertical. It replaces the inside board transom at that point.

Code	Overall length (m)	Weight (kg)
279300	0.26	1.5

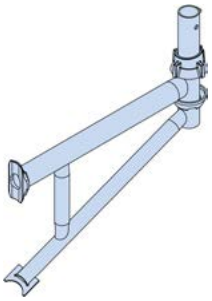


An additional one board support must be used in the cup at the end of each scaffold run to prevent rotation.

Hop-up brackets

Designed to increase the overall width of the working platform to seven or eight boards by supporting two or three additional boards beyond the inner face of the scaffold. They incorporate a cup joint at the outside end for the addition of an inside ledger to link the hop-up brackets and support intermediate transoms and inside board transoms. Incorporates a facility to support a guardrail post.

Code	Description	Overall length (m)	Weight (kg)
274200	2 board	0.585	6.3
274300	3 board	0.815	7.7



An additional ledger (3rd ledger) connecting the brackets must be used to prevent rotation.

Spigot Pins or bolts MUST be used at all joints in the verticals down to the last tied level below the hop-up bracket.

Return device

A conventional blade end connected to a hook section which locates over the ledger on the adjacent return scaffold. Used in pairs.

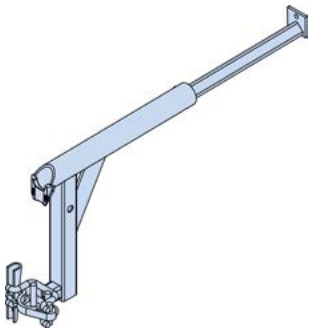
Code	Weight (kg)
279280	1.15

Telescopic hop-up bracket

NL

Designed for use with 305mm wide steel decks and alu-fibre decks 40 cm wide to provide a safe working procedure for bricklaying. Brackets can be dismantled and connected elsewhere without having to release the top cup of a node.

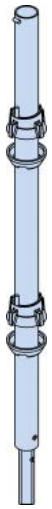
Code		Weight (kg)
340253	Telescopic hop-up bracket (0.4m tp 0.7m)	5.7



Handrail post

For use with hop-up brackets, 4-leg staircase towers and on support scaffolds if required. Incorporates cup joints to allow the location of ledgers to form guardrails.

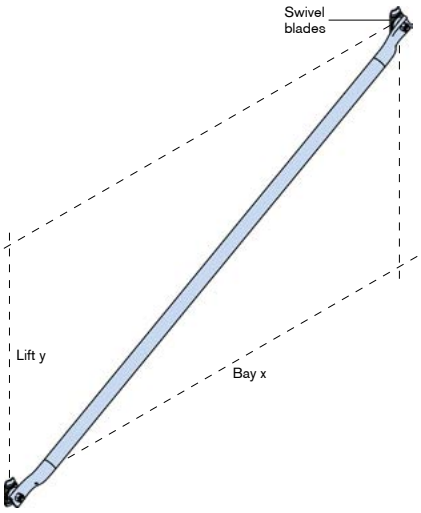
Code	Overall length (m)	Weight (kg)
279244	1.15	4.8



Swivel face brace

Provides face bracing on a CUPLOK® access scaffold. Each brace has swivelling blade ends to allow for easy location within the node joint. As only one blade end can be located in each joint, parallel bracing is employed rather than the 'dog-leg' or 'zig-zag' method.

Code	Description x y	Length (m)	Weight (kg)
276150	1.8m x 1.5m	2.343	8.7
276180	1.8m x 2.0m	2.691	9.8
276153	2.5m x 1.5m	2.916	10.7
276203	2.5m x 2.0m	3.202	11.5
276207	3.0m x 2.0m	3.606	13.0



Scaffold board solutions

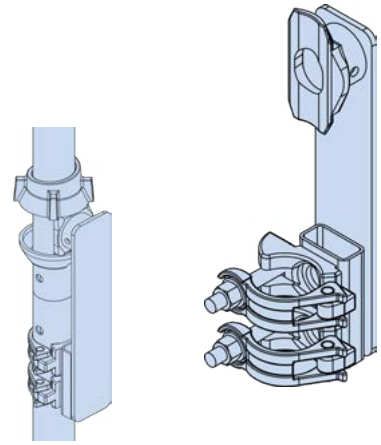
A variety of lengths are available, with a maximum support frequency of either 1.2m or 1.5m.

For further information email: ukinfo@beis.com.

Standard splice

The standard splice is designed to prevent uplift of verticals particularly when the CUPLOK structure is supporting a temporary roof, and a stronger tension connection is required. A blade end locates in the lower cup of the upper verticals with two forged half-couplers making the lower connection.

Code	Overall length (mm)	Tensile SWL (kN)	Weight (kg)
270175	300	18.2	2.4



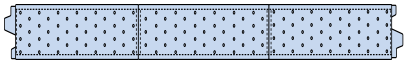
See data sheets for further tension joint options.

Hook-end batten

FR NL

A durable steel deck unit with punched profile. Steel tubes underneath act as handles, as well as providing improved stiffness (sale only).

Code	Size (m)	Weight (kg)
274541	1.3	9.9
274852	1.6	12.1
274543	1.8	13.6
274544	2.5	18.6
274545	3.0	22.3

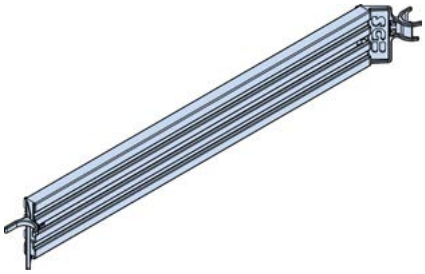


Steel toeboard

NL

A new steel toeboard system designed specifically for CUPLOK. It can incorporate curves, angles and corners providing quick, sturdy protection at platform level and can be used with all types of decking.

Code	Length (m)	Weight (kg)
274713	1.3	3.1
274718	1.8	4.3
274725	2.5	8.5



Toeboard system

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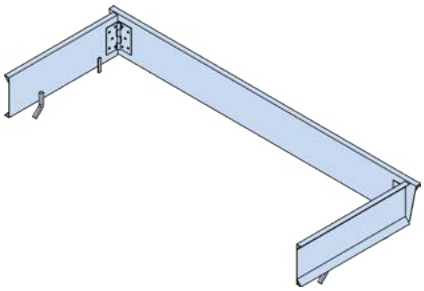
Specialist steel toeboard system available for particular applications. For further information please email: ukinfo@beis.com.

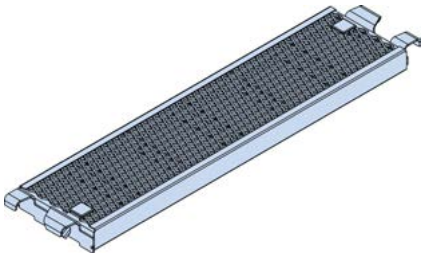


Ancillary components

Mesh decks

CUPLOK® mesh decks are 0.3m wide and are used in conjunction with standard tubular horizontals. Used mainly in industrial applications.

Code	Size (m)	Weight (kg)
274704	0.6 x 0.3	7.0
274705	0.9 x 0.3	10.0
274709	1.3 x 0.3	12.0
274710	1.8 x 0.3	16.0
274711	2.5 x 0.3	20.0

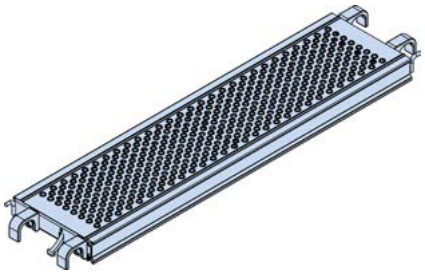


Steel deck 305mm wide

NL

Modular steel decks 0.305m wide for standard width CUPLOK scaffolds. Available in 2.5m, 1.8m, 1.3m, 1.0m, 0.73m and 0.36m lengths.

Code	Size (m)	Weight (kg)
340231	0.36 x 0.305	4.4
340232	0.73 x 0.305	8.5
340233	1.0 x 0.305	10.9
340234	1.3 x 0.305	13.3
340235	1.8 x 0.305	15.8
340236	2.5 x 0.305	22.3

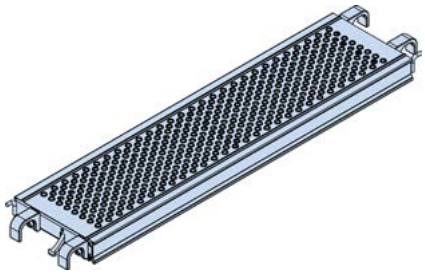


Steel deck 240mm wide

NL

Used with the wider 305mm decks to provide flexibility to board out CUPLOK access structures with greater bay widths.

Code	Size (m)	Weight (kg)
340221	0.36 x 0.24	3.8
340222	0.73 x 0.24	7.2
340223	1.0 x 0.24	9.2
340224	1.3 x 0.24	11.1
340225	1.8 x 0.24	12.8
340236	2.5 x 0.24	18.0

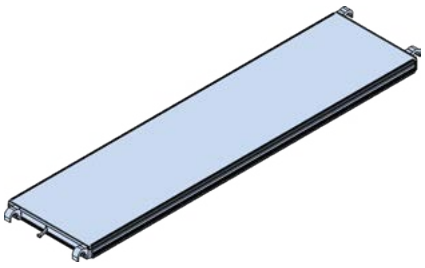


Alu-fibre decks 610mm wide

NL

Designed with a lightweight aluminium frame, incorporating robust anti-slip plastic sandwich panel.

Code	Size (m)	Weight (kg)
340204	1.3m x 0.61m	10.5
340205	1.8m x 0.61m	13.5
340206	2.5m x 0.61m	17.9

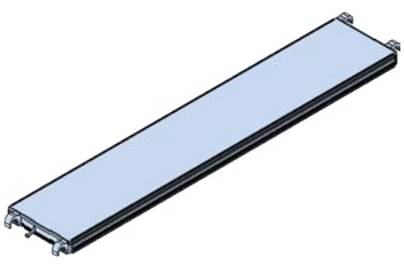


Alu-fibre decks 405mm wide

NL

Designed with a lightweight aluminium frame, incorporating robust anti-slip plastic sandwich panel.

Code	Size (m)	Weight (kg)
340201	1.3m x 0.405m	7.0
340202	1.8m x 0.405m	9.0
340203	2.5m x 0.405m	12.0

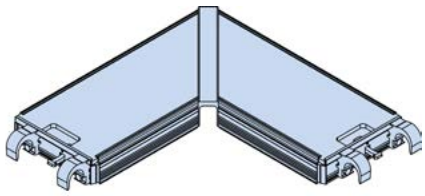


External corner panel extension deck

NL

The alu-fibre extension piece allows a double deck wide corner infill platform to be positioned.

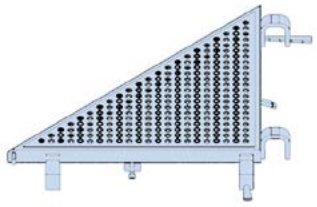
Code	Description	Weight (kg)
340199	External corner panel extension deck (0.75m x 0.75m)	8.0



Internal triangle deck NL

Used in standard CUPLOK® bays and is designed to enable safe access around pipework where full platform decks cannot be positioned.

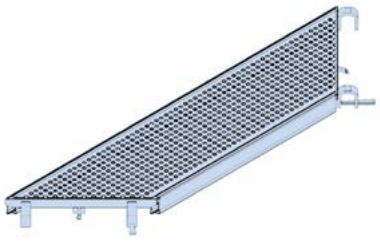
Code	Description	Weight (kg)
340435	Internal diagonal deck (Number 1)	9.5



Internal diagonal deck NL

Used alongside the triangular deck to provide a similar facility in bays, where full platform decks cannot be positioned in areas around pipework.

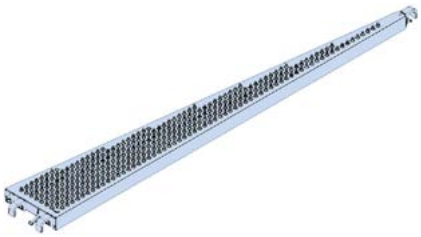
Code	Description	Weight (kg)
340436	Internal diagonal deck (Number 2)	18.0
340437	Internal diagonal deck (Number 3)	22.5



Tapered steel deck NL

Tapered profile to follow the contour of the fixed structure. Ideal for use in shipyard applications. Designed for use within a 2.5m long CUPLOK bay.

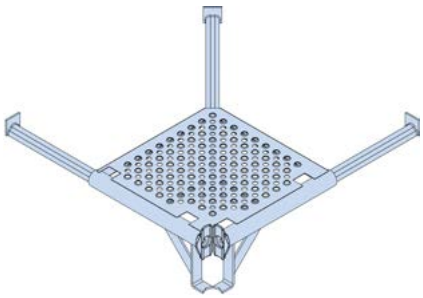
Code	Description	Weight (kg)
340440	Tapered steel deck 2.5m x 0.35m - left	15.3
340441	Tapered steel deck 2.5m x 0.35m - right	15.3
340442	Tapered steel deck 2.5 x 0.65m - left	21.4
340443	Tapered steel deck 2.5m x 0.65m - right	21.4



Telescopic external corner deck NL

Used in conjunction with 305mm wide modular steel decks, providing the facility for a single or double deck width corner infill. Used with external corner panel extension deck when extended.

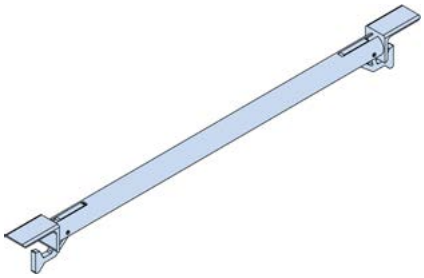
Code	Description	Weight (kg)
340198	Telescopic external corner panel (0.4 x 0.4m closed)	9.5



Mesh deck intermediate supports

Designed to create space within the working platform to allow safe access around pipework and main fixture obstructions.

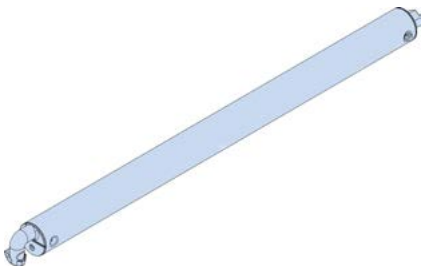
Code	Size	Weight (kg)
274706	1-board	2.0
274707	2-board	3.0
274708	3-board	4.0



Anchor tube NL

Designed for use in masonry scaffolds, a standard 48.3mm scaffold tube with hook connection for standard anchor ties: the short 0.5m version has just a hook at the front, while the longer 0.83m and 1.25m versions have a ‘nut’ at the other end to allow a wrench to be used to turn the anchor in order to unhook and disconnect it.

Code	Description	Weight (kg)
340041	Quick anchor tube 0.5m	2.4
340042	Quick anchor tube 0.83m	3.5
340043	Quick anchor tube 1.25m	5.1

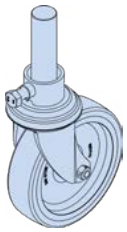


Ancillary components

Castor wheels

For use when CUPLOK® is erected as a mobile tower. The shank of the castor fits into the base of the CUPLOK vertical and is secured with a bolt.

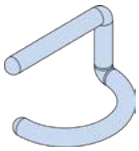
Code	Material	Weight (kg)	Diametre (mm)	SWL (kg)
279080	Rubber	6.7	200	270
279100	Steel	7.0	200	730



Spigot pin

Designed to resist tensile forces at the joint of two verticals - though not designed to form a full tension joint. Must be used where hop-up brackets are incorporated in the scaffold.

Code	Diametre (mm)	Weight (kg)	Tensile SWL
279340	8.0	0.09	4kN

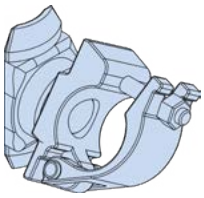


Spigot Pins or bolts MUST be used at all joints in the verticals down to the last tied level below the Hop-Up Bracket.

Brace adaptor with half coupler

A half coupler with a CUPLOK blade end which allows the use of scaffold tube as a bracing component.

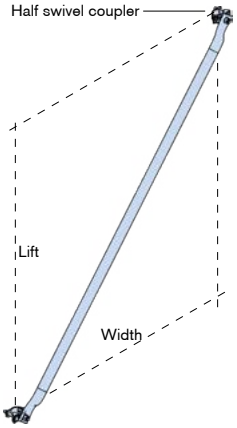
Code	Weight (kg)
279163	1.0



Access ledger brace

Provides ledger bracing on CUPLOK access scaffolds. When required by design or where ties cannot be placed in the correct position or have been removed, or on scaffolds which extend above the building. Incorporates half couplers which locate on the standards.

Code	Description bay x lift	Length (m)	Weight (kg)
277551	2.0 x 1.3m	2.060	10.7

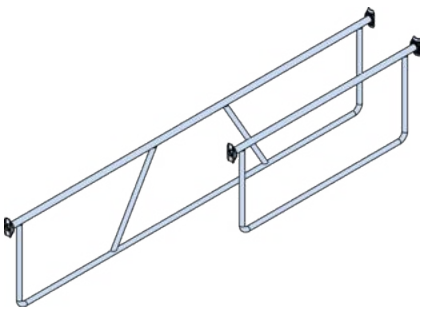


Double guardrail frame

NL FR

The unit is lighter and quicker to install than two separate ledgers.

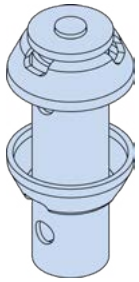
Code	Length (m)	Weight (kg)
340121	0.73	4.2
340122	1.3	6.3
340123	1.8	9.1
271512	2.5	10.7
271513	3.0	12.5

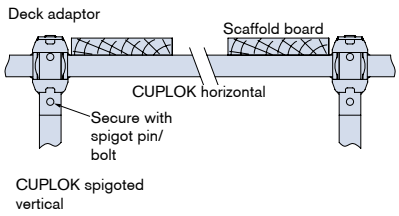


CUPLOK deck adaptor

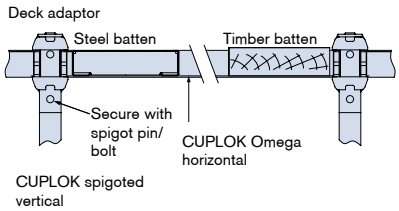
This component allows the laying of a level, uninterrupted platform across the top of a CUPLOK birdcage structure. The deck adaptor fits on the top of a spigotted vertical and has a low-profile upper cup which screws down to lie flush with adjacent boards.

Code	Weight (kg)
271909	1.3





Application using CUPLOK horizontals

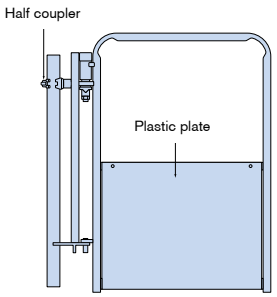


Application using CUPLOK Omega horizontals

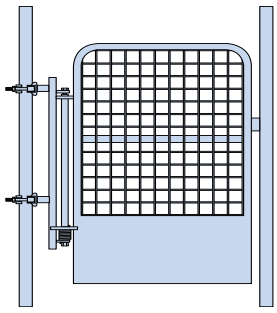
Ladder safety gates

CUPLOK® safety gates allow safe ladder access to and from the working platform. The sprung gate mechanism ensures that the access opening remains fully closed at all times. Three options are available. Used in conjunction with the swan-necked standard. When closed the gate rests behind the CUPLOK vertical ensuring total safety.

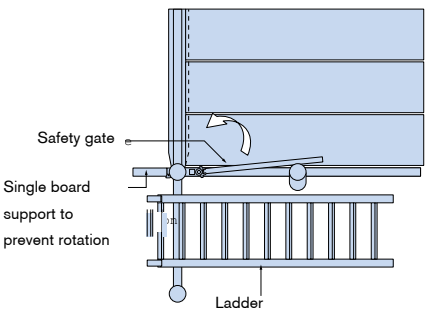
Code	Width (m)	Weight (kg)
279448	0.8	14.0
050021	0.8	8.5



Code 279448: available in NL only.



Code 050021

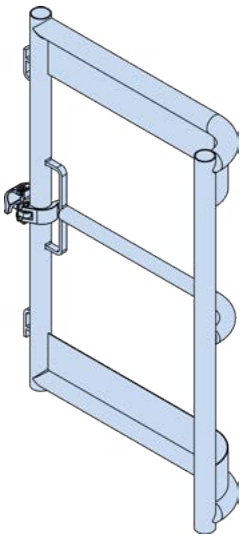


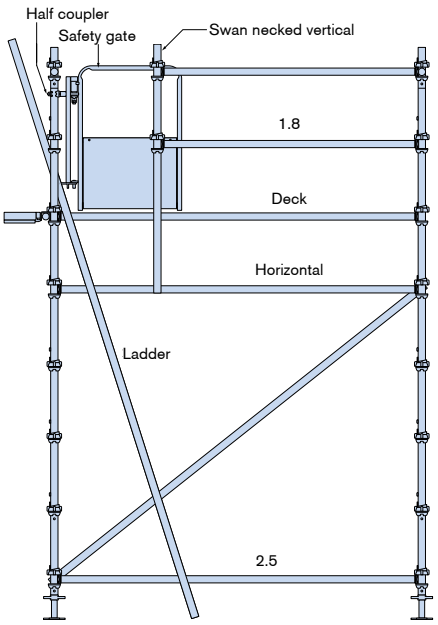
Stairwell safety gate

NL

For use as a stop-end guardrail where ladder access gaps are created within the main working platform. Used in conjunction with the ladder safety gate to ensure complete protection around the ladder access gap.

Code	Description	Weight (kg)
340282	Ladder landing safety gate	14.0





Swan-necked vertical

Locates on the horizontal members to provide an opening in the guardrails of a standard 2.5m CUPLOK bay to allow ladder access to the work platform.

Code	Length (m)	Weight (kg)
270172	1.72	7.2

An extra horizontal will be required.

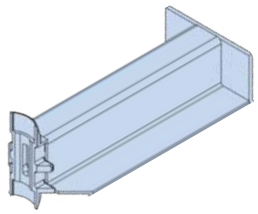
Omega components for batten platforms

The Omega batten system incorporates all the main CUPLOK® components but replaces the tubular transom with a special Omega unit into which special boards or battens slot to provide a secure, flush work platform. No intermediate transoms are required as stronger battens are used in place of scaffold boards.

Omega one board support

Locates at the cup joint and provides support for a single inside batten.

Code	Length (m)	Weight (kg)
275510	0.267	2.3



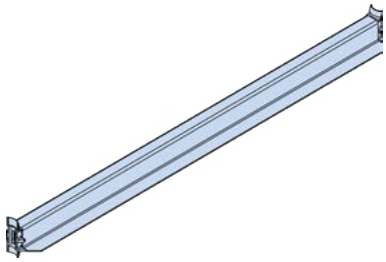
An additional one board support must be used in the cup at the end of each scaffold run to prevent rotation.

Omega transom

Provides a firm location for the Omega battens. The specially designed Omega section provides a very strong supporting platform and prevents the battens from moving. Forged blade ends locate into the cup joint of the vertical in the normal way.

Both the 1.8 and 2.5m Omega transoms can be used when CUPLOK is erected to form a birdcage access scaffold using timber or steel battens, or on mobile access towers in modular sizes.

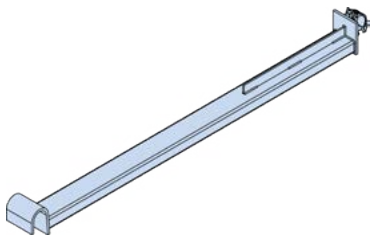
Code	Size (m)	Overall length (m)	Weight (kg)
275080	0.8	0.752	3.9
275130	1.3	1.252	6.6
275180	1.8	1.752	10.0
275254	2.5 Heavy Duty	2.452	24.8



Ladder access transom

A transom to suit an Omega profile across part of its width to support short battens behind a ladder opening. It has a claw at one end and a half coupler at the other to ensure secure positioning along the ledgers.

Code	Overall length (m)	Weight (kg)
271940	1.3	9.3

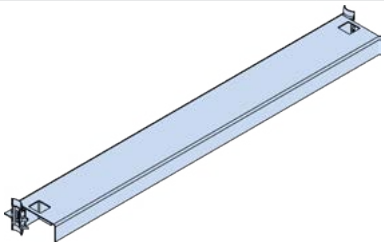


Must only be used in conjuction with Omega transoms.

Return transom

A transom with a steel hook profile which locates over the ledger of the adjacent return scaffold, linking the two sections together. The other side of the transom incorporates a conventional Omega section to receive timber or steel battens.

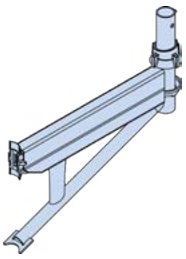
Code	Length (m)	Weight (kg)
275550	1.3	8.6



Omega hop-up bracket

Designed to increase the overall width of the working platform to seven or eight battens by supporting two or three additional battens beyond the inner face of the scaffold.
It incorporates a cup joint at the end for the fitting of an inside ledger which links the hop-up brackets to prevent movement. Incorporates a socket to support a guardrail post.

Code	Description	Overall length (m)	Weight (kg)
275520	2-board	0.585	6.6
275530	3-board	0.815	7.6



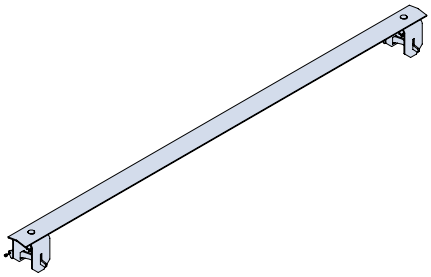
An additional ledger (3rd ledger) connecting the brackets must be used to prevent rotation.

Spigot Pins or bolts MUST be used at all joints in the verticals down to the last tied level below the hop-up bracket.

Omega batten retention strap

Designed for use with both timber and steel battens. Positioned at each end of the battens up to a maximum distance of 200mm from the standards. Simple wedge locking action prevents battens from being dislodged in adverse weather conditions.

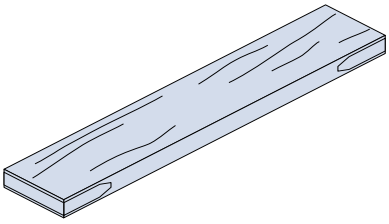
Code	Description	Weight (kg)
274650	Omega batten retention strap	2.71



Timber battens

63mm thick and of 225mm nominal width. Weights shown are approximate at 20% moisture content.

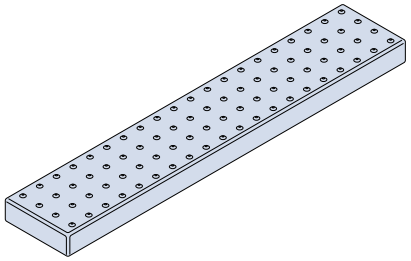
Code	Description	Overall Length (m)	Weight (kg)
274613	1.3m	1.250	12.5
274617	1.8m	1.750	17.5
274625	2.5m	2.450	24.5

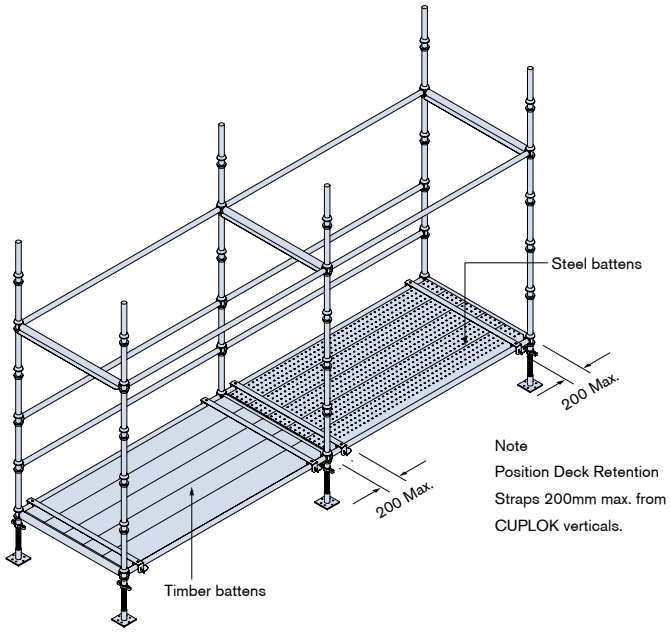


Steel battens

CUPLOK® galvanised steel battens have an overall depth of 57mm thick and 238mm wide. They incorporate a perforated surface for improved slip resistance in poor weather.

Code	Description	Overall Length (m)	Weight (kg)
274512	1.3m	1.250	9.1
274517	1.8m	1.750	13.0
274525	2.5m	2.450	17.5



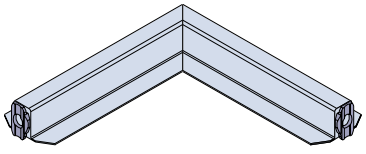


Note
Position Deck Retention Straps 200mm max. from CUPLOK verticals.

Omega 2 and 3 board corner units

Provides an internal corner support two or three battens wide. For use between hop-up brackets. Infill with timber or steel battens, cut to fit.

Code	Description	Weight (kg)
279120	2-board	6.6
275533	3-board	9.3



For infill, two or three short battens should be used.

Position deck retention straps 200mm max from CUPLOK standards.

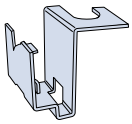
Omega components for batten platforms

Toeboard clips:

Timber

For use with timber battens only. Locates around the standards and sits on the ‘top-hat’ section of the Omega transom.

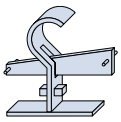
Code	Weight (kg)
279200	1.0



Steel

For use with steel battens only. Locates around the standards and locks the toeboard rigidly into position.

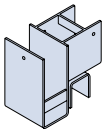
Code	Weight (kg)
279180	0.7



End toeboard clip

Locates on the Omega transom.
For use with timber or steel battens.

Code	Weight (kg)
275585	1.5



CUPLOK®

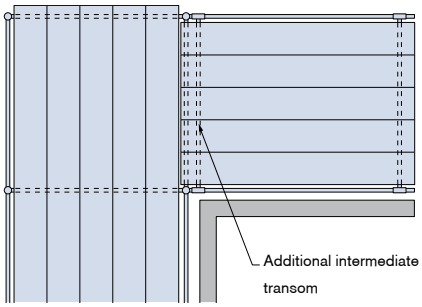
Typical tubular CUPLOK® access layouts

This section illustrates the methods in which CUPLOK® can be used to create returns and inside board platforms. In most cases, these will overcome the problems of corners and projections which could prevent the scaffold being erected close to the building.

Corner return using a 1.3m square bay

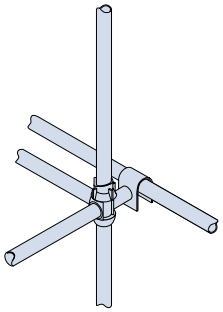
The scaffold can incorporate a 1.3m square bay to form the corner.

The positioning of the additional 1.3m intermediate transom allows two runs of scaffold boards to butt together at right angles without overlapping.

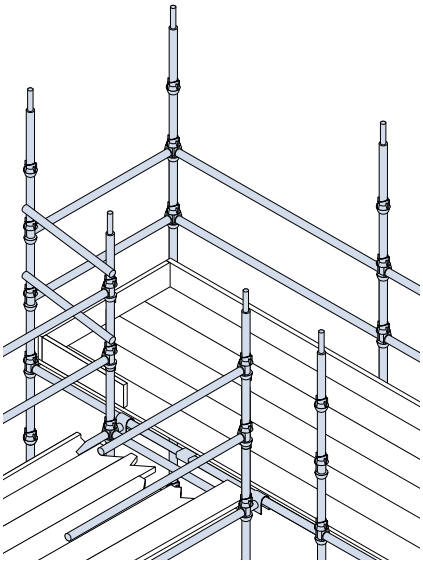


Corner return using the return device

Corners can be made using the return device to link the two scaffold runs. It hooks over the ledger of the adjacent return elevation allowing a 'fly past' which eliminates the need for non-standard bays.



The 'fly-past' method

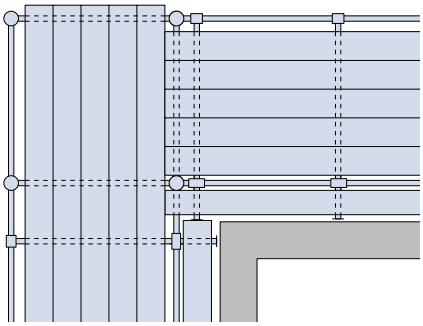


Some guardrails, toeboards, fittings and decking removed for clarity.

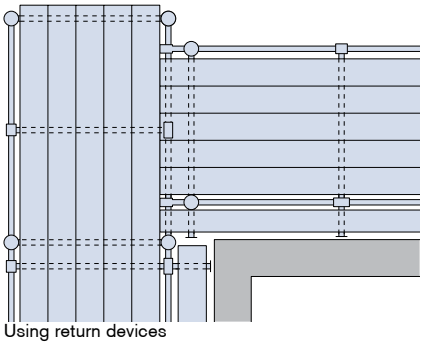
Inside platforms: one board

External corners

Single inside board platforms on CUPLOK® tubular scaffolds are constructed using the single board support in conjunction with the inside board transom. Either the 1.3m square bay or the standard method using the return device can be used.



1.3m square bay

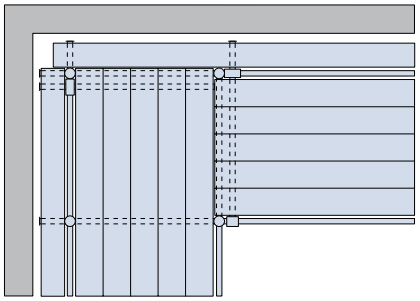


Using return devices

The positioning of the inside board transom allows boards to butt together without overlapping.

Internal corners

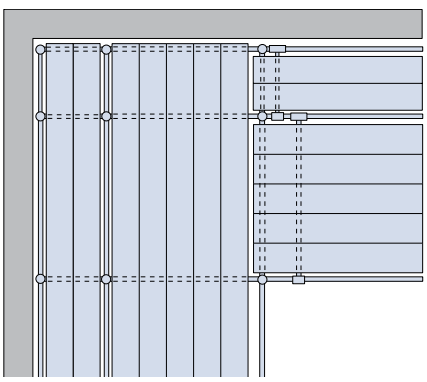
The addition of an extra single board support at the corner standard ensures maximum safety when the two inside scaffold boards butt together at 90°. An inside board transom must also be used adjacent to the corner standard, as shown.



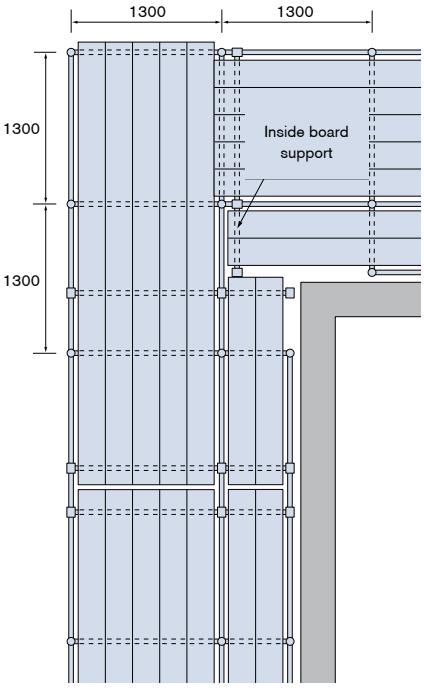
Where required, the small gap between the main and inside platforms can be covered using suitable plywood strips fixed into position.

Inside platforms: 2 and 3 board

Two and three board inside platforms are constructed using the appropriate sized hop-up brackets and intermediates. These are linked together with ledgers to allow the location of the two or three board intermediate transom which supports the scaffold boards at the required centres.



Internal corners

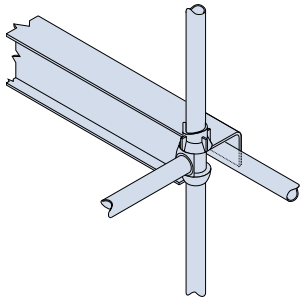


External corners

Typical Omega CUPLOK® access layouts

Corner returns

Corner returns using the Omega batten system can be formed either by using the Omega return transom, which locates over the ledger of the adjacent return elevation, or by using a 1.3m square bay in the corner which is constructed using 1.3m Omega transoms on three sides.

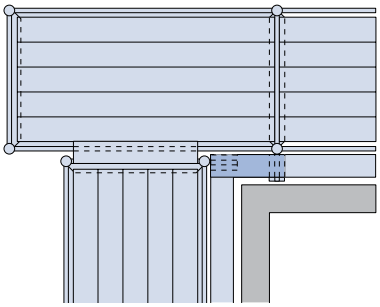


Inside platforms: one board

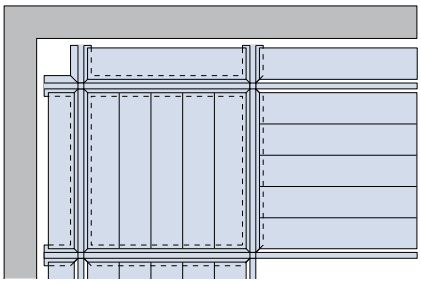
External corners

Inside board platforms are constructed using the Omega one board support. A return transom is used to eliminate the gap when using timber or steel battens in a 'fly-past' configuration.

A secured scaffold board is required to cover the remaining gap in the inside board run.



Internal corners



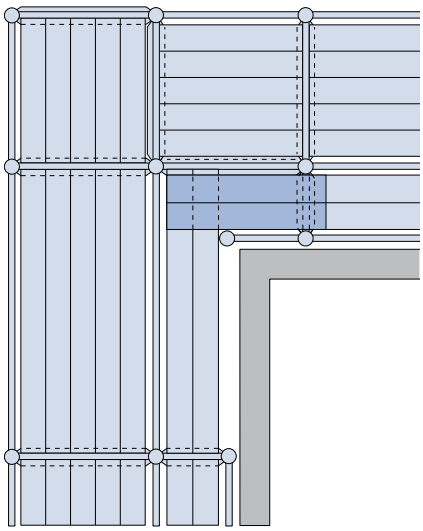
Please note the use of the Omega transoms on all four sides of the corner bay.

Inside platforms: 2 and 3 board

External corners

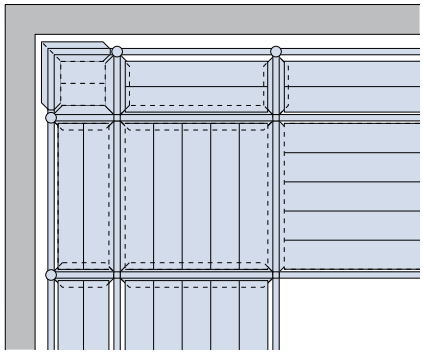
Both elevations of scaffolding incorporate a 1.3m square bay at the end which share two common standards.

Secured scaffold boards are required to cover the remaining gap in the inside board run.



Internal corners

The 1.3m square corner bay is constructed with Omega transoms on all four sides. The Omega corner piece (two or three board) is used with cut down timber battens.



Please note the use of the extra Omega transom in one elevation to receive the inside battens from the return elevation.

Using harnesses with the CUPLOK Omega batten system

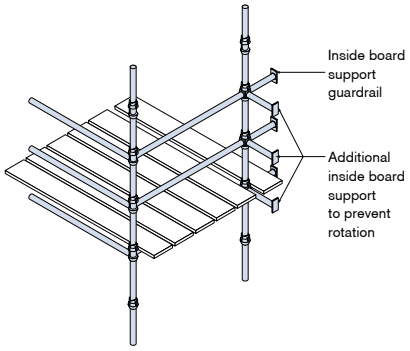
The Omega system varies from traditional boarded structures by allowing the decking to span directly from one transom to the next without needing intermediate support. Omega scaffold structures therefore do not always employ tubular ledgers at platform level. Tubular guardrails are installed in the usual manner. When using the Omega system we recommend the installation of both ledgers at platform level in order to provide the attachment point for a lanyard.

Guardrails on end verticals
When using inside board platforms on CUPLOK® façade scaffolds, care must be taken to ensure that end guardrails are correctly and safely installed.
This may involve the use of standard extra CUPLOK components, or a tube and fitting solution.

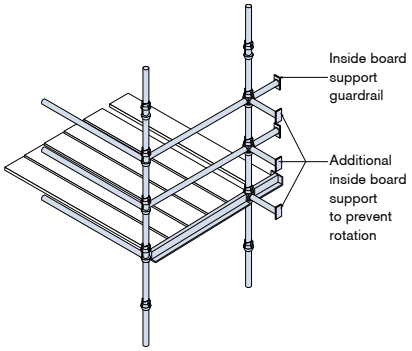
One board/inside platforms
Where one board supports (either tubular or Omega) are used to create a single inside board platform, extra inside board supports are required on the inside end standards - in line with the ledgers - at platform level. When these components are also used to create the inside board end guardrails, these same extra components must be similarly positioned. This will eliminate the possibility of any rotation of the end board supports, and ensure the scaffold boards or battens are firmly supported at all times.

2 and 3 board inside board platform
Where hop-up brackets are used to create inside board end guardrails, extra single inside board supports are required on all inside end standards at both guardrail levels. This will eliminate the possibility of any rotation of the hop-up brackets.
Extra components are not required at platform level where hop-up brackets are used as the brackets are connected by a third ledger.

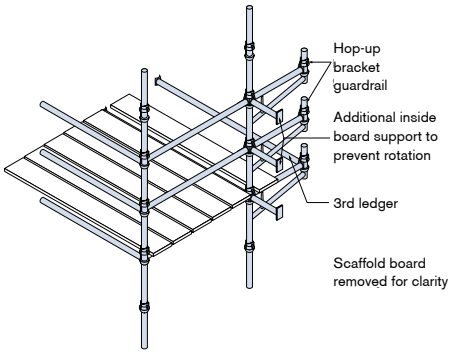
Use of 2 board hop-up brackets with single board supports
When these components are combined to create a three board platform, for subsequent adaptation to two boards, extra single board supports are required in the end hop-up brackets, to eliminate the possibility of rotation of the end single board supports.



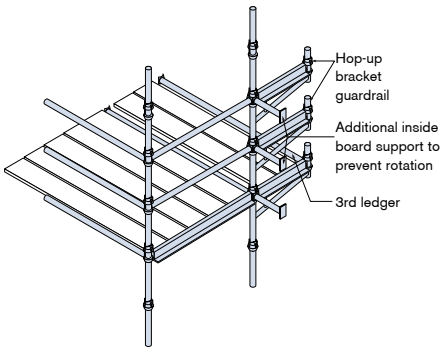
Tubular single board support



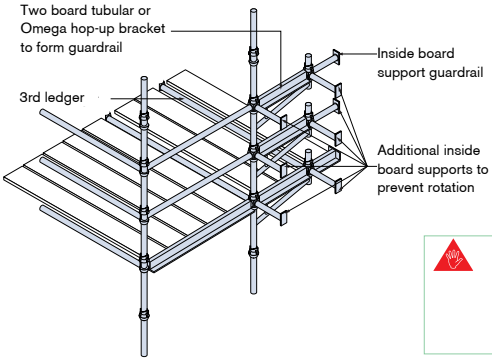
Omega single board support



Tubular two or three board hop-up bracket



Omega two or three board hop-up bracket



Tubular or Omega two board hop-up bracket and Omega single board support

When using 1 board hop-ups an additional one board support must be used in the cup at the end of each scaffold run to prevent rotation.

When using 2 or 3 board hop-up brackets an additional ledger (3rd ledger) connecting the brackets must be used to prevent rotation.

Spigot Pins MUST be used at all joints in the verticals down to the last tied level below the hop-up bracket.

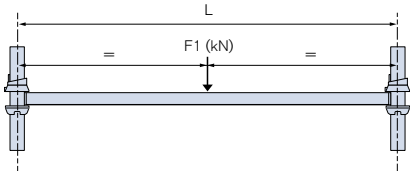
Toeboards removed from illustrations for clarity.

Safe Working Loads for tubular components

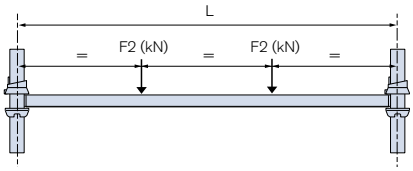
This section provides information on Safe Working Loads (SWLs), tying arrangements and maximum heights for scaffolds. These values have been thoroughly tested and researched and should always be followed. If you are in any doubt about the design of a CUPLOK® structure contact your local branch.

SWL for CUPLOK tubular ledgers (horizontals)

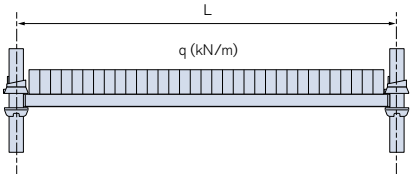
Centre point load (CPL)



3rd point load (2 No.)



Uniformly distributed load (UDL)

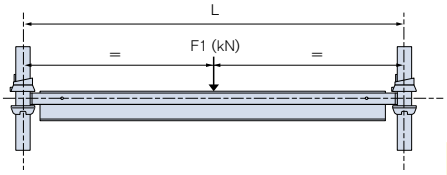


Ledger length L (m)	Centre point load CPL SWL F1 (kN)	3rd point SWL (2 No.) F2 (kN)	UDL q (kN/m)
0.6	9.9	7.9 at each point	33.0
0.9	7.1	5.7 at each point	17.2
1.3	5.2	4.3 at each point	8.9
1.8	3.9	3.3 at each point	5.0
2.5	2.9	2.1 at each point	2.3
3.0	2.5	1.5 at each point	1.4

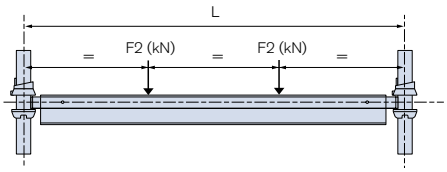
The above figures do not allow for self-weight of decks.

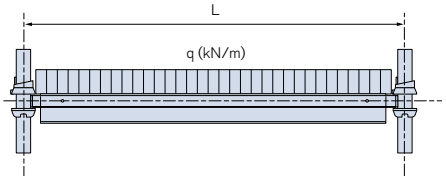
SWL for CUPLOK heavy duty aluminium ledgers (horizontals)

Centre point load (CPL)



3rd point load (2 No.)





Ledger length L (m)	Centre point load CPL SWL F1 (kN)	3rd point SWL (2 No.) F2 (kN)	UDL q (kN/m)
1.3 ^	18.2	10.4 at each point*	16.0*
1.8**	13.4	10.4 at each point*	11.6*
2.5	10.0	7.8 at each point*	8.2*
3.0**	8.4	6.6 at each point*	5.8

The above figures do not allow for self-weight of decks.

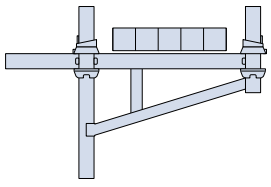
* Limited by shear capacity.

^ For 1.3mm case, F2 loads 300mm from ends.

** Non standard sizes.

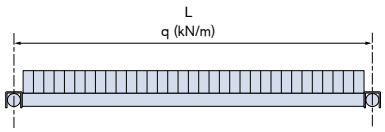
Hop-up brackets (2 and 3 board)

Bracket	Suitable for deck loading of (kN/m2)
2 board	3.0
3 board	1.5



SWL for CUPLOK tubular intermediate transoms

Uniformly distributed load (UDL)



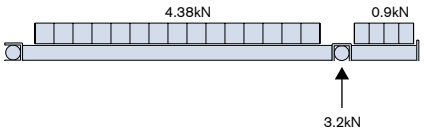
Ledger length L (m)	SWL - q (kN/m)
2.5 HD*	2.4
1.8	2.4
1.3	4.7
1.2	5.5
1	7.9
0.795	12.4
0.565	24.9

*2.5m HD transom is 60.3mm x 4.0mm. All others are 48.3mm x 3.2mm.

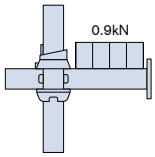
The above data are for the individual transoms components. When used on a CUPLOK scaffold the load limits of the supporting ledgers must not be exceeded.

One board inside board intermediate transom and one board support

SWLs uniformly distributed 0.9kN. These components permit a deck loading of 3.0kN/m^2 when bays are 2.5m long and boards are intermediately supported.



One board inside board intermediate transom

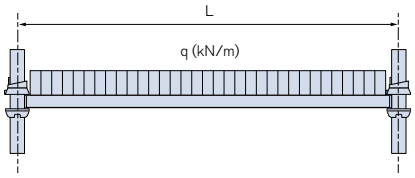


One board support

For more information regarding SWLs please refer to the data sheets.

SWL for CUPLOK® Omega transoms

Uniformly distributed load (UDL)

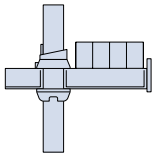


Ledger length L (m)	SWL - q (kN/m)
0.8	33.3
1.3	13.3
1.8	7.3
2.5 HD*	7.4

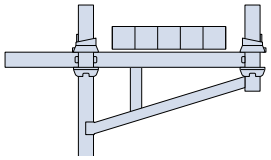
On a 2.5m bay is equivalent to:

Transom length L (m)	SWL - q (kN/m)
1.3	3.0
1.8	1.5
2.5 HD*	1.5

* 2.5m Heavy Duty
The above figures do not allow for self-weight of decks.



Omega one board support
SWL uniformly distributed equals 2.0kN, equivalent to a deck loading of 3.0kN/m² on a 2.5m bay.



Bracket	Suitable for deck loading of (kN/m²)
2-board	3.0
3-board	1.5

for unsheeted scaffolds.

For more information regarding SWLs please refer to the data sheets.

Scaffold openings

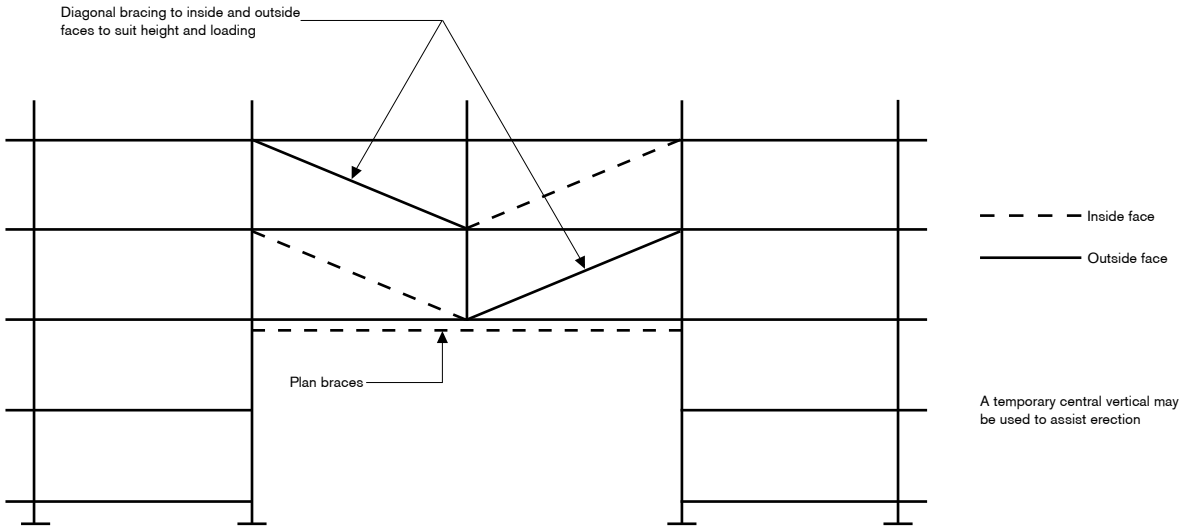
Openings

To create a two-bay wide opening in a CUPLOK® structure for vehicle or other access the following procedure may be adopted:

- Build the scaffold in the normal manner
- Plan brace the structure above the desired opening level and place face bracing on the inner and outer face as shown below
- Remove the structure below the spanning level.

The remainder of the structure can then be erected as shown using standard diagonal bracing.

Please note that suitable barriers may be required.



For security, the use of a safety coupler above the top moveable cup is recommended.

For larger openings, SGB aluminium scaffolding beams should be used to provide a spanning member from which to build the upper section of the scaffold. For more information please contact your local design office.

Bracing and tying in
Unsheeted scaffolds

CUPLOK®

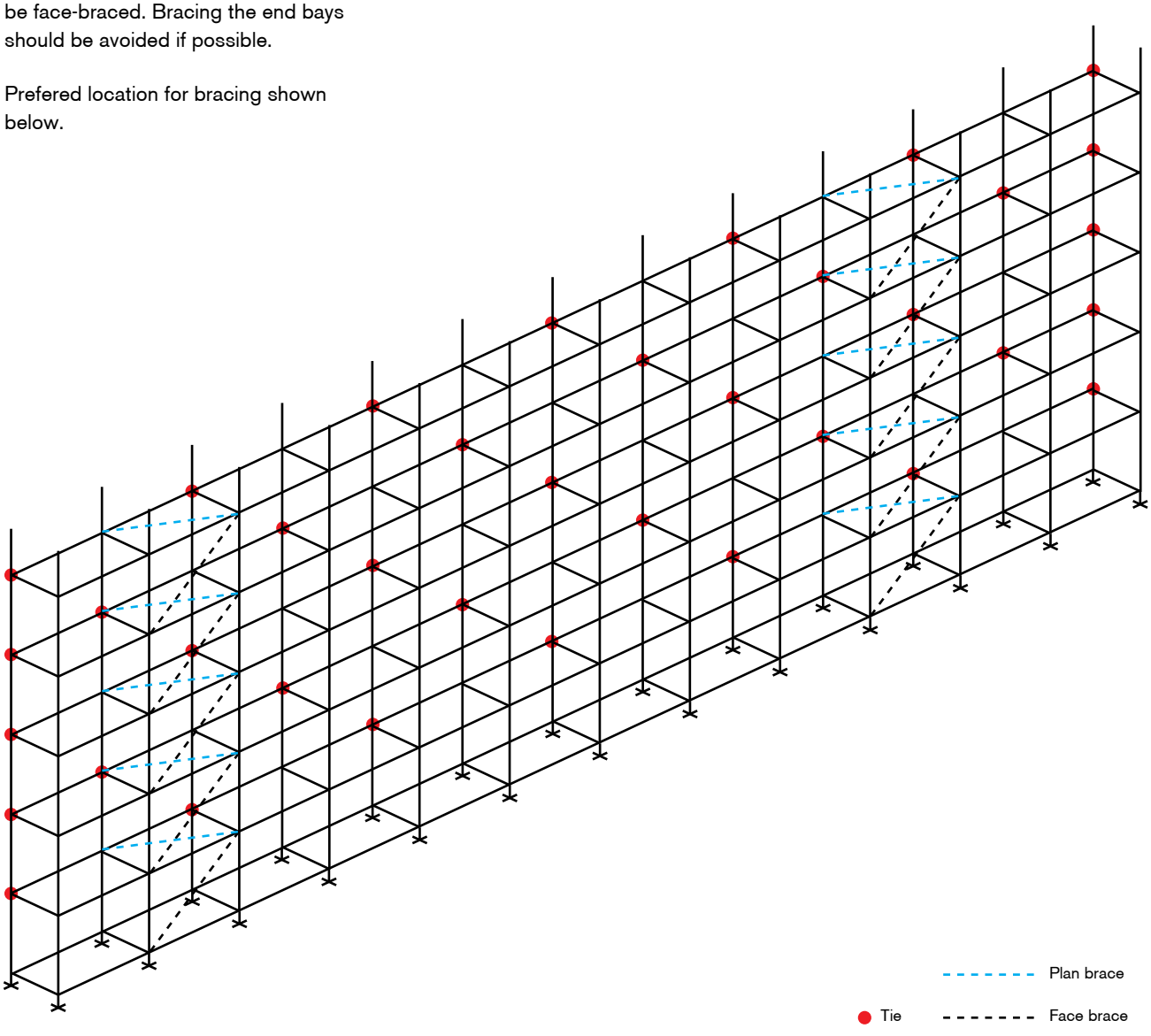
Bracing and tying in
All scaffolds require diagonal face bracing to prevent the structure distorting or swaying.

Face bracing is required in all CUPLOK® access structures in one bay per 20m run (i.e. every eighth bay) for the full height of the scaffold.

For a scaffold up to 10m (four bays) long, a minimum of two bays should be face-braced. Bracing the end bays should be avoided if possible.

Prefered location for bracing shown below.

These rules apply to unsheeted scaffolds only. For sheeted and netted cases, please refer to SGB data sheets or scheme drawings.



Maximum heights and loadings - CUPLOK® access

Unsheeted scaffolds

CUPLOK®

The maximum height to which a CUPLOK® access scaffold may be erected is dependent upon a number of factors, the most important of which are:

1. The vertical distance between tied points on a vertical.
2. Whether or not foot ties are used – see following bracing rules.
3. The lift height.
4. Wind loading.
5. Whether or not cantilever platforms are used.
6. Number of boarded lifts*.

*Note: where lifts are not boarded it has been assumed that the boards, toeboards and the hop-up brackets (where applicable) have been removed but the intermediate transoms and guardrails have been left in place. In order to comply with safety regulations continuous ledgers must be left to form a single guardrail along the front of the scaffold and across the ends.

The parameters detailed in this manual are based on calculations and the result of extensive testing. **Data does not apply to sheeted or netted CUPLOK** structures, for which the rules relating to bracing, tying in and load carrying capacity differ.

Bracing and tying rules

To use the data in the given load tables the following rules apply:

1. Plan bracing/ledger bracing.

Foot tied structures

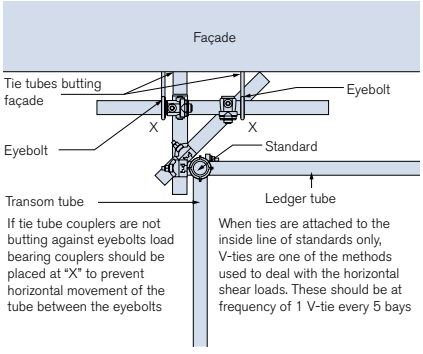
- For 2m lift heights plan bracing is required at a frequency of 1 bay in 8. For an 8m tie pattern plan bracing should be doubled i.e. 2 bays in 8. Plan bracing should be placed in the face-braced bays. See page 29.

No foot ties

- For 2m lift heights ledger bracing is required on all verticals in the first lift, as well as plan bracing at a frequency of 1 bay in every 8. For an 8m tie pattern plan bracing should be doubled i.e. 2 bays in 8.
2. Face bracing must be used at a frequency of 1 bay in every 8. A minimum of 2 bays must be braced for scaffolds greater than 4 bays in length.
3. For 2.0m lift scaffolds, one working lift up to two lifts above the last tied level is permitted, but these two lifts must be ledger braced.
4. For 2m lift heights, whatever tie pattern is used i.e. 8m, 6m or 4m, the verticals at both ends of the tied level must be tied to the supporting structure (refer to tie pattern diagrams on pages 48).
5. For 2m lift heights, all access verticals in the base lift must be at least 2m in length.
6. Ties must be attached to both inside and outside verticals (or ledgers within 300mm of the node points) using load bearing right angled couplers. Where it is not possible to do this, 'v-ties' must be used at a frequency of 1 in 5 bays for every level of ties.
7. Where a tie falls at the location of a spigot, the tie should be connected to the ledger rather than the vertical (within 300mm of the node point).

For further information, please email ukinfo@beis.com.

V-ties for CUPLOK scaffolding



Platform loading - working lifts

For scaffolds with more than one boarded lift, the following loading has been considered for 2m lift structures: one working platform @3kN/m² and one working platform @1.5kN/m². Where hop-up brackets are used the loading for the main platform and the hop-up bracket is as follows (for unsheeted scaffolds):

	Main platform	Hop-up
1-board	3kN/m²	3kN/m²
2-board	3kN/m²	3kN/m²
3-board	3kN/m²	1.5kN/m²

See table 4 on page 36

The use of hop-up brackets

The following rules must be applied when either standard board or Omega batten hop-up brackets are present:

1. Only one loaded hop-up bracket is permitted between levels at any time.
2. Loading on hop-up brackets which are positioned between levels must be limited to 0.75kN/m².
3. Spigot pins or bolts must be used at all joints in the standards down to the last tied level below the hop-up bracket.
4. Although it is good practice to stagger spigot joints in the scaffold, the data here is valid for structures with non-staggered spigot joints.

Wind loading

For 2m lift (access scaffolds) the data in the following table is valid for a maximum wind pressure of up to 770N/m². For less onerous cases it may be possible to omit ledger bracing and/or increase the permissible height of the scaffold. For specific cases, please contact your local design office.

Wind loadings

Unsheeted scaffolds

Wind loading - introduction

The basic data and methods for determining the wind forces a structure is required to resist is contained in BS EN 1991-1-4 and the UK National Annex to BS EN 1991-1-4. Additional information is given in NASC Technical Guidance document TG9:10, Guide to the design and construction of temporary roofs and buildings – Appendix E: Wind loading.

Simplified approach

This manual uses a simplified form of the methods given in the above documents and is suitable for the majority of CUPLOK® cases covered by this manual. The graphs in this document limit heights without further design input to 12 lifts (24m). The simplification will give comparable or conservative results compared with the Euro norm. For cases outside the scope of this document or if more accurate information is required a scaffold Design Engineer should be consulted.

The following graphs allow the user to determine whether or not an unsheeted CUPLOK scaffold can be built to the required height in any location around the country. These graphs assume the terrain surrounding the site is nominally flat with an average slope < 1:20.

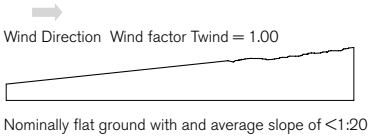


Figure 1 Showing a representation of nominally flat ground with an average slope of < 1:20

To do this the following information will need to be determined before looking at the graphs.

Required information

1. Required height of scaffold?
2. Are hop-up brackets needed?
3. With or without foot ties?
4. Site altitude in metres above sea level (available from Google Earth or Ordinance Survey maps).
5. Location of the site.
   a. Distance to the edge of town measured in km.
   b. Closest distance to the shoreline measured in km.

Note:

- All scaffolds in this document are assumed to be erected for less than 2 years with a temporary works factor of 0.7 taken into account.
- To convert miles into km, multiply distance measured in miles by 1.61.

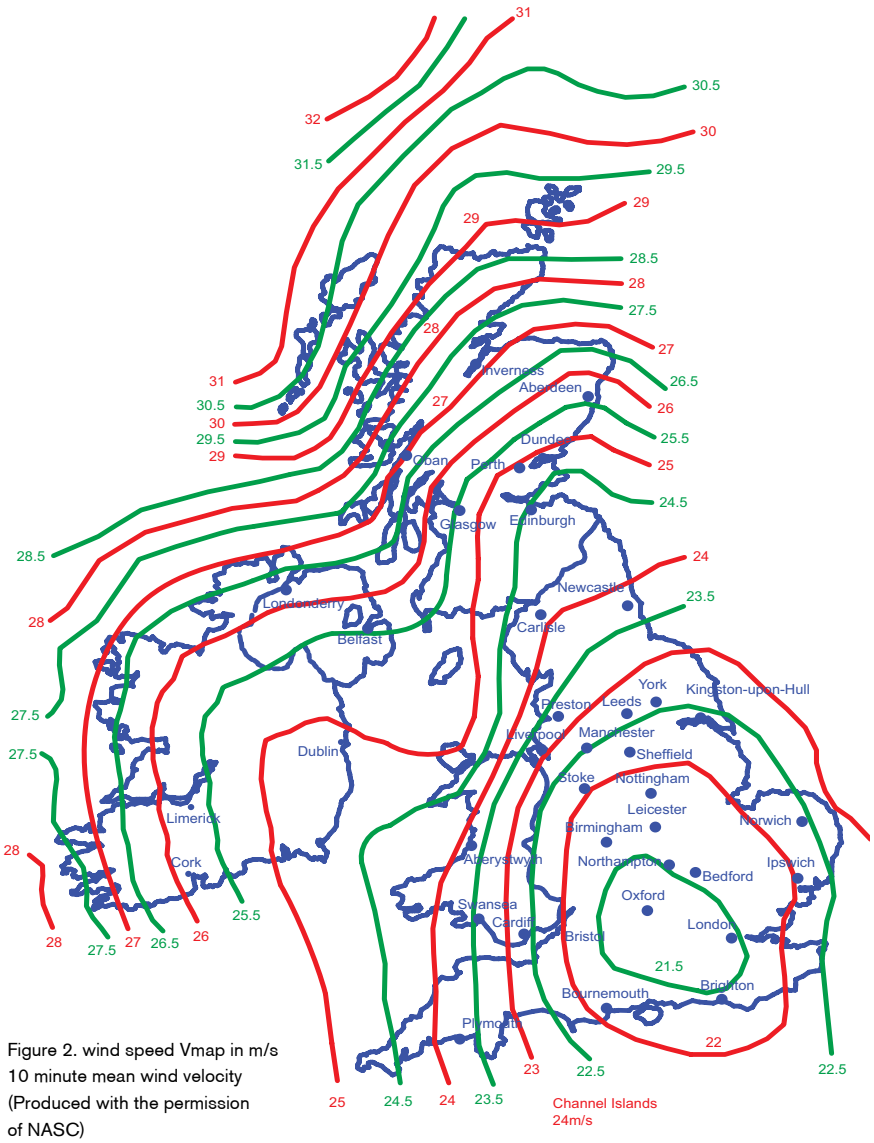


Figure 2. wind speed Vmap in m/s 10 minute mean wind velocity (Produced with the permission of NASC)

For requirements outside the UK, please contact your local office.

Worked example 1
A fully boarded unsheeted seven lift high CUPLOK® access scaffold with two board hop-up brackets and with foot ties is required to be built in the centre of Plymouth. Surrounding the site the slope of the ground is nominally flat. The site is at sea level and the closest distance to the shoreline 0.4km.

As the site is so close to the sea the graphs for town, more than 2km from the edge of town cannot be used.
In this case the graphs for in country or adjacent to the sea must be used. For this case the site is more than 0.1km from the sea but less than 2km, Graph 6 should be used.

As the graphs do not include lines for seven lift the line for the next highest interval must be used, i.e. in this case nine lifts. Selecting the line on Graph 6 for nine lifts and an altitude of 0m, the maximum allowable wind speed this scaffold can be built in is 24.3m/s.

Referring to Figure 2, the wind speed map, it can be seen that the wind speed for Plymouth is approx. 23.7m/s. Therefore the structure can be built.

To determine the most efficient tie pattern configuration for this scaffold refer to Table 4 – Maximum heights for unsheeted scaffolds on page 36, row 3 with two board hop-up brackets. The options available for this particular case are summarised in Table 1.

Table 1

				With foot ties Maximum no. of lifts		
No. of boarded lifts	No. of lifts loaded	Hop-up brackets	Live load applied	4m Tie pattern	6m Tie pattern	8m Tie pattern
Fully boarded	1.5	2 board	3.0kN/m² and 3.0kN/m² on hop-ups	17	7	n/a
Maximum tie loads in tension:				4.1 kN	5.1kN	

From Table 1 it can be seen that the only options available would be to use either a 4m or 6m tie pattern.

- With a 4m tie pattern the maximum height possible would be 17 lifts (34m) with ties required to have a safe working capacity of 4.1kN in tension.
- With a 6m tie pattern the maximum height possible would be seven lifts (14m) with ties required to have a safe working capacity of 5.1kN in tension.

For this case assuming the tie loads can be achieved it would be most efficient to use a 6m tie pattern.

Wind loadings

Unsheeted scaffolds

Worked example 2
A fully boarded unsheeted six lift high CUPLOK® access scaffold with no hop-up brackets and without foot ties is required to be built in Preston town centre. Surrounding the site the slope of the ground is nominally flat.

The site altitude is 42m above mean sea level and the closest distance to the shoreline is 18km.

As the site is **more than 10km but less than 50km** from the closest shoreline then Graph 3, i.e. up to 50km from the closest shoreline should be used.

Selecting the line on Graph 3 for six lifts and an altitude of 42m, the maximum allowable wind speed this scaffold can be built in is 26.7m/s.

Referring to Figure 2 the wind speed map on page 32 it can be seen that the wind speed in Preston is 23.5m/s which is less than 26.7m/s. Therefore the structure can be built.

To determine the most efficient tie pattern configuration for this scaffold refer to Table 4 – Maximum heights for unsheeted scaffolds on page 36 (row 1) with no hop-up brackets. The options available for this particular case are summarised in Table 2.

Table 2

				With foot ties Maximum no. of lifts		
No. of boarded lifts	No. of lifts loaded	Hop-up brackets	Live load applied	4m Tie pattern	6m Tie pattern	8m Tie pattern
Fully boarded	1.5	none	3.0kN/m²	18	13	4
Maximum tie loads in tension:				6.1 kN	6.9kN	7.0kN

From Table 2 it can be seen that the only options available would be to use either a 4m or 6m tie pattern as the maximum number of lifts for an 8m tie pattern is four lifts.

- With a 4m tie pattern the maximum height possible would be 18 lifts (36m) with ties required to have a safe working capacity of 6.1kN in tension.
- With a 6m tie pattern the maximum height possible would be 13 lifts (26m) with ties required to have a safe working capacity of 6.9kN in tension.

For this case assuming the tie loads can be achieved it would be most efficient to use a 6m tie pattern.

Worked example 3
A fully boarded unsheeted 12 lift high CUPLOK® access scaffold with three board hop-up brackets and with foot ties is required to be built on the outskirts of Birmingham. Surrounding the site the slope of the ground is **nominally flat**. The site altitude is 114m above mean sea level and the closest distance to the shoreline 112km. As the site is **more than 100km** from the closest shoreline then Graph 9 i.e. 50km + should be used.
Selecting the line on Graph 9, for 12 lifts and an altitude of 114m, the maximum allowable wind speed this scaffold can be built in is 22.4m/s.
Referring to Figure 2 the wind speed map on page 47, it can be seen that the wind speed for Birmingham is approx. 21.6m/s which is less than 22.4m/s. Therefore the structure can be built.

To determine the most efficient tie pattern configuration for this scaffold refer to Table 4 – Maximum heights for unsheeted scaffolds on page 36, row 4 with three board hop-up brackets.
The options available for this particular case are summarised in Table 3.

Table 3

				With foot ties Maximum no. of lifts		
No. of boarded lifts	No. of lifts loaded	Hop-up brackets	Live load applied	4m Tie pattern	6m Tie pattern	8m Tie pattern
Fully boarded	1.5	3 board	3.0kN/m² and 1.5kN/m² on hop-ups	16	7	n/a
Maximum tie loads in tension:				4.1 kN	5.1kN	

From Table 3 it can be seen that the only option available would be to use a 4m tie pattern as the maximum number of lifts for a 6m tie pattern is seven lifts.

- With a 4m tie pattern the maximum height possible would be 16 lifts (32m) with ties required to have a safe working capacity of 4.1kN in tension.

For this case assuming the tie loads can be achieved it would be most efficient to use a 4m tie pattern.

Maximum heights

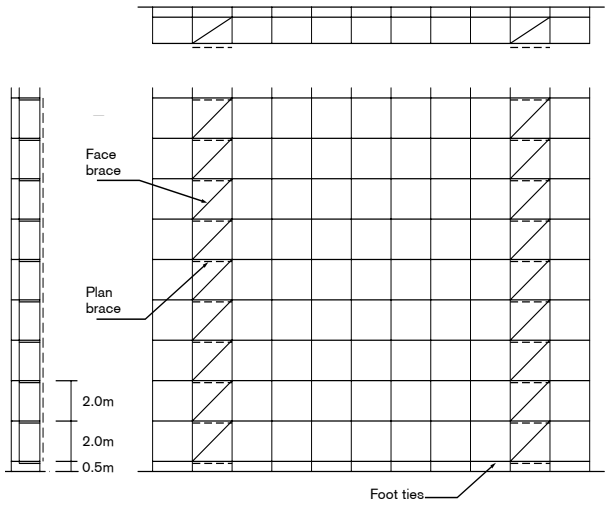
Unsheeted scaffolds

Table 4

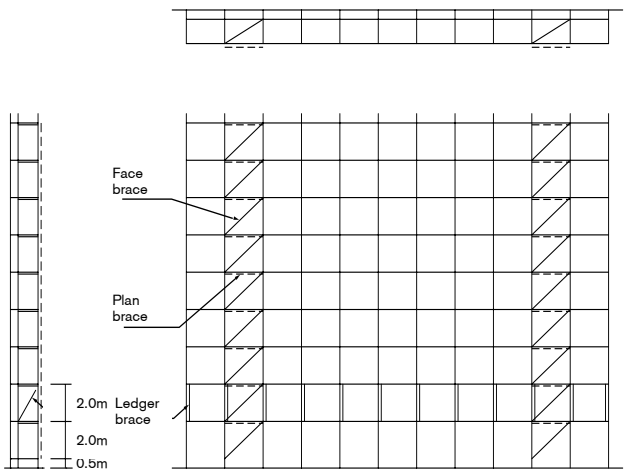
Number of boarded lifts*	Number of lifts **loaded**	Hop-Up brackets	Live Load applied (kN/m²)		**With foot ties**			**Without foot ties**		
					Maximum no. of lifts			Maximum no. of lifts		
			Main platform	Hop-Up	4m tie pattern	6m tie pattern	8m tie pattern	4m tie pattern	6m tie pattern	8m tie pattern
					Wind up to 770N/m²			Wind up to 770N/m²		
Fully boarded	1.5	None	3.0	---	24	12	8	18	13	4
Fully boarded	1.5	1 board	3.0	3.0	20	9	6	15	10	n/a
Fully boarded	1.5	2 board	3.0	3.0	17	7	n/a	12	7	n/a
Fully boarded	1.5	3 board	3.0	1.5	16	7	n/a	11	7	n/a
Average leg load limit, for all Hop-Up cases:					27.9	18.1	14.3	22.9	18.5	10.8
Maximum tie load tension (kN):					4.1	5.1	7.2	6.1	6.9	7.0

CUPLOK® Bracing arrangements

1. Structures with foot ties -
2.0m lifts with plan bracing



2. Structures without foot ties -
2.0m lifts with plan and ledger bracing



If plan bracing needs to be removed, please refer to your local design office.

CUPLOK®

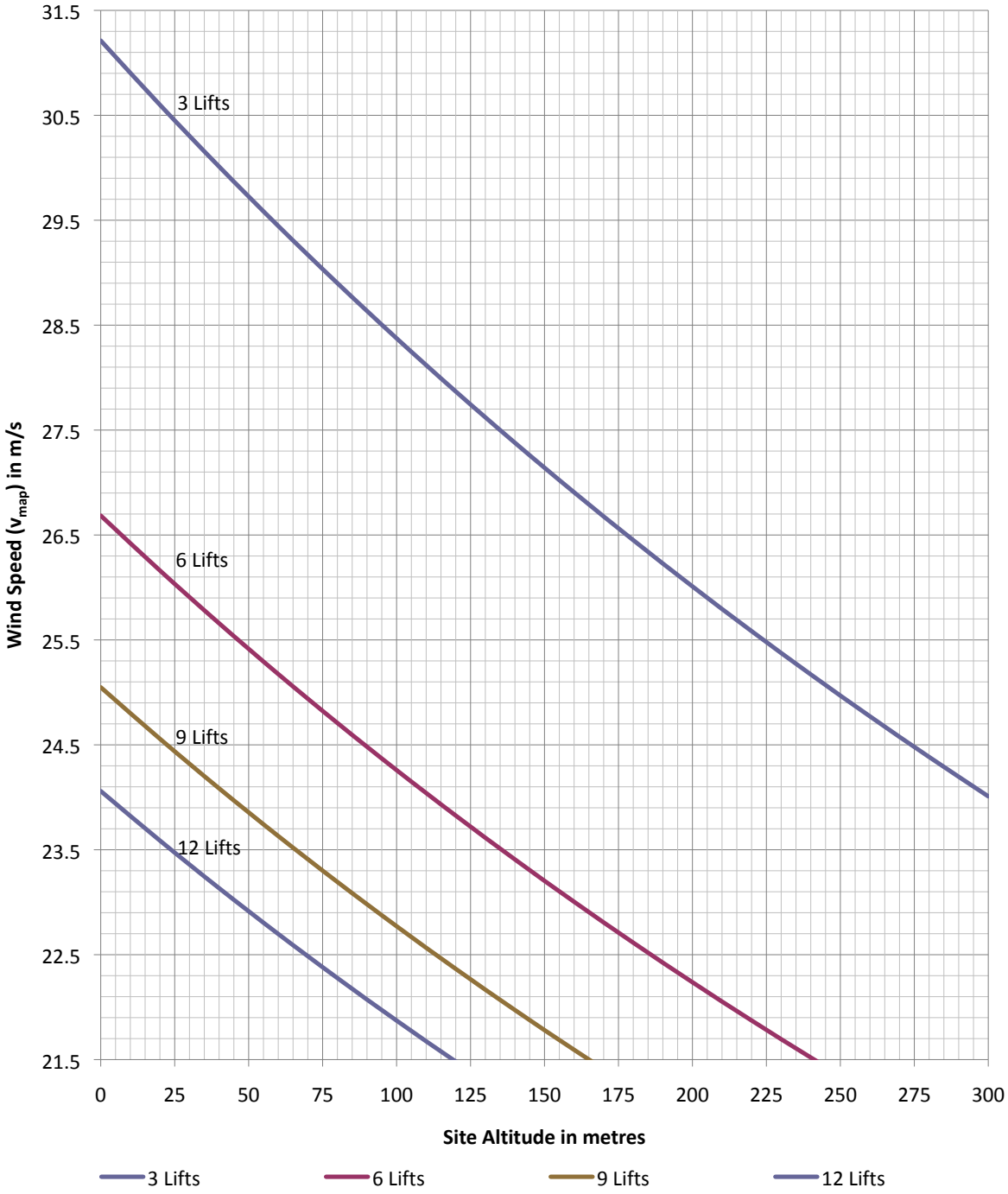
Wind tables

Unsheeted scaffolds

Number	Location	Distance range
Graph 1	In town, more than 2km from the edge of the town	2km
Graph 2	In town, more than 2km from the edge of the town	2km to 10km
Graph 3	In town, more than 2km from the edge of the town	10km to 50km
Graph 4	In town, more than 2km from the edge of the town	50km+
Graph 5	In country or adjacent to the sea	Up to 0.1km
Graph 6	In country or adjacent to the sea	0.1km to 2km
Graph 7	In country or adjacent to the sea	2km to 10km
Graph 8	In country or adjacent to the sea	10km to 50km
Graph 9	In country or adjacent to the sea	50km+

Graph 1 - In town, more than 2km from the edge of the town

Maximum Wind Speeds in which various heights of unsheeted CUPLOK scaffolds can be built - on normally flat ground (1:20), in town, more than 2km from the edge of the town, ≤2km from the closest shoreline

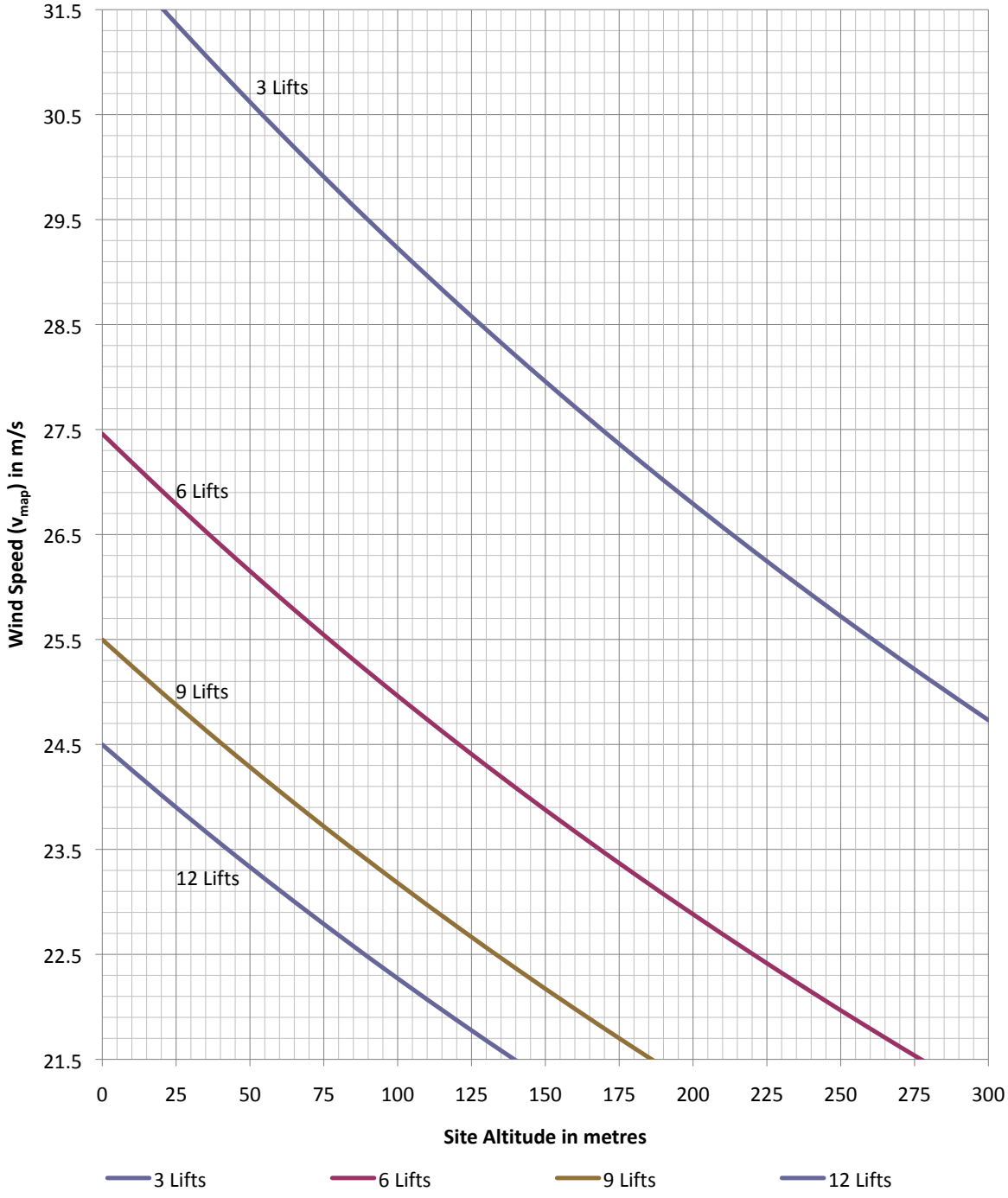


Wind tables

Unsheeted scaffolds

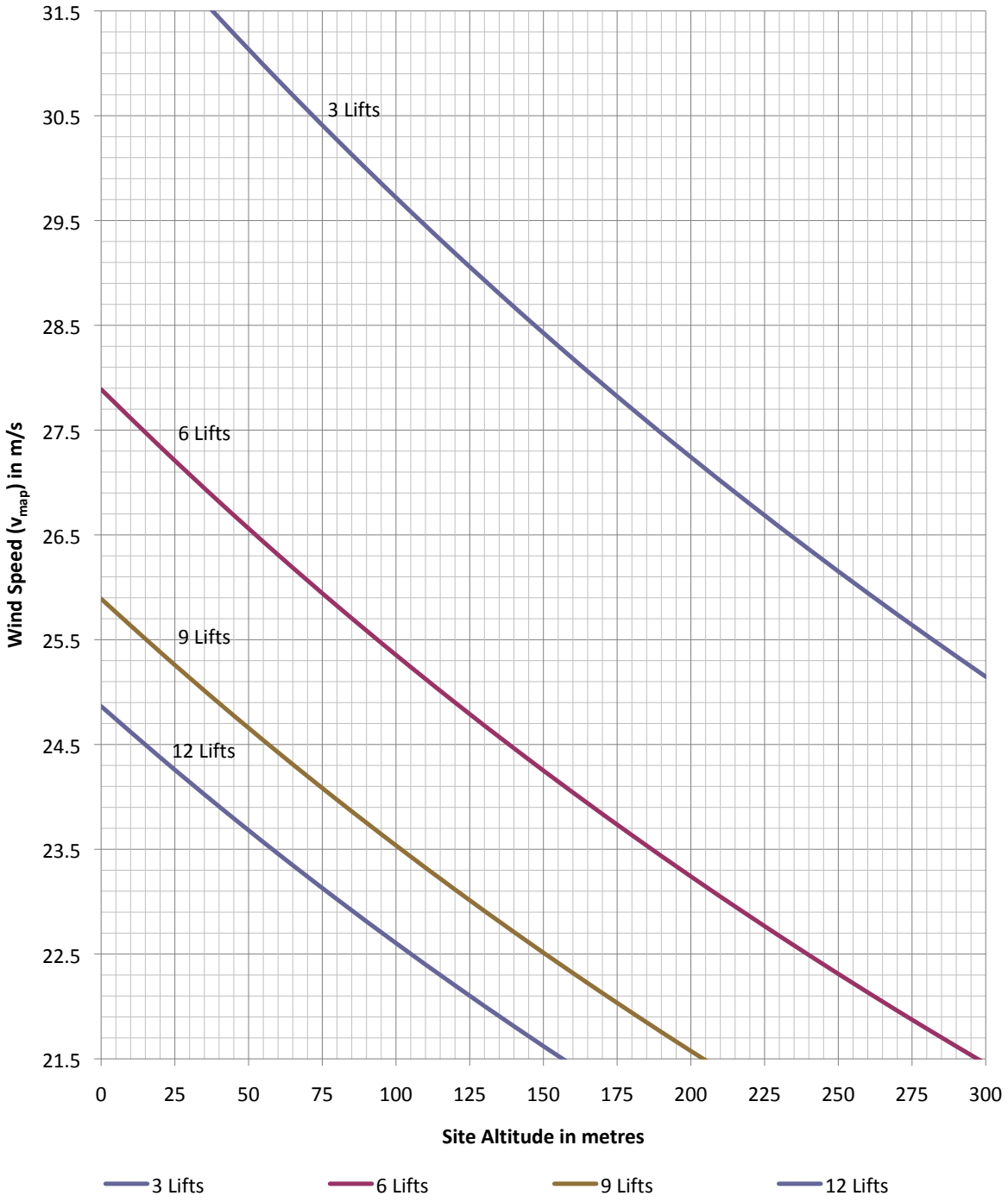
Graph 2 - In town, more than 2km from the edge of the town

Maximum Wind Speeds in which various heights of unsheeted CUPLOK® scaffolds can be built - on normally flat ground (1:20), in town, more than 2km from the edge of the town, up to 10km from the closest shoreline



Graph 3 - In town, more than 2km from the edge of the town

Maximum Wind Speeds in which various heights of unsheeted CUPLOK scaffolds can be built - on normally flat ground (1:20), in town, more than 2km from the edge of the town, up to 50km from the closest shoreline

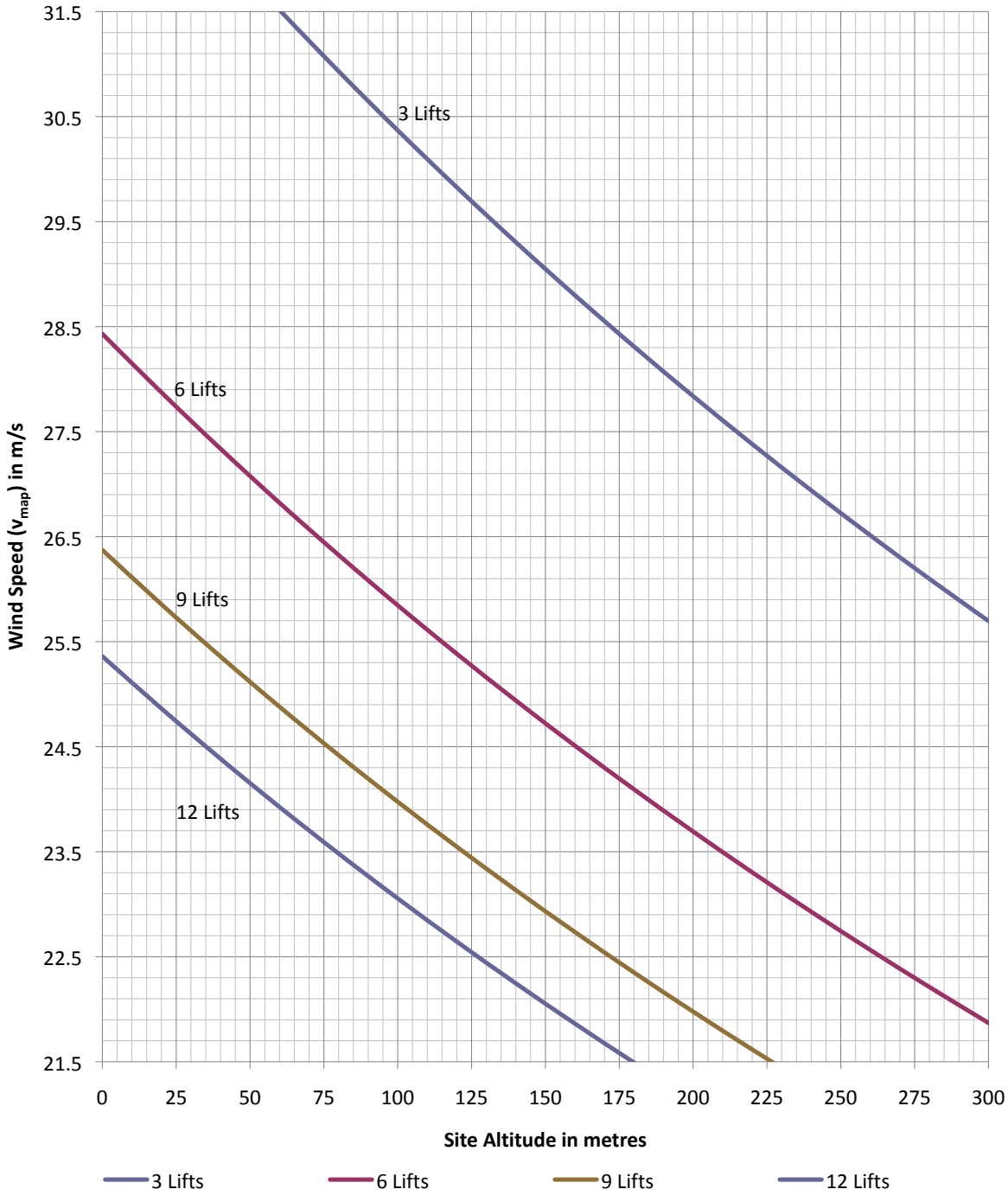


Wind tables

Unsheeted scaffolds

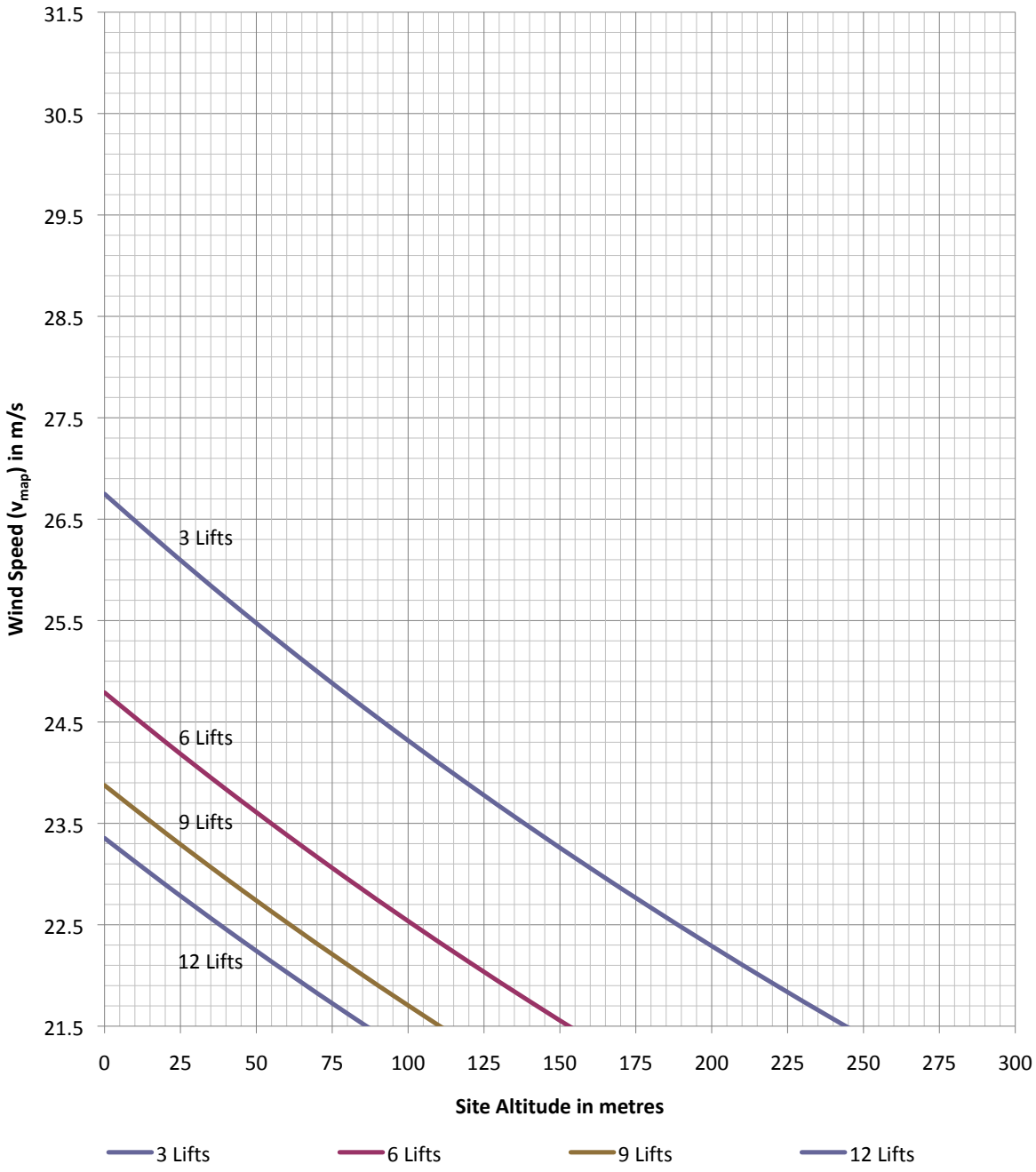
Graph 4 - In town, more than 2km from the edge of the town

Maximum Wind Speeds in which various heights of unsheeted CUPLOK® scaffolds can be built - on normally flat ground (1:20), in town, more than 2km from the edge of the town, ≥100km from the closest shoreline



Graph 5 - In country or adjacent to the sea

Maximum Wind Speeds in which various heights of unsheeted CUPLOK scaffolds can be built - on normally flat ground (1:20), in country or adjacent to the sea, ≤ 0.1km from the closest shoreline

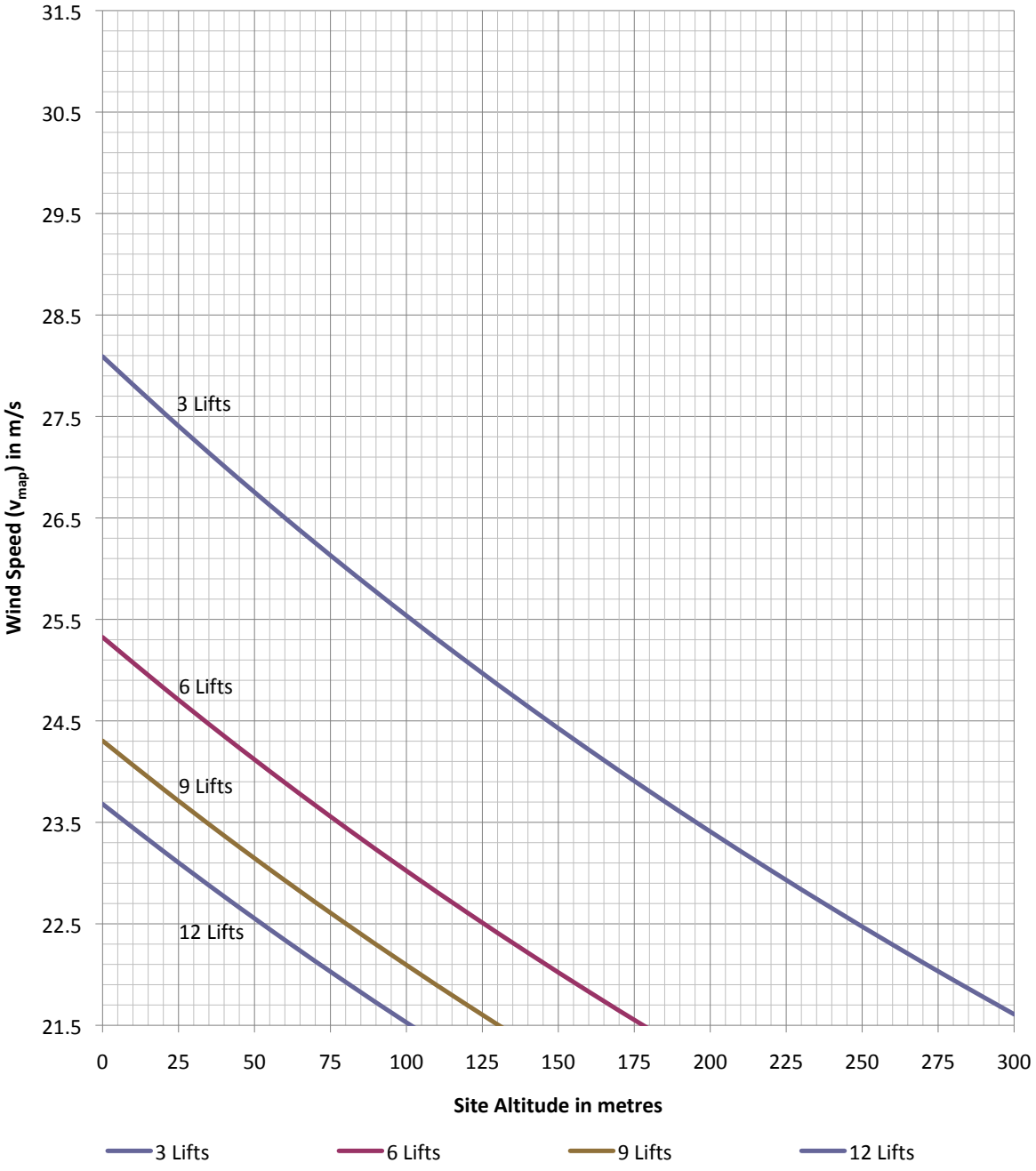


Wind tables

Unsheeted scaffolds

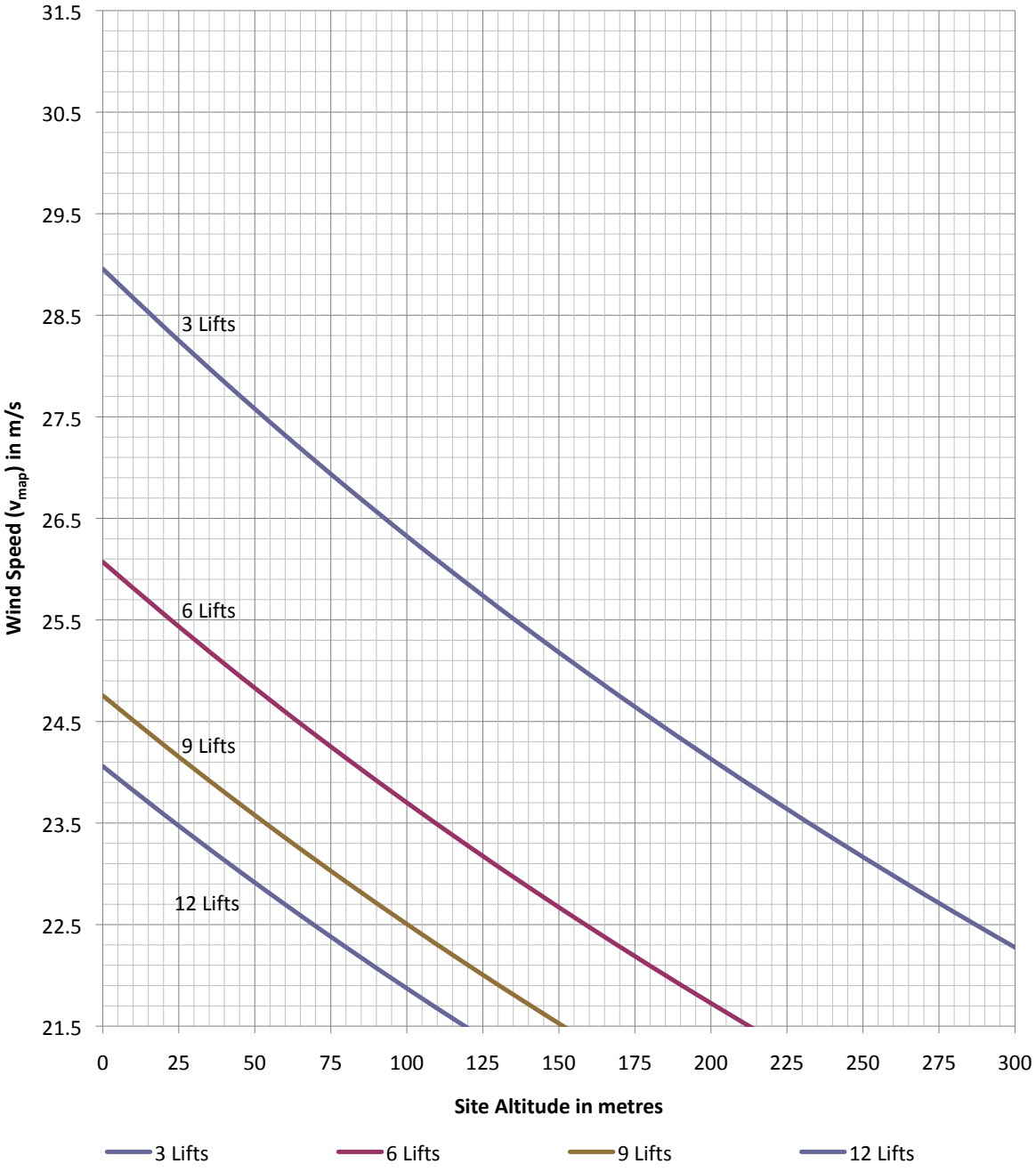
Graph 6 - In country or adjacent to the sea

Maximum Wind Speeds in which various heights of unsheeted CUPLOK® scaffolds can be built - on normally flat ground (1:20), in country or adjacent to the sea, up to 2km from the closest shoreline



Graph 7 - In country or adjacent to the sea

Maximum Wind Speeds in which various heights of unsheeted CUPLOK scaffolds can be built - on normally flat ground (1:20), in country or adjacent to the sea, up to 10km from the closest shoreline

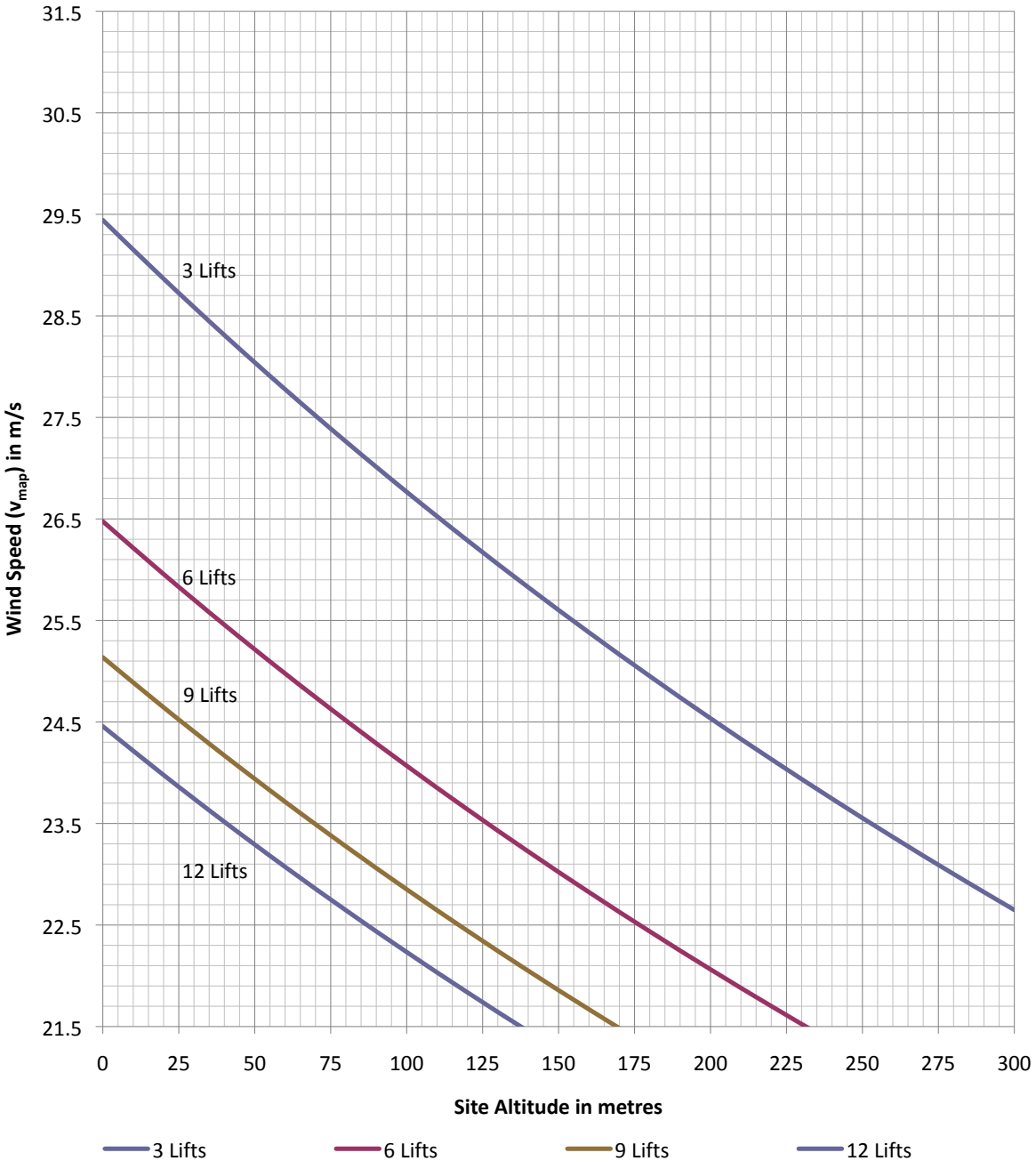


Wind tables

Unsheeted scaffolds

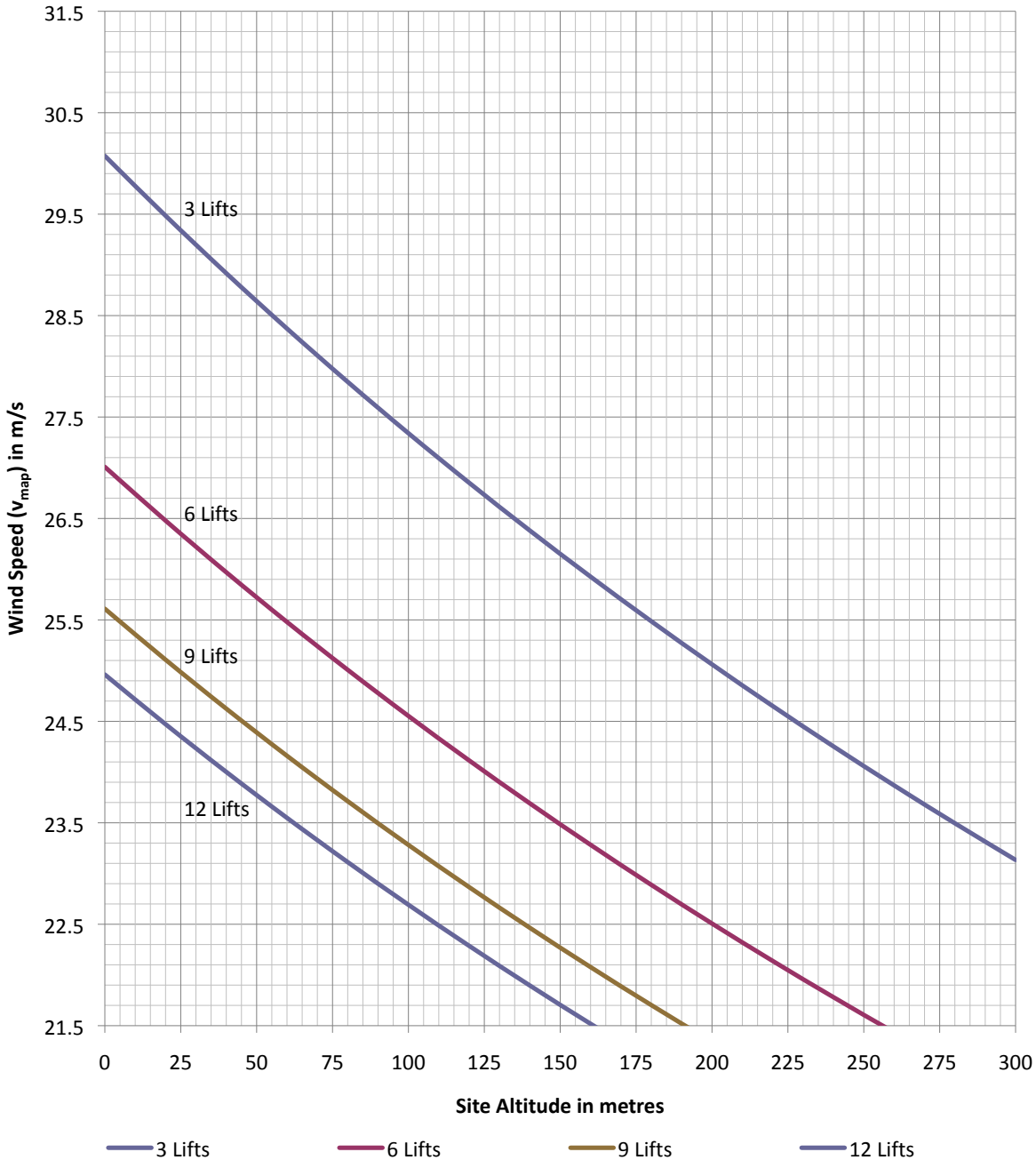
Graph 8 - In country or adjacent to the sea

Maximum Wind Speeds in which various heights of unsheeted CUPLOK® scaffolds can be built - on normally flat ground (1:20), in country or adjacent to the sea, up to 50km from the closest shoreline



Graph 9 - In country or adjacent to the sea

Maximum Wind Speeds in which various heights of unsheeted CUPLOK scaffolds can be built - on normally flat ground (1:20), in country or adjacent to the sea, ≥100km from the closest shoreline

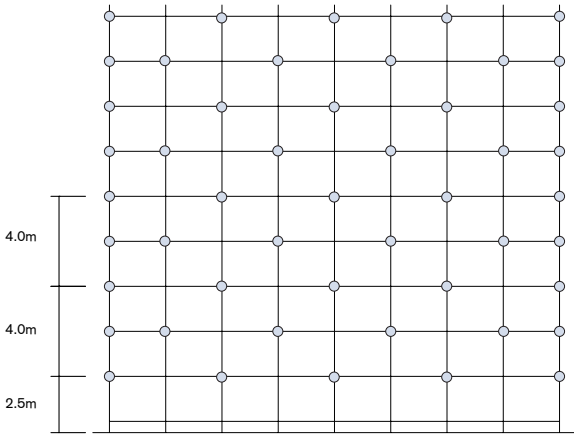


Typical tie patterns

Unsheeted scaffolds

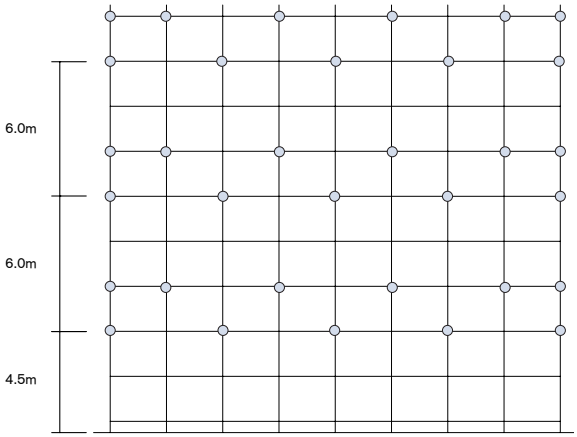
A. CUPLOK® 2.0m lifts - 4m tie pattern
Horizontal spacing - every standard
Vertical spacing - maximum 4.0m

See note for tie pattern C but Horizontal 7.5m
Vertical 8.0m

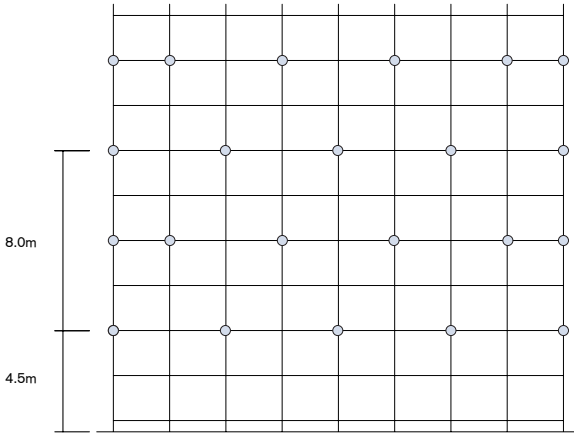


B. CUPLOK 2.0m lifts - 6m tie pattern
Horizontal spacing - every standard
Vertical spacing - maximum 6.0m

See note for tie pattern C but Horizontal 7.5m
Vertical 10.0m



C. CUPLOK 2.0m lifts - 8m tie pattern
Horizontal spacing - every standard
Vertical spacing - maximum 8.0m



All bracing removed for clarity.

In all cases if ties cannot be positioned in the correct place or have to be moved, then bracing has to be used between adjacent ties. If this is built using plan bracing, the maximum horizontal distance between ties is 7.5m. If built using ledger bracing the maximum vertical distance between ties is 12m.

CUPLOK®

Curved and circular access

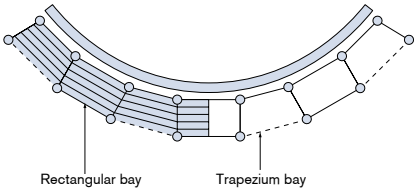
Unsheeted scaffolds

CUPLOK®'s ability to allow ledgers to lock into the verticals from any angle means that the system is ideally suited to curved and circular structures. With simple variations to the normal arrangement of ledgers and transoms, both internal and external curves can be created.

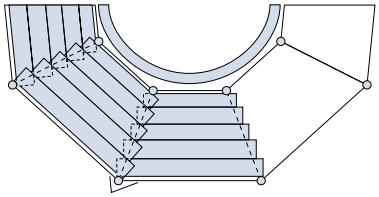
Make-up of a curved scaffold

Curved structures are made up by using a combination of rectangular and trapezium shaped bays - depending on the radius of curve required. Trapezium shaped bays incorporate inside and outside ledgers of different length. Intermediate transoms cannot be used in trapezium sections, therefore these bays should always be constructed using short ledgers to remove the need for additional board support. If larger trapezium bays are inevitable, thicker boards should be used or tube and fittings intermediate transoms used.

Type A - using a combination of rectangular and trapezium shaped bays



Type B - using only trapezium shaped bays



Layout of ledgers and transoms

As no two ledgers or transoms can be fitted into the same cup at less than 90° to each other, on curved structures the inside ledgers, outside ledgers and transoms cannot all be situated at the same level.

On external scaffolds it is quite simple to locate the outside run of ledgers above the deck level to form the handrails (see diagram).

On internal scaffolds, the most convenient method is to move the inner ledgers down by 0.5m in alternate bays (see diagram).

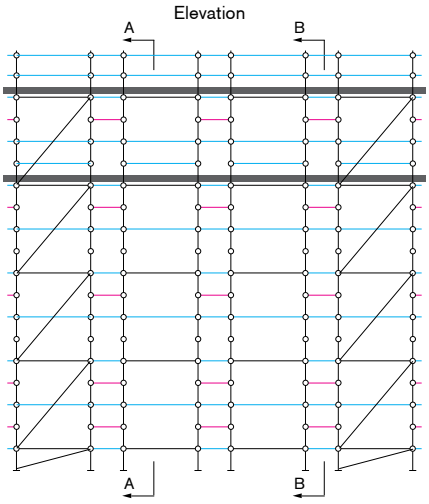
Decking on circular structures

The work platform can be created using scaffold boards or battens.

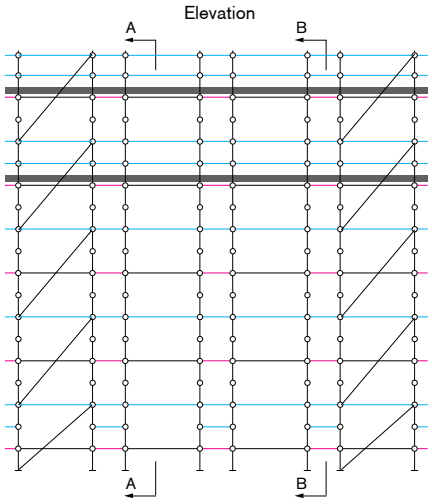
If battens are used in the trapezium bays they must be accurately cut to fit without any movement. To create a continuous working deck using scaffold boards, some overlapping is inevitable. To avoid creating safety hazards, please observe the following procedures:

- All boards should be laid in line with the run of the scaffold
- If rectangular bays with intermediate transoms are used the boards over these bays must form the lower of the two layers
- The overlapping boards of the upper layer should, ideally, be cut to give a neat edge and fillet pieces should be nailed across the ends of the overlapping boards to prevent a trip hazard.

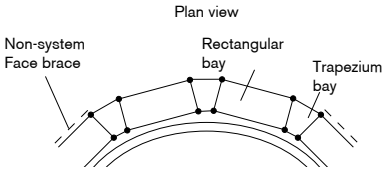
CUPLOK® circular scaffolds inside the structure (internal)

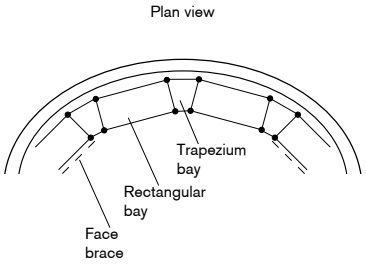


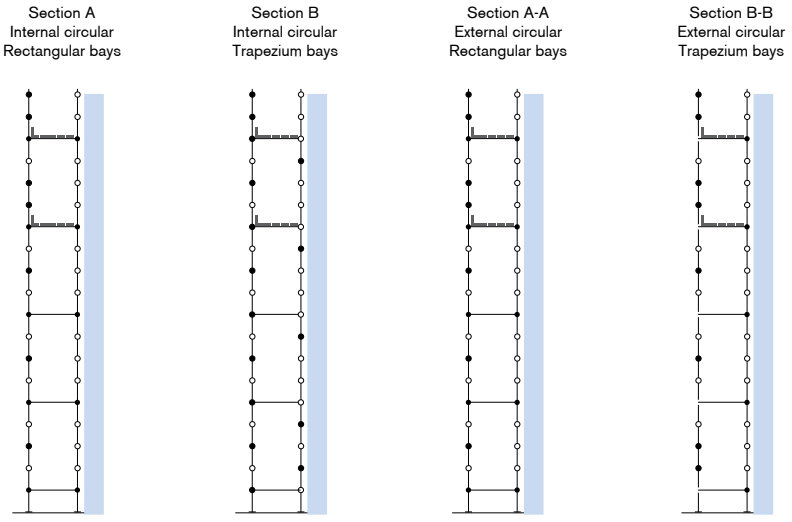
CUPLOK circular scaffolds outside the structure (external)



Inside horizontal
Outside horizontal
Inside & Outside horizontal







• Cup with horizontal
◦ Cup without horizontal

Tying in
When tying in circular CUPLOK® structures, care should be taken to note the following points:

- Ties should be within 300mm of a node point, either on the ledgers or the verticals
- Ties should connect to both the inside and the outside ledgers (or verticals). If ties are only connected to an inside ledger or vertical, then plan braces should be put in at every tied level in the same bays as the face bracing
- If ties have to be removed for any reason, plan bracing or ledger bracing should be installed to reach adjacent ties.

Scaffolds should not extend more than two lifts above the ground or above the last tied level, unless the scaffold is under construction when three lifts are allowed. If the working platform is two lifts above the last tie, ledger bracing should be used in the two lifts below the platform. This may be removed when further ties have been positioned.

Face bracing
Face bracing is required over the full height for 1 bay in every 4.

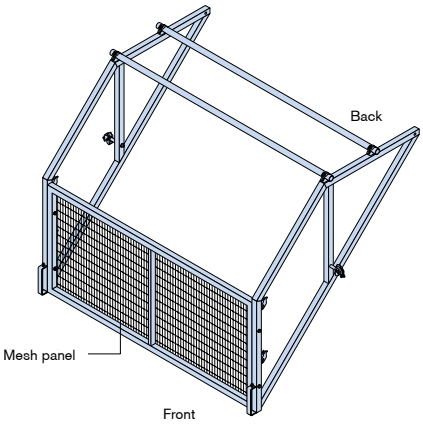
Special cases
Every effort should be made to comply with the rules for ties. However, when it is not possible to secure the tie to the structure, the following rules must be obeyed:

- Refer all special cases to your local branch
- Firmly butt tie tubes to the structure using an adjustable base in the end of the tube to spread the load
- Plan brace every tied level around the complete ring of the scaffold, making sure to put the plan braces in one complete lift at a time.

CUPLOK®

CUPLOK® loading bays incorporate a specially strengthened platform designed to support heavy palletised materials. It features a new up and over, 'flexi-arm' gate which keeps the operator a safe distance from the platform edge. As the gate is raised, a safety barrier is automatically lowered in front of the operator maintaining constant edge protection.

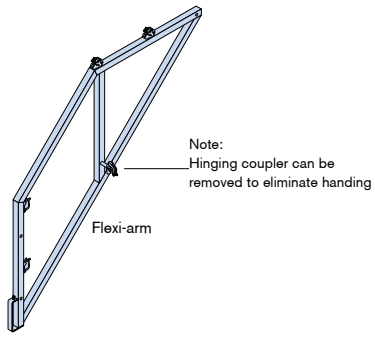
Wider bays can be constructed by substituting the mesh panel for scaffold tubes, a separate toeboard and mesh brickguards to maintain a completely secure edge barrier.



Flexi-arm

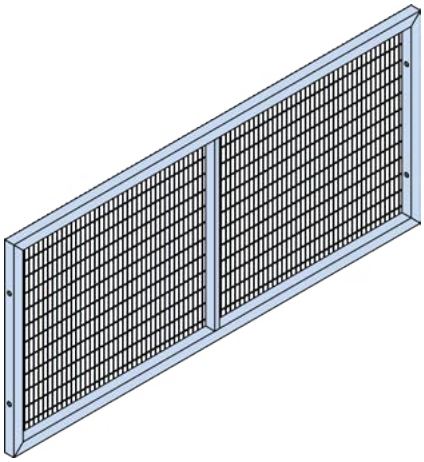
Links the panel to the CUPLOK structure, allowing it to be swung into the overhead position whilst automatically lowering the temporary protection barrier.

Code	Length (mm)	Height (mm)	Weight (kg)
019005	1751	1781	19.1



Mesh panel

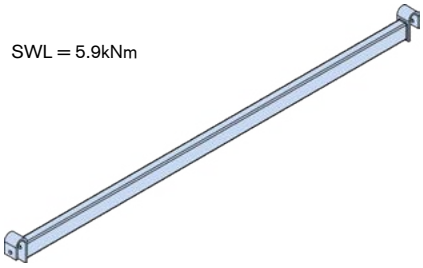
Code	Length (mm)	Height (mm)	Weight (kg)
279244	2500	1000	22.9



Board bearer

Bearers are installed beneath the deck to provide support to the deck and loaded materials. The number of units will be dependent upon the required capacity of the platform.

Code	Length (mm)	Weight (kg)
279040	2500	17.3

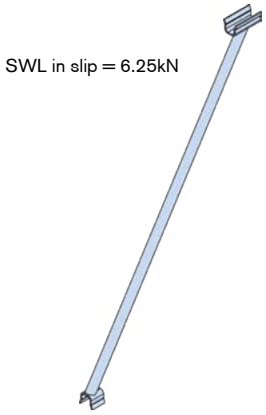


The above data is for individual components. When used on a CUPLOK tower the load limits of supporting members and the span of boards must not be exceeded.

Knee brace

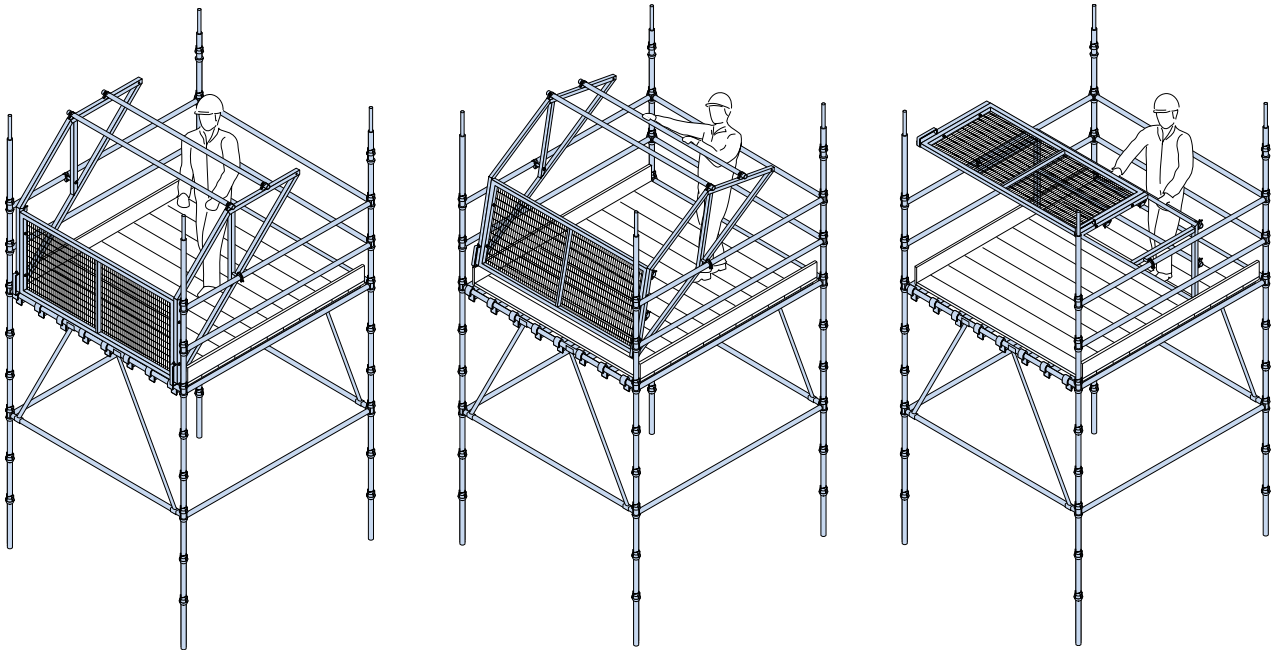
Used to provide extra support to the ledger on which the board bearers rest. Incorporates a half coupler fitting which locates on the ledger 1.5m below the platform and a double half coupler fitting to bolt onto the ledger at platform level.

Code	Length (mm)	Weight (kg)
279260	1.860	8.23



To be used in pairs and on both (opposite) faces of loading towers.

Operating sequence



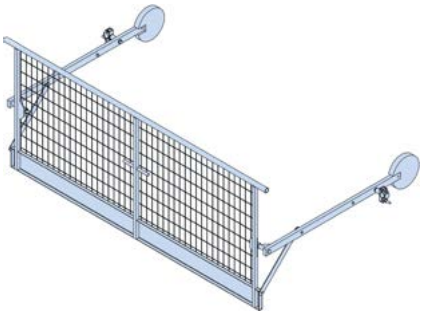
Guardrail
Conventional scaffold tubes span between the flexi-arms to create the inner safety barrier and operating bar. They can also be used to create a front barrier as an alternative to the mesh panel allowing loading bays of different widths to be created.

Mk1 loading bay gate

The Mk1 loading bay gate (2.5m modular length) may still be used during the loading of materials onto the loading bay, and like the flexi-arm provides a continuous guardrail before, during and after loading, ensuring the operator is protected at all times.

Code	Component	Weight (kg)
279447	Loading gate	60
142340	Gate arms (two required)	18*

*each



Lift make-up

The working platform height dictates the design of the tower structure. Lift increments of 1.0, 1.5 or 2m can be employed. The top lift must be 1.5m to accommodate the knee brace.

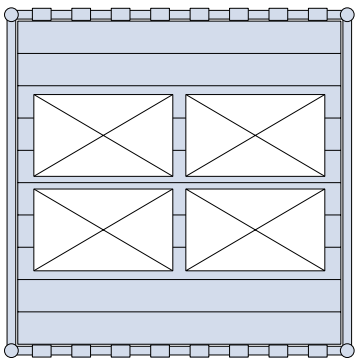
The table below shows the lift make-up for a range of platform heights.

CUPLOK schedule of components and make-up of loading towers (excluding gate options):

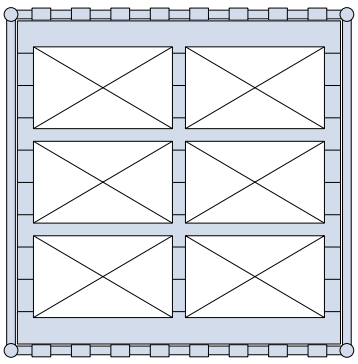
Code	Components	Nominal platform height (using minimum base jack extension) (m)									
		3.2	3.7	4.2	4.7	5.2	5.7	6.2	6.7	7.2	7.5
270200	Vertical 2.0m	4	4	---	---	8	8	4	4	---	---
270300	Vertical 3.0m	4	4	8	8	4	4	8	8	12	12
276205	2.5m x 2.0m face brace	4	---	----	4	8	---	4	8	12	---
276153	2.5m x 1.5m face brace	2	6	10	6	2	14	10	6	2	---
	2.5m x 1.0m face brace	---	---	4	---	---	---	---	---	---	---
271250	2.5m horizontal	18	18	22	22	22	22	26	26	26	26
279260	Knee brace	4	4	4	4	4	4	4	4	4	4
279555	Adjustable base	4	4	4	4	4	4	4	4	4	4
279040	Board bearer	8	8	8	8	8	8	8	8	8	8
279340	Spigot pin	4	4	4	4	4	4	4	4	4	4
279200	Toe board clip	4	4	4	4	4	4	4	4	4	4
274525	2.5m batten	10	10	10	10	10	10	10	10	10	10
274625	2.5m x 2.5m plan brace	2	2	2	2	2	2	2	2	2	2

Laoding

The loading tower has been designed to take a load of up to 49.5kN (4.95 tonnes). Pallets may be placed as shown below.



Four No. 10kN (1 Tonne) pallets



Six No. 8.25kN (0.825 Tonne) pallets

CUPLOK staircase towers provide a safe, user-friendly solution and are quick and simple to erect. Additionally, by speeding the circulation of staff, staircase towers generate significant time savings for everyone on site.

There are four basic staircase options in the CUPLOK® range - from simple, compact units to high capacity, full public access models. All use the basic CUPLOK system to provide the main structure, with a small number of additional staircase components, including a choice of steel and aluminium stair units.

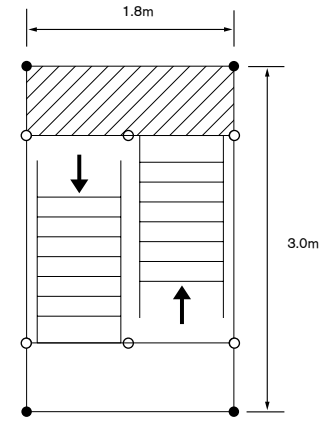
The CUPLOK staircase tower offers a stable, rigid structure designed with a key emphasis on user safety.

- Broad landing platforms with steel or timber battens
- Full hand railing to stairs and landings with double guardrails
- Stairways are rigid and provide firm, non-slip treads to ensure maximum security for users
- The removal of potentially hazardous deck openings normally created by ladder access.

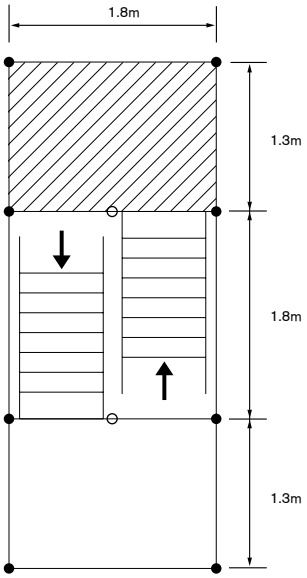
Staircase sizes

CUPLOK staircase towers are based on three plan layouts, using four, eight or ten leg tower structures. Staircase flights are available in steel, aluminium and modular form (separate stringer and tread units), for maximum flexibility. Each staircase type comes in 1.5m or 2m lifts. Different lift sizes may be combined in the same tower to suit platform levels.

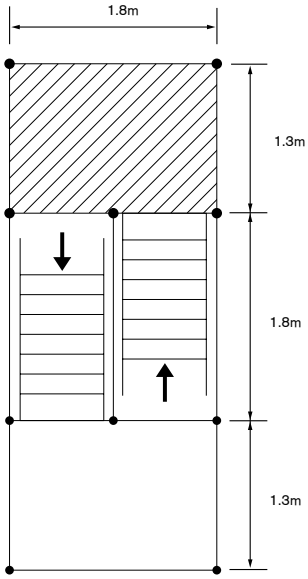
Key:
○ - Post
● - Vertical



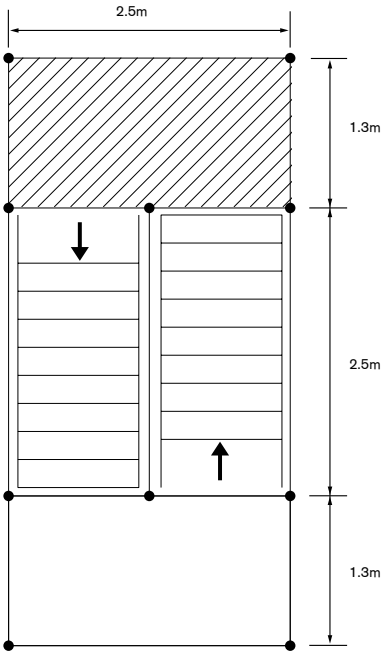
4-leg staircase tower



8-leg staircase tower



10-leg staircase tower

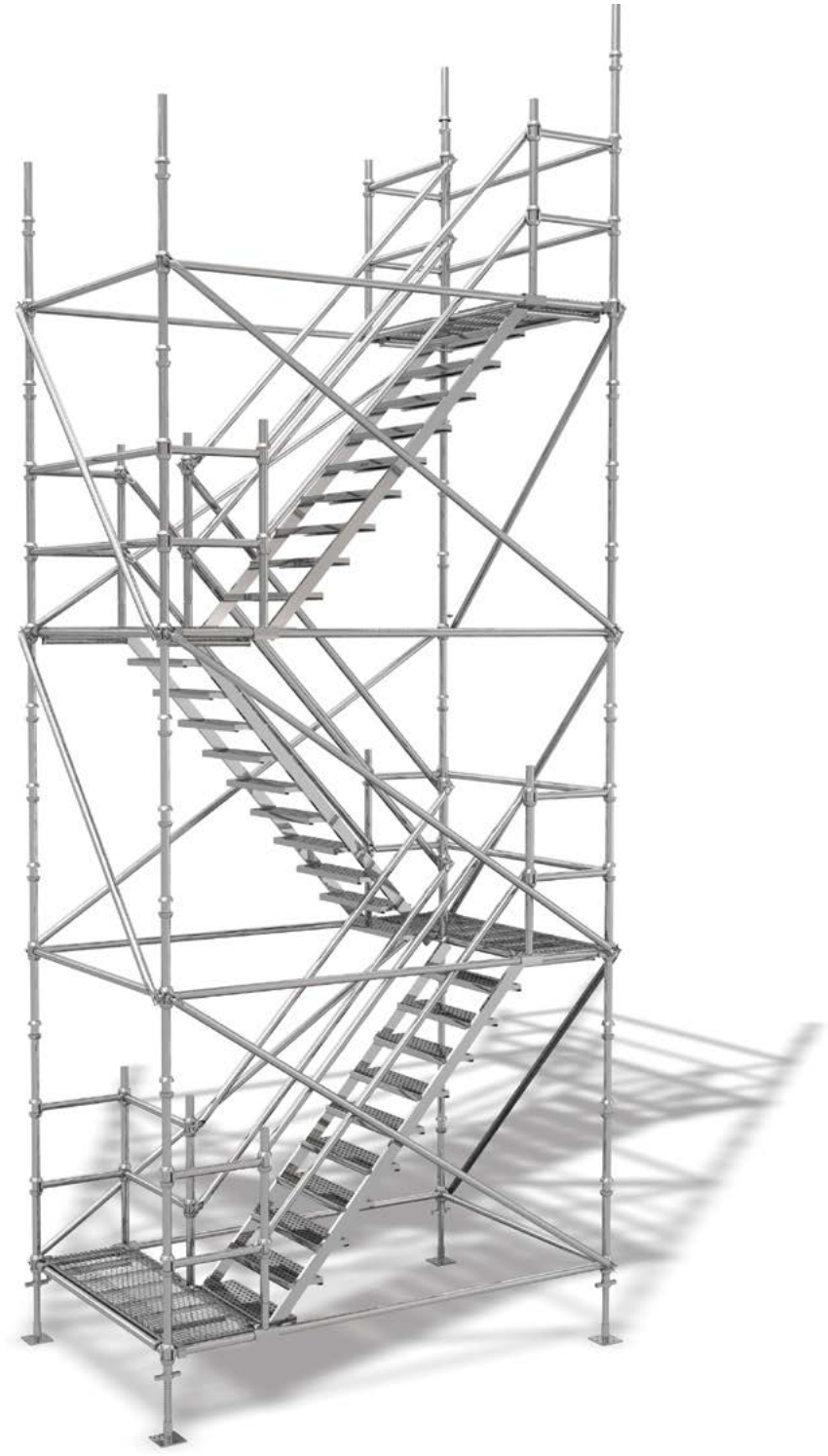


10- leg public access and heavy duty site applications

CUPLOK® 4-leg staircase (1.8m wide) quantity list

Code	Components	Nominal platform height (using minimum base jack extension) (m)																					
		1.5	2.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	9.0	10	11	12	13	14	15	16	17	18
270200	Vertical 2.0m	---	2	4	2	2	2	4	4	4	2		2	4	2	2	4	2	2	4	2	2	4
270300	Vertical 3.0m	4	4	4	6	6	8	8	8	8	10	12	12	12	14	16	16	18	20	20	22	24	24
271060	Horizontal 0.6m	8	8	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
271090	Horizontal 0.9m	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
271180	Horizontal 1.8m	8	8	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
271300	Horizontal 3.0m	4	4	6	6	8	8	8	8	10	10	10	10	12	12	14	14	16	16	18	18	20	20
276150	Face brace 1.5m x 1.8m	2	---	2		6	4	2	---	6	4	2	---	4	---	4	---	4	---	4	---	4	---
276180	Face brace 1.8m x 2.0m	---	6	6	12	---	6	12	18	6	12	18	24	18	30	24	36	30	42	36	48	42	54
276207	Face brace 2.0m x 3.0m	2	2	4	4	6	6	6	6	8	8	8	8	10	10	12	12	14	14	16	16	18	18
279340	Spigot pin		2	4	4	4	6	8	8	8	8	8	10	12	12	14	16	16	18	20	20	22	24
279500	Base and head plate	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
279550	Universal jack	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
279419	Staircase 2.0m x 0.8m (aluminium)	---	1	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279418	Staircase 1.5m x 0.8m (aluminium)	1	---	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279404	Handrail left hand	1	---	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279403	Handrail right hand	1	---	1	3	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279417	Mesh landing platform	2	2	3	3	4	4	4	4	5	5	5	5	6	6	7	7	8	8	9	9	10	10
279244	Handrail post (spigot type)	6	6	9	9	12	12	12	12	15	15	15	15	18	18	21	21	24	24	27	27	30	30
002102	Scaffold superboard 0.6m (2ft)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
002103	Scaffold superboard 0.9m (3ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
002107	Scaffold superboard 2.1m (7ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
004100	DH putlog coupler	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
008400	Guardboard clip 38mm ZCCP	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Weight (kg):		414	504	719	796	855	955	1049	1111	1170	1247	1324	1414	1562	1706	1865	2021	2157	2324	2472	2616	2775	2931
When steel staircase units are used in place of aluminium staircases, the following codes and quantities apply:																							
279420	Staircase 2.0m x 0.8m (steel)	---	1	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279400	Staircase 1.5m x 0.8m (steel)	1	---	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
Weight (kg):		416	495	712	780	860	885	1029	1086	1101	1234	1302	1381	1541	1665	1834	1972	2120	2267	2426	2551	2721	2858

Note: Quants for greater than 18m are available from your local SGB branch.



4-leg staircase tower shown using 2.0m staircase units

4-leg staircase tower

Plan area: 1.8m x 3m

The four leg stair tower is the most compact staircase option.
It employs the fewest components and can therefore be erected faster and in more confined spaces, giving a convenient and economical access solution. It can be built in lift heights of 1.5 or 2m using either aluminium or steel stair units.

Soleboards removed for clarity.

CUPLOK® 8-leg staircase (1.8m wide) quantity list

Code	Components	Nominal platform height (using minimum base jack extension) (m)																						
		1.5	2.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	9.0	10	11	12	13	14	15	16	17	18
270200	Vertical 2.0m	---	4	8	8	4	4	4	8	8	8	4	---	4	8	4	4	8	4	4	8	4	4	8
270300	Vertical 3.0m	8	8	8	8	12	12	16	16	16	16	20	24	24	24	28	32	32	36	40	40	44	48	48
271090	Horizontal 0.9m	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
271130	Horizontal 1.3m	8	8	12	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
271180	Horizontal 1.8m	16	16	24	24	24	32	32	32	32	40	40	40	40	48	48	56	56	64	64	72	72	80	80
276150	Face brace 1.5m x 1.8m	4	---	8	4	---	12	8	4	---	12	8	4	---	8	---	8	---	8	---	8	---	8	---
276180	Face brace 1.8m x 2.0m	---	8	---	8	16	---	8	16	24	8	16	24	32	24	40	32	48	40	56	48	64	56	72
279340	Spigot pin	---	4	8	8	8	8	12	16	16	16	16	16	20	24	24	28	32	32	36	40	40	44	48
279500	Base and head plate	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
279550	Universal jack	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
279380	Staircase guardpost	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	7	7	8	8	9	9	10	10
274517	Steel batten 1.8m	10	10	15	15	15	20	20	20	20	25	25	25	25	30	30	35	35	40	40	45	45	50	50
275130	Omega batten 1.3m	8	8	12	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
279418	Staircase 1.5m x 0.8m (aluminium)	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279419	Staircase 2.0m x 0.8m (aluminium)	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279404	Handrail left hand	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279403	Handrail right hand	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
002103	Scaffold superboard 0.9m (3ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
002105	Scaffold superboard 1.5m (5ft)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
002107	Scaffold superboard 2.1m (7ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
004100	DH putlog coupler	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
008400	Guardboard clip 38mm ZCCP	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Weight (kg):		667	738	1021	1048	1095	1306	1399	1471	1497	1708	1756	1804	1875	2158	2232	2536	2634	2893	3012	3295	3369	3673	3771
When steel staircase units are used in place of aluminium staircases, the following codes and quantities apply:																								
279420	Staircase 2.0m x 0.8m (steel)	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279400	Staircase 1.5m x 0.8m (steel)	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	0	2	---
Weight (kg):		665	782	1018	1089	1182	1302	1439	1555	1627	1747	1839	1932	2048	2284	2448	2705	2893	3105	3314	3550	3714	3972	4159

Note: Quants for greater than 18m are available from your local SGB branch.

8-leg staircase tower shown using 1.5m staircase units

8-leg staircase tower

Plan area: 1.8m x 4.4m

This larger configuration can be built to a height of 38m, subject to ties and loadings. Landing platforms are 1.3m wide and the staircase is 0.8m wide. It can be built in lift heights of 1.5 or 2m and using either aluminium or steel stair units.

The plan module is 4.4m long overall, incorporating a centre bay of 1.8m and two 1.3m landing modules at either end.

Omega transoms are used in conjunction with timber or steel battens to form the landing platforms. The width of the tower is 1.8m. Exit from the tower at upper levels is made from the top landing platform by removing the appropriate guardrail.

Soleboards removed for clarity.

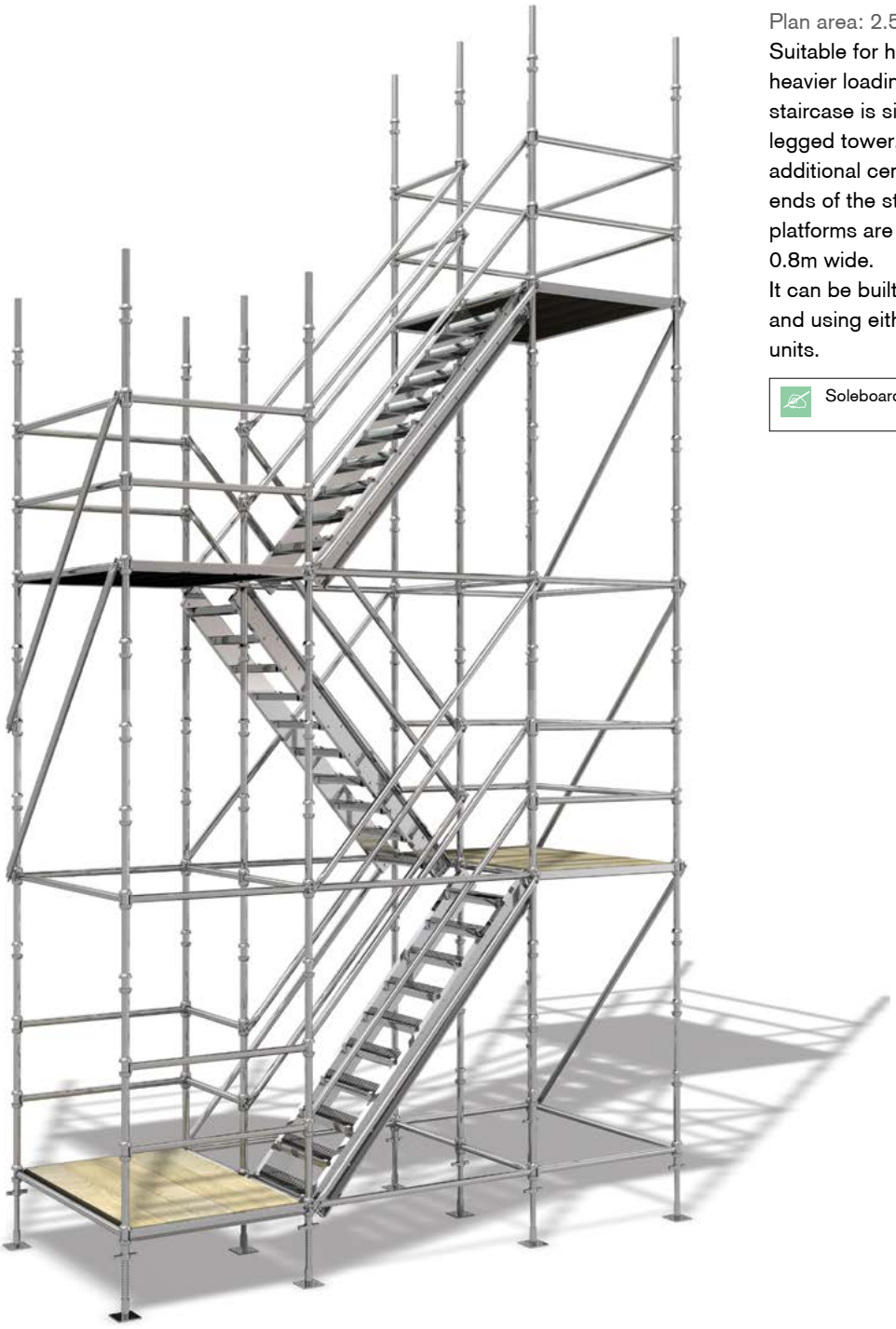
CUPLOK® 10-leg staircase (1.8m wide) quantity list

Code	Components	Nominal platform height (using minimum base jack extension) (m)																						
		1.5	2.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	9.0	10	11	12	13	14	15	16	17	18
270200	Vertical 2.0m	---	5	10	10	5	5	5	10	10	10	5	---	5	10	5	5	10	5	5	10	5	5	10
270300	Vertical 3.0m	10	10	10	10	15	20	20	20	20	20	25	30	30	30	35	40	40	45	50	50	55	60	60
271090	Horizontal 0.9m	12	12	16	16	16	20	20	20	20	24	24	24	24	28	28	32	32	36	36	40	40	44	44
271130	Horizontal 1.3m	8	8	12	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
271180	Horizontal 1.8m	14	14	21	21	21	28	28	28	28	35	35	35	35	42	42	49	49	56	56	63	63	70	70
276150	Face brace 1.5m x 1.8m	4	---	8	4	---	12	8	4	---	12	8	4	---	8	---	8	---	8	---	8	---	8	---
276180	Face brace 1.8m x 2.0m	---	8	---	8	16	---	8	16	24	8	16	24	32	24	40	32	48	40	56	48	64	56	72
279340	Spigot pin	---	5	10	10	10	10	15	20	20	20	20	20	25	30	30	35	40	40	45	50	50	55	60
279500	Base and head plate	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
279550	Universal jack	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
274517	Steel batten 1.8m	10	10	15	15	15	20	20	20	20	25	25	25	25	30	30	35	35	40	40	45	45	50	50
275130	Omega batten 1.3m	8	8	12	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
279418	Staircase 1.5m x 0.8m (aluminium)	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279419	Staircase 2.0m x 0.8m (aluminium)	---	1	---	1	2	---	1	2	---	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279404	Handrail left hand	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279403	Handrail right hand	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
002103	Scaffold superboard 0.9m (3ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
002105	Scaffold superboard 1.5m (5ft)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
002107	Scaffold superboard 2.1m (7ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
004100	DH putlog coupler	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
008400	Guardboard clip 38mm ZCCP	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Weight (kg):		714	796	1091	1118	1171	1383	1492	1575	1601	1813	1866	1919	2002	2297	2376	2697	2807	3072	3208	3502	3582	3903	4012
When steel staircase units are used in place of aluminium staircases, the following codes and quantities apply:																								
279420	Staircase 2.0m x 0.8m (steel)	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279400	Staircase 1.5m x 0.8m (steel)	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
Weight (kg):		712	840	1088	1159	1257	1378	1532	1659	1731	1852	1949	2047	2174	2423	2592	2867	3065	3284	3509	3758	3927	4202	4400

Note: Quants for greater than 18m are available from your local SGB branch.

CUPLOK® 10-leg staircase tower (1.8m wide)

CUPLOK®



10-leg staircase tower shown using 2.0m staircase units

10-leg staircase tower

Plan area: 1.8m x 4.4m

Plan area: 2.5m x 5.1m

Suitable for heights up to 53m and heavier loading requirements, this staircase is similar in layout to the eight legged tower, but incorporates two additional central verticals at the inside ends of the staircase flights. Landing platforms are 1.3m wide, the staircase is 0.8m wide.

It can be built in lift heights of 1.5 or 2m and using either aluminium or steel stair units.

Soleboards removed for clarity.

CUPLOK® 10-leg staircase (2.5m wide) quantity list

Code	Components	Nominal platform height (using minimum base jack extension) (m)																						
		1.5	2.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	9.0	10	11	12	13	14	15	16	17	18
270200	Vertical 2.0m	---	5	10	10	5	5	5	10	10	10	5	---	5	10	5	5	10	5	5	10	5	5	10
270300	Vertical 3.0m	10	10	10	10	15	20	20	20	20	20	25	30	30	30	35	40	40	45	50	50	55	60	60
271127	Horizontal 1.25m	12	12	16	16	16	20	20	20	20	24	24	24	24	28	28	32	32	36	36	40	40	44	44
271130	Horizontal 1.3m	8	8	12	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
271250	Horizontal 2.5m	14	14	21	21	21	28	28	28	28	35	35	10	35	42	42	49	49	56	56	63	63	70	70
276153	Face brace 2.5m x 1.5m	4	---	8	4	---	12	8	4	---	12	8	4	---	8	---	8	---	8	---	8	---	8	---
276203	Face brace 2.5m x 2.0m	---	8	---	8	16	---	8	16	24	8	16	24	32	24	40	32	48	40	56	48	64	56	72
279340	Spigot pin	---	5	10	10	10	10	15	20	20	20	20	20	25	30	30	35	40	40	45	50	50	55	60
279500	Base and head plate	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
279550	Universal jack	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
274525	Steel batten 2.5m	10	10	15	15	15	20	20	20	20	25	25	25	25	30	30	35	35	40	40	45	45	50	50
275130	Omega transom 1.3m	8	8	12	12	12	16	16	16	16	20	20	20	20	24	24	28	28	32	32	36	36	40	40
279370	PA 2.0m staircase	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279791	Modular stair LH stile ass. 2.0m x2.5m	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279790	Modular stair RH stile ass. 2.0m x2.5m	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6	5	7	6	8	7	9
279369	PA 1.5m staircase	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279797	Modular stair LH stile ass. 1.5m x2.5m	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279796	Modular stair RH stile ass. 1.5m x2.5m	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279795	Modular treads 1.04m	10	10	20	20	20	30	30	30	30	40	40	40	40	50	50	60	60	70	70	80	80	90	90
279807	Handrail left hand 1.5m	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
279806	Handrail right hand 1.5m	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---	2	---	2	---	2	---
002105	Scaffold superboard 1.5m (5ft)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3
002110	Scaffold superboard 3.1m (10ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
004100	DH putlog coupler	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
008400	Guardboard clip 38mm ZCCP	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Weight (kg) using alu PA staircases:		829	954	1270	1339	1434	1625	1777	1902	1970	2162	2257	2352	2477	2793	2956	3493	3779	3779	3999	4315	4479	4822	5015
Weight (kg) using modular staircases:		916	1003	1443	1474	1531	1884	1998	2085	2116	2469	2526	2583	2670	3111	3199	3666	3781	4194	4338	4779	4867	5333	5456

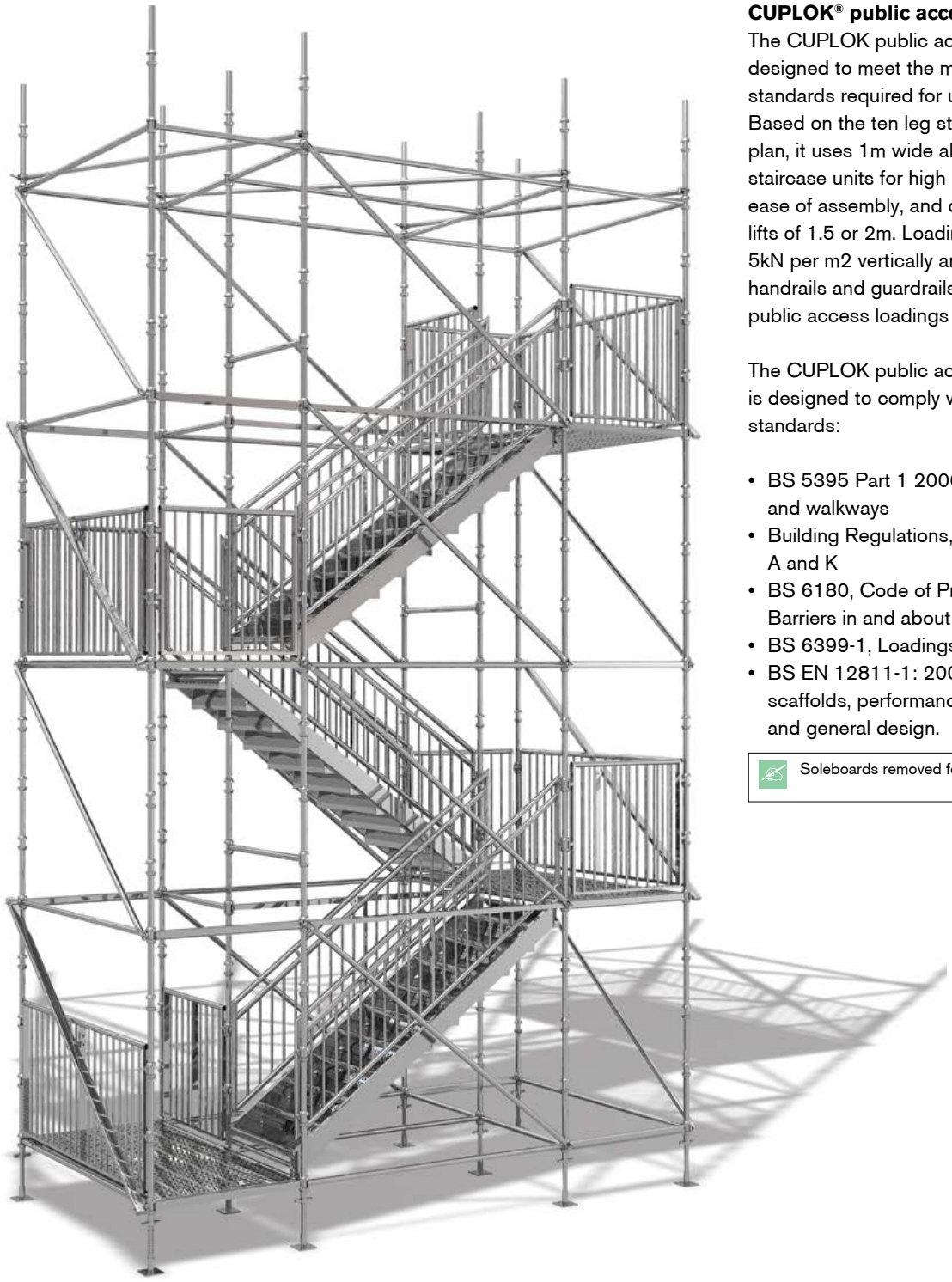
Note: Quants for greater than 18m are available from your local SGB branch.

CUPLOK® 10-leg staircase tower (2.5m wide)

CUPLOK®

CUPLOK® 10-leg staircase public access quantity list

Code	Components	Nominal platform height (using minimum base jack extension) (m)																
		1.5	2.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	9.0	10	11	12
270200	Vertical 2.0m	10	10	10	---	---	10	10	10	10	---	---	10	10	10	---	10	10
270300	Vertical 3.0m	10	10	10	20	20	20	20	20	20	30	30	30	30	30	40	40	40
271127	Horizontal 1.25m	12	12	16	16	16	20	20	20	20	24	24	24	24	28	28	32	32
271250	Horizontal 2.5m	13	13	16	16	16	19	19	19	19	22	22	22	22	25	25	28	28
276153	Face brace 2.5m x 1.5m	6	---	9	6	---	12	9	6	---	12	9	6	---	9	---	9	---
276203	Face brace 2.5m x 2.0m	---	6	---	3	---	---	3	6	12	3	6	9	15	9	18	12	21
279340	Spigot pin	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
279500	Base and head plate	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
279550	Universal jack	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
274525	Steel batten 2.5m	10	10	15	15	15	20	20	20	20	25	25	25	25	30	30	35	35
275130	Omega transom 1.3m	12	12	16	16	16	20	20	20	20	24	24	24	24	28	28	32	32
279372	PA guardrail unit 1.25m	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
279373	PA landing guardrail support	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	7	7
279374	PA guardrail unit 1.3m	4	4	6	6	6	8	8	8	8	10	10	10	10	12	12	14	14
279375	PA RHS ledger 2.5m	2	2	4	4	4	6	6	6	6	8	8	8	8	10	10	12	12
279376	PA guardrail unit 2.5m	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	7	7
279377	PA staircase handrail 2.0m RH	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6
279378	PA staircase handrail 2.0m LH	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6
279370	PA staircase 2.0m (1.0m wide aluminium)	---	1	---	1	2	---	1	2	3	1	2	3	4	3	5	4	6
279366	PA staircase handrail 1.5m RH	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---
279367	PA staircase handrail 1.5m LH	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---
279369	PA staircase 1.5m (1.0m wide aluminium)	1	---	2	1	---	3	2	1	---	3	2	1	---	2	---	2	---
001210	Galvanised tube 3.1m (10ft)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
001212	Galvanised tube 3.7m (12ft)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
006200	Pressed swivel coupler	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Weight (kg):		1217	1238	1644	1711	1732	2236	2250	2264	2285	2730	2744	2870	2891	3297	3385	3903	3938



Public access staircase

CUPLOK® public access staircase
The CUPLOK public access staircase is designed to meet the more demanding standards required for use by the public. Based on the ten leg staircase tower plan, it uses 1m wide aluminium staircase units for high capacity and ease of assembly, and can be built in lifts of 1.5 or 2m. Loadings can be up to 5kN per m2 vertically and 3kN per m on handrails and guardrails. Max. height for public access loadings = 12m.

The CUPLOK public access staircase is designed to comply with the following standards:

- BS 5395 Part 1 2000, stairs, ladders and walkways
- Building Regulations, documents A and K
- BS 6180, Code of Practice for Barriers in and about Buildings
- BS 6399-1, Loadings on Buildings
- BS EN 12811-1: 2003: Part 1 scaffolds, performance requirements and general design.

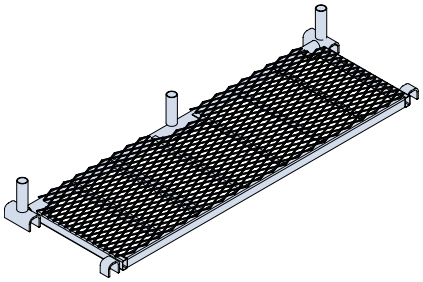
Soleboards removed for clarity.

Staircase components

Mesh landing platform

A complete landing platform for use on four leg staircase towers. Slots over horizontals and provides support for the staircase unit and guardrail posts.

Code	Length (m)	Weight (kg)
279417	1.8	32.0

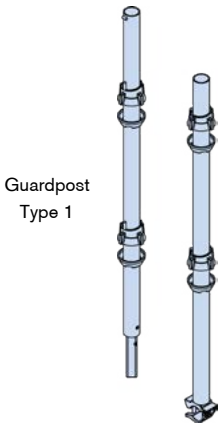


Staircase guardpost/handrail post

Type 1: standard Cuplok® handrail post used on the four leg staircase where it locates within the sockets on the mesh landing unit.

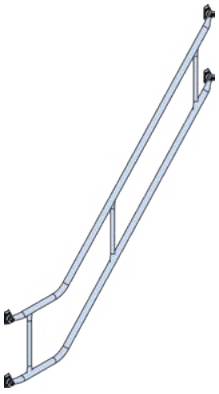
Type 2: fitted at the top and bottom of each flight to provide support for inner stair guardrails. Incorporates a half coupler fitting at the base to secure it to the ledgers and two cup joints to receive the swivel blades on the handrails. Used on eight leg towers only.

Code	Overall Length (m)	Weight (kg)
279211 Type 1	1.23	7.2
279380 Type 2	1.15	4.9



Steel staircase handrail: 1.8m x 1.5m lift

Code		Weight (kg)
279404	Left hand	14.2
279403	Right hand	14.2



Steel staircase unit

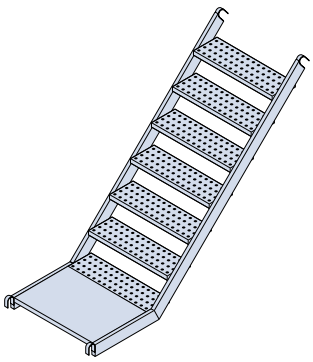
Available in two sizes, each staircase incorporates steel stiles for maximum rigidity and steel treads giving a firm, slip-resistant step.

Steel staircase:
1.8m bay x 2m lift

Code	Height (m)	Weight (kg)
279420	2.0	73.0

Steel staircase:
1.8m bay x 1.5m lift

Code	Height (m)	Weight (kg)
279400	1.5	55.0

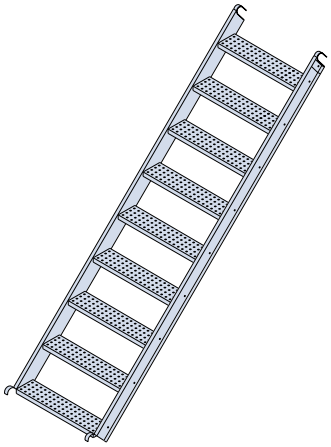


The 1.5m unit incorporates a small plywood landing at the base of the flight.

Aluminium staircase unit
Staircase flights to the same dimensions as the steel stairs, but approximately half the weight for ease of handling.

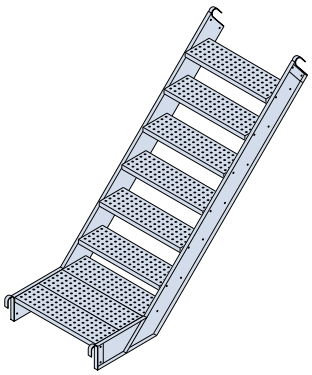
Aluminium staircase:
1.8m bay x 2m lift

Code	Height (m)	Weight (kg)
279419	2.0	30.0



Aluminium staircase:
1.8m bay x 1.5m lift

Code	Height (m)	Weight (kg)
279418	1.5	28.0

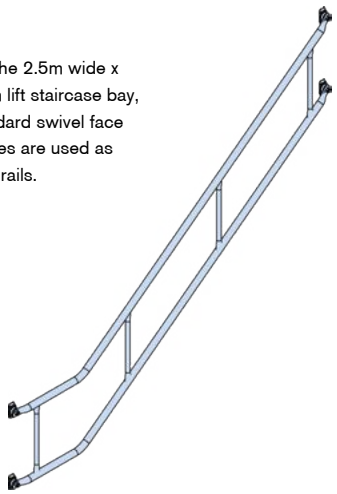


Modular staircase components
Separate stile and tread units which are assembled on site. Individual elements are lighter and less cumbersome making handling and erection easier.

Modular staircase handrail:
2.5m bay x 1.5m lift

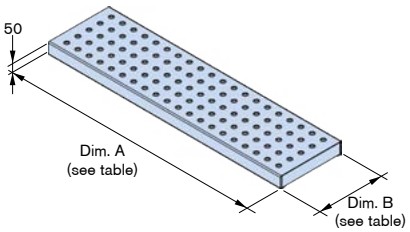
Code		Weight (kg)
279807	Left hand	17.4
279806	Right hand	17.4

For the 2.5m wide x 2.0m lift staircase bay, standard swivel face braces are used as handrails.



Modular staircase treads

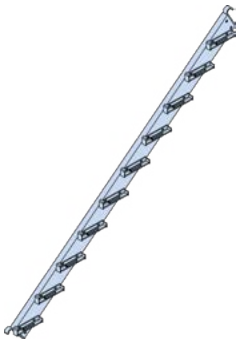
Code	Bay Width (mm)	Weight (kg)
279794	Type A 900	4.0
279785	Type A 1200	6.0
279798	Type B 900	11.1



Type		Dim. A (mm)	Dim B (mm)
A	900	690	275
A	1200	1040	275
B	900	690	215

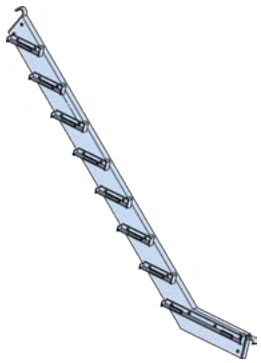
Modular staircase stile assembly:
2.5m bay x 2.0m lift

Code		Weight (kg)
279791	Left hand	32.0
279790	Right hand	32.0



Modular staircase stile assembly:
2.5m bay x 1.5m lift

Code		Weight (kg)
279797	Left hand	30.0
279795	Right hand	30.0

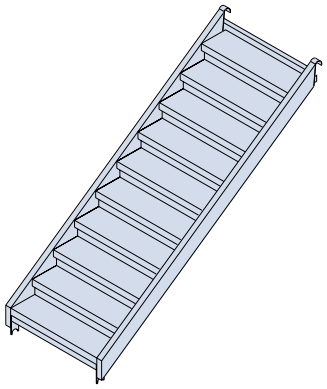


Staircase components

CUPLOK® public access staircase components

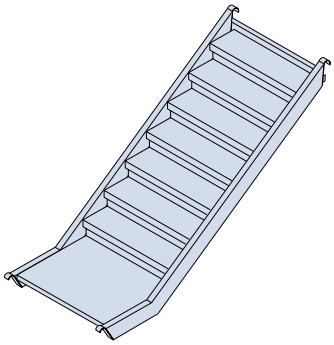
Public access aluminium staircase:
2.5m bay x 2m lift

Code	Weight (kg)
279370	75.3



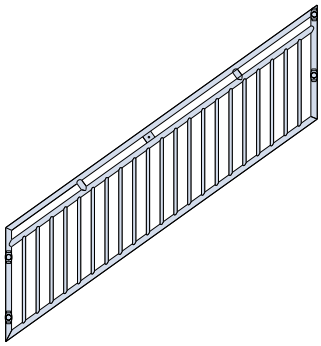
Aluminium staircase:
2.5m bay x 1.5m lift

Code	Weight (kg)
279369	67.0



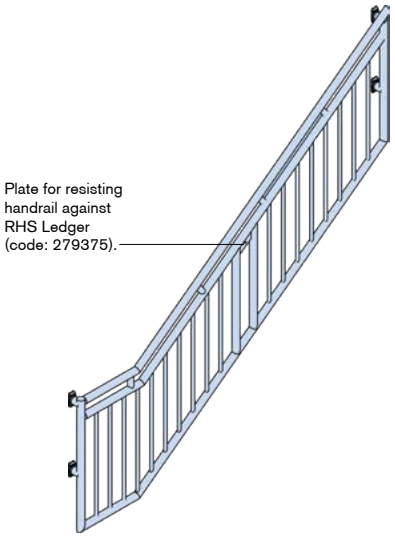
Handrail:
2.5m bay x 2.0m lift

Code		Weight (kg)
279378	Left hand	20.4
279377	Right hand	20.4



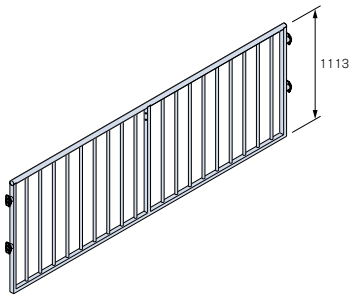
Handrail:
2.5m bay x 1.5m lift

Code		Weight (kg)
279367	Left hand	20.8
279366	Right hand	20.8



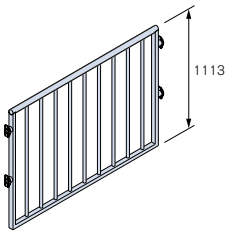
Landing guardrail:
2.5m

Code	Weight (kg)
279376	39.7



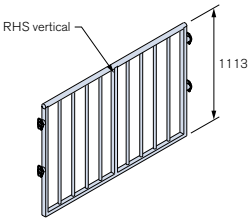
Landing guardrail:
1.3m

Code	Weight (kg)
279374	22.5



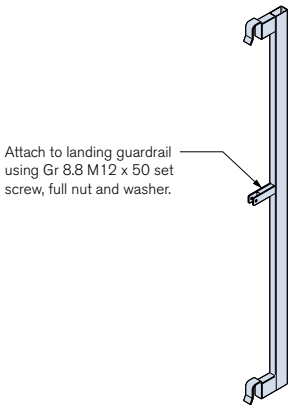
Landing guardrail:
1.25m

Code	Weight (kg)
279372	24.3



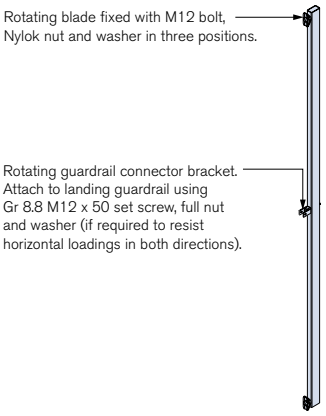
2.5m landing guardrail reinforcing member (Mk 1) to landing guardrail support (Mk 1)

Code	Weight (kg)
279373	15.0



2.5m landing guardrail reinforcing member (Mk 2) to landing guardrail support (Mk 2)

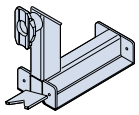
Code	Weight (kg)
279373	19.0



Step bracket – 182mm rise

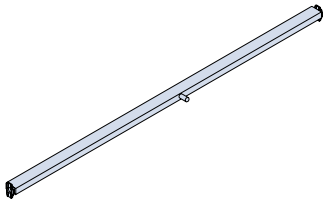
Used at the base of the tower to support a single platform tread where the height of the base of the platform exceeds a comfortable step height.

Code	Weight (kg)
279801	3.45



RHS ledger with handrail fixing point

Code	Length (m)	Weight (kg)
279375	2.5	13.1



Staircase loadings and maximum heights

Unsheeted towers

Permissible height, loading and tying of staircase towers

SGB recommends two tying and bracing options as shown right.
Ties must always be rigid and carry loads in two horizontally perpendicular directions.
The maximum distance of a tie to the nearest node point must not exceed 300mm and the staircase tower must not extend more than 4m above the last tied level when in use.

For full information on non-standard types of tower construction, tie patterns or loading cases, please contact your local branch.
The permissible heights of staircase towers under various loading conditions are shown right.

	4 leg*	8 leg	10 leg	10 leg public access
Weight per lift	Bottom lift: 242kg	2m lift: 448kg	2m lift: 472kg	average per lift: 315kg
	Middle lift: 188kg	1.5m base lift: 270kg	1.5m base lift: 293kg	
	Top lift: 225kg	(with no guardrails)	(with no guardrails)	
Max. height and load duty	40m loaded to 200kg per lift	33m loaded to 75kg/m² per lift (ties 8m) 23m loaded to 150kg/m² per lift (ties 8m) 38m loaded to 200kg/m² per lift (ties 8m)	45m loaded to 75kg/m² per lift (ties 8m) 32m loaded to 150kg/m² per lift (ties 8m) 53m loaded to 200kg/m² per lift (ties 8m)	12m loaded to 5kN/m² vertically and 3kN per m run horizontally. Plan brace at top (ties 6m)
Stair width	535mm	750mm	750mm	1000mm
Tie spacing	8m vertically	4 or 8m vertically	4 or 8m vertically	6m vertically

*For details see SGB data sheets.

Guidance notes

Staircase tower type		Permissible height of tower (m)					
No. of legs	Main dimensions of tower (m)	UDL load 75kg/m² on staircase and on boarded platforms		UDL load 150kg/m² on staircase and on boarded platforms		Total load 100kg per staircase and per loading platform	
		Tie pattern 1	Tie pattern 2	Tie pattern 1	Tie pattern 2	Tie pattern 1	Tie pattern 2
		4m	8m	4m	8m	4m	8m
4	1.8 x 3.0	38	36	28	26	38	36
8	1.8 x 4.4	20	33	14	23	23	38
10	1.8 x 4.4	27	45	19	32	32	53

1. Two tie platforms are shown. The staircase units act as both plan braces and diagonal braces. If any staircase unit has to be omitted this has to be replaced by additional plan and diagonal bracing.
2. Ties must be rigid and must carry loads in all four horizontal directions. The maximum distance of a tie to the nearest node point must not exceed 300mm. The staircase tower must not extend more than 4.0m above the last tied level when in use.
3. The permissible heights of the staircase towers are shown in the table above for various loading cases. For other types of construction, tie patterns or loading cases, contact your local design office.
4. The permissible height of the tower is calculated for the following load cases:

   a) A uniformly distributed load on staircases and on boarded platforms:
   (i) 75kg/m²
   (ii) 150kg/m²

   b) A total load of 100kg per staircase and per boarded platform. This is approximately equivalent to one person plus light tools, per metre of staircase height.
5. All platforms to have double guardrails .
6. Double guardrails parallel to the stairway on both sides must be used.
7. Toeboards can be extended onto the landing at the junction with the working platform.

Materials
Structure material = Steel
Staircase material = Aluminum

Jack extension
Maximum jack extension for above case without jack bracing = 310mm

Tie positions of the structure
Structure to be tied every 6m vertically in 4 No. positions i.e. at each leg as shown and at the top of the structure.

Plan bracing
Plan bracing is required every 12m vertically and at the top of the structure.

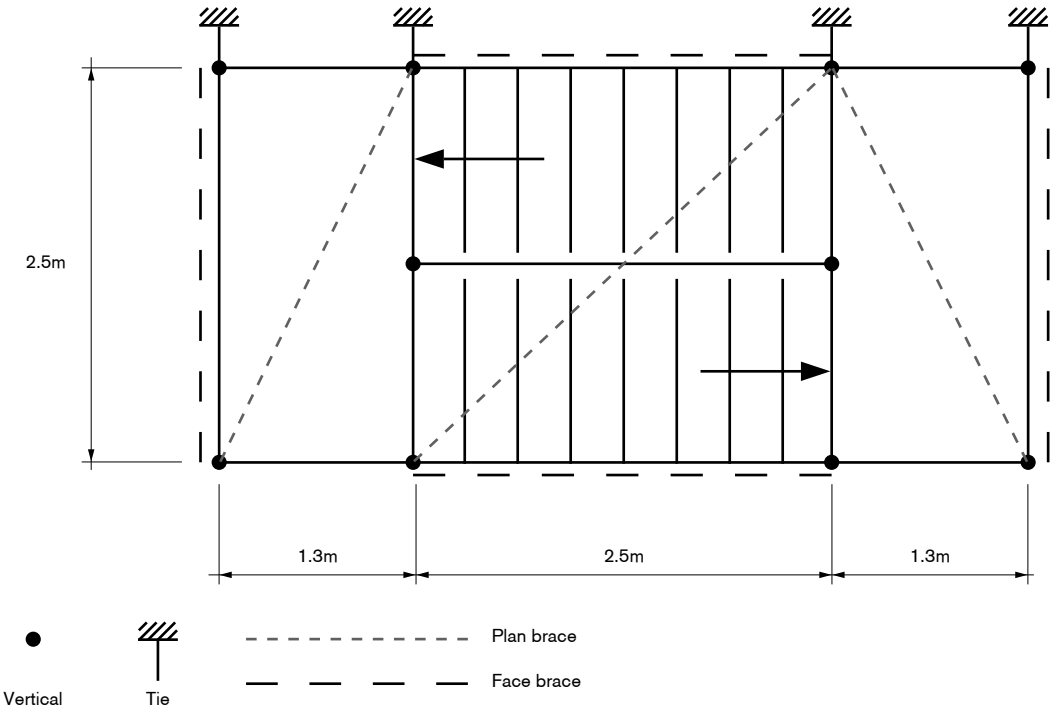
2.5m x 5.1m Staircase tower

Vertical Load	Horizontal load	Maximum height of staircase to top landing	Overall height of staircase	Maximum axial tie load	Maximum shear tie load
(kN/m²)	(kN/m²)	(m)	(m)	(kN per tie)	(kN per tie)
1.0	0.2	60	62	9.9	7.8
1.5	0.7	46	48	9.7	7.7
2.0	1.0	35	37	9.3	7.4
2.5	1.2	29	31	9.1	7.2
3.0	1.5	24	26	8.8	6.9
3.5	1.7	21	23	8.5	6.7
4.0	2.1	18	20	8.4	6.6
4.5	2.5	15	17	8.1	6.5
5.0*	3.0*	12	14	6.5	5.1

*Public access load requirements

The above are for unsheeted structures.

Top of the structure
The top of the structure should be boxed in and plans braced i.e. 2m above the top landing include all ledgers, transoms and bracing.



CUPLOK®

Square or rectangular access towers can be erected with standard CUPLOK® components using standard jacks and base plates or CUPLOK castor wheels for full mobility. The working platform can be formed using either scaffold boards or battens. When scaffold boards are used, intermediate transoms will be necessary if the width of the tower is greater than the safe span of the boards. If battens are used with Omega transoms, intermediate board support is not required (depending on loading).

The maximum height of a free-standing mobile tower for use internally is 3.5 times the minimum base dimension. For free-standing towers used externally, the maximum height must not exceed 3 times the minimum base dimension. For heights greater than this, additional measures should be taken to ensure the tower is rigid and stable. This can be done by using stabilisers, weighting the base of the tower or tying the tower in to a stable structure.

Bracing
All towers must be fully braced on all four sides and should be adequately plan braced.

Access
The use of the safety gate and swan-necked standard provide a safe means of access to and from the main tower platform. This is facilitated by the inclusion of a ladder bay adjacent to the main working platform. The ladder must be of suitable standard (i.e. for industrial use) and should be secured at every level of the tower.

Maximum working load
The maximum working load on all towers is 10kN (1 tonne) evenly distributed over the deck. All mobile towers with a working platform above 5.9m should be erected on steel castor wheels.

Castor wheels must be locked before the tower is used and the tower must never be moved with personnel or materials on it.

Castor capacity should always be checked prior to any build.

CUPLOK® is widely used for falsework support structures. Its high leg load capacity and wide range of components gives the system the capacity to tackle virtually any soffit support application with a cost-effective solution. For formwork support, a wide number of grid variations can be created to suit differing load requirements and decking systems.

Benefits

The key advantages of CUPLOK over traditional scaffolding for support structures are:

- High leg load up to maximum of 74kN*
- Unique node point – four connections in one action
- Quick erection and systemised bracing
- 20% lighter than traditional scaffolding.

Associated components

DU-AL™ aluminium beam

Complementing CUPLOK in the creation of falsework support structures is SGB's DU-AL™ aluminium beam system. Its high strength and low weight make it easy to handle and quick to erect.
The DU-AL™ system includes three beam profiles. In each case they are supported in forkheads mounted on the CUPLOK verticals and fastened in place with a quick-fixing clamp.

EXTRAGUARD™ edge protection

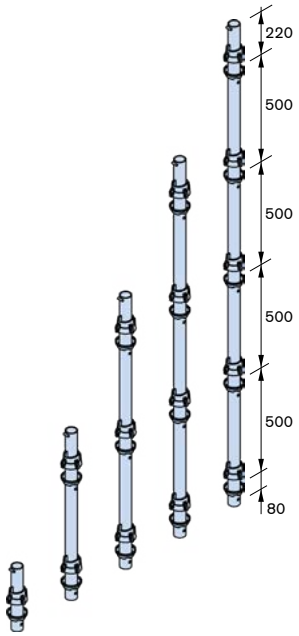
Mesh barrier panels which clamp on to the DU-AL™ beam to provide edge protection to the formwork deck. Powder coated, the panels also incorporate an integral toeboard.

* Can be achieved under certain circumstances.

Support verticals

Support verticals differ from access verticals by having no spigot at the head. This allows for the insertion of jacks which provide adjustable support beneath the soffit. Support verticals are available in five sizes and are used in conjunction with 1m, 2m and 3m access verticals to cover all soffit heights.

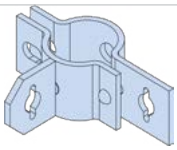
Code	Length (m)	Weight (kg)
270043	0.4	2.4
270083	0.8	4.1
270133	1.3	6.6
270183	1.8	9.1
270233	2.3	11.6



Bracing coupler

Locates on the base and head plates, forkheads and adaptors (tightened with a butterfly nut) to allow the use of system jack braces.

Code	Weight (kg)
279740	0.8

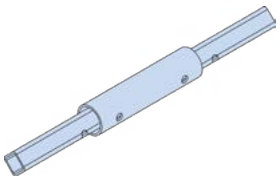


Spigot converter

NL FR

200mm extension piece designed to convert open-ended support verticals for use in any position in all CUPLOK structures. Facility to insert standard spigot pin for captivation. Also used to adapt scaffold lifts to building floor heights of 2.7m.

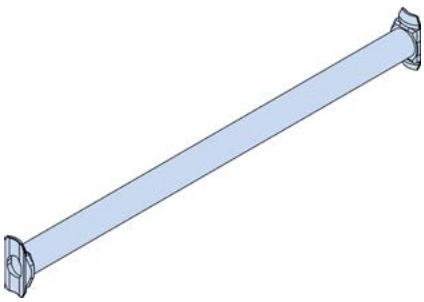
Code	Description	Weight (kg)
340110	Spigot converter	1.9



Ledgers (horizontals)

Eight common sizes of support ledger, all with symmetrical blade ends, allow a huge range of grid layouts to be constructed.

Code	Length (m)	Weight (kg)
271060	0.6	2.7
271090	0.9	3.8
271100	1.0	4.1
271120	1.2	4.8
271130	1.3	4.9
271160	1.6	6.3
271180	1.8	6.9
271250	2.5	9.5

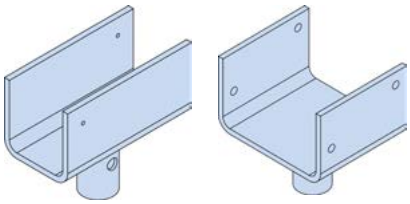


CUPLOK® support components

Forkheads

Designed to hold aluminium, steel or traditional timber beams. Forkheads are used in conjunction with the universal jack to give height adjustment. Nail holes are provided to allow timber beams to be secured in place.

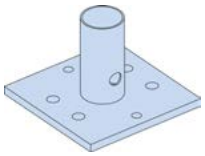
Code	Size (mm)	Weight (kg)
279650	200 x 86	3.9
279653	150 x 162	3.7
279657	200 x 186	5.2



Base and head plate

The base and head plate is used with all SGB decking and support systems. Used at the bottom and the top of the structure, it locates over the universal jack. When used as a head plate it is bolted to dropheads.

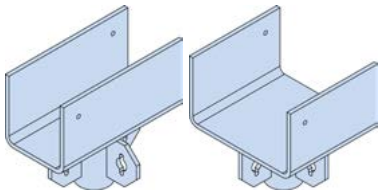
Code	Size (mm)	Height (mm)	Weight (kg)
279500	152 x 152	100	2.3



Bracing forkhead

Fixed forkheads, which incorporate locating lugs to accept jack braces eliminate the need for bracing couplers give the structure extra strength and rigidity.

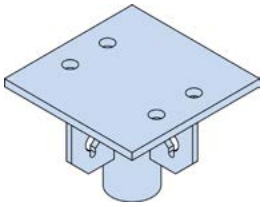
Code	Description	Size (mm)	Weight (kg)
279676	75mm	200 x 86	4.2
279681	150mm	150 x 162	4.0



Bracing base and head plate

A base and head plate which incorporates lugs to accept jack braces.

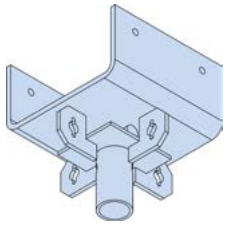
Code	Size (mm)	Height (mm)	Weight (kg)
279510	150 x 150	100	2.4



Rocking forkhead

Forkheads for supporting slabs with slopes in one or two directions. Secondary sloping is achieved by rotating the small handles on the socket at the bottom of the forkhead. Incorporates a facility for jack bracing. See page 85 for maximum permitted slopes for formwork.

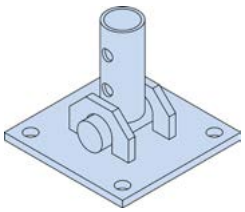
Code	Size (mm)	Weight (kg)
279686	200 x 186	6.9



Swivel base plate

To support standards on sloping ground to a maximum of 60° from the horizontal. It should always be secured to a sound timber sole plate. SWL: 46.2kN at 60°.

Code	Size (mm)	Height (mm)	Weight (kg)
279520	180 x 180	159	4.3



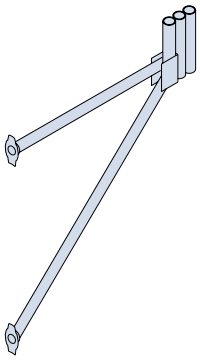
Beam and forkhead/bracing forkhead compatibility

	200mm x 86mm		150mm x 162mm		200mm x x186mm	
	Single	Parallel	Single	Parallel	Single	Parallel
S150	✓	×	✓	✓	✓	✓
Aluma 165	×	×	✓	×	✓	×
T150	✓	×	✓	×	✓	✓
T225	×	×	✓	×	✓	×
MKII	×	×	×	×	✓	×
H20	✓	×	✓	×	✓	✓
R24	✓	×	✓	×	✓	✓
HEB 140	×	×	✓	×	✓	×

Cantilever frame

This bracket is designed for supporting cantilever edge slabs and incorporates three jack locations at centres of 1.2m, 1.25m and 1.3m. Any jack locations can be utilised for primary beams. Frames are located in the cup joints. They are of standard CUPLOK® tube dimension and can be laced together if used for perimeter access on support scaffolds.

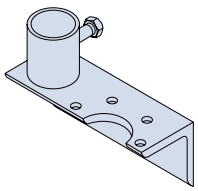
Code	Description	Weight (kg)
279615	For 1.5m lifts	20.5
279610	For 1.0m lifts	19.1



Guardpost bracket

Allows the location of a length of standard tube to form a handrail around the edge of the formwork deck.

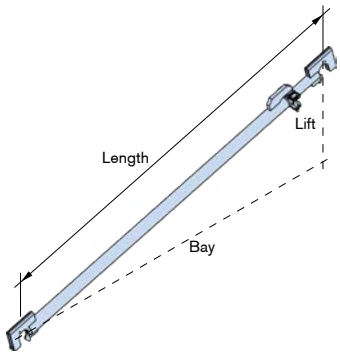
Code	Size (mm)	Weight (kg)
279700	233 x 65	1.7



Internal adjustable brace

Adjustable braces for internal use in support structures, connecting to the horizontal CUPLOK members. The overall length of the brace is set before installation by positioning the locating pin on the clamp in the appropriate hole and tightening the nut. Braces are available in two sizes which cover the various grid dimensions. See tables. SWL: 12.5kN in tension or compression.

Code	Description	Weight (kg)
279810	Short adjustable brace	10.8
279820	Long adjustable brace	15.1

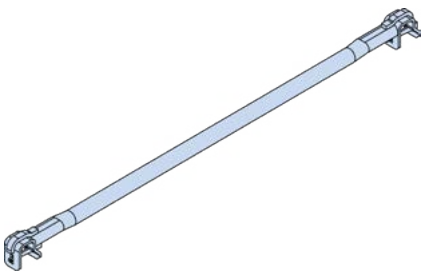


Heavy duty brace

NL

Heavy duty brace designed for façade retaining, formwork support and on free-standing buttressed scaffolds. Connects to the CUPLOK ledger to eliminate eccentric loading.

Code	Bay Length (mm)	Lift Height (mm)	Length (m)	Weight (kg)
340134	1.3	2.0	2.343	11.5
340136	1.8	2.0	2.691	12.2
340137	2.5	2.0	3.202	14.0



Short brace

Lift x bay (m)	Nominal length (mm)
1.0 x 1.2	1562
1.0 x 1.3	1640
1.0 x 1.6	1887
1.5 x 1.2	1921
1.5 x 1.3	1985
1.0 x 1.8	2059
1.5 x 1.6	2193
1.5 x 1.8	2343
2.0 x 0.9	2193
2.0 x 1.3	2385

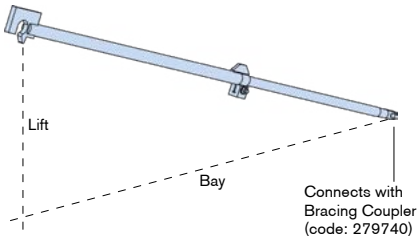
Long brace

Lift x bay (m)	Nominal length (mm)
2.0 x 1.6	2561
2.0 x 1.8	2692
1.0 x 2.5	2692
1.5 x 2.5	2915
2.0 x 2.5	3202

Jack brace

A telescopic brace for use at base and head level. It connects to the horizontal CUPLOK member at one end and to the bracing coupler or the lug on the base plate/forkhead at the other end. SWL = 6.25kN in tension or compression.

Code	Description	Length (mm)	Weight (kg)
279720	Jack brace S*	1277 - 2182	6.8
279710	Jack brace L*	1688 - 2775	10.9



* Horizontal bays up to 1.8m

** Horizontal bays from 1.8m to 2.5m

CUPLOK® support

SWLs for support structures

The load carrying capacity of any support structure is dependant on several key factors:

- Spacing between verticals
- Height from ground to soffit level
- Required jack extension
- Temporary access platforms within the structure
- Ground conditions
- Lift height
- Deck weight and live load
- Bracing

Eccentric loads and jack extension

The loading figures are based on a load eccentricity of up to 25mm and fully extended base and head jacks as a 'worst case' situation.

Heavier loads

If jack extensions are below 350mm and verticals eccentricities do not exceed 5mm, loads can be increased to 74kN for structures with 1.5m lifts/1.8m ledgers and below.

Using ledgers of 2.5m or less, the following leg loadings can be accommodated (provided the rules overleaf are followed and the structure is at least 4 x 4 bays).

Lift height (m)	Ledger length (m)	Internal standard (kN)	External standard (kN)
1.0	1.8	64	55
1.0	2.5	60	50
1.5	1.8	64	55
1.5	2.5	60	50
2.0	1.8	50	40
2.0	2.5	45	35

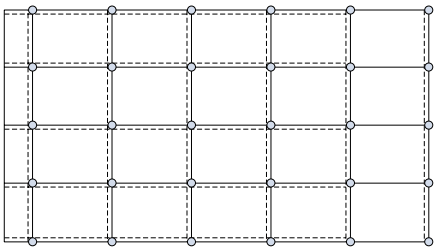
Grade 43 Painted CUPLOK

The above load information only applies to high grade SGB CUPLOK, which is identified by having four lugs on the top cups. If Grade 43 painted CUPLOK verticals are introduced into the structure, a reduced capacity applies as follows:

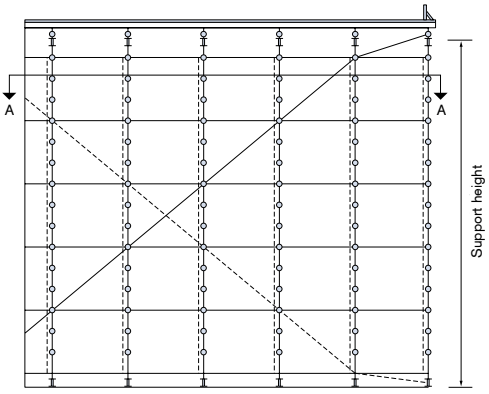
Lift height (m)	Ledger length (m)	Internal standard (kN)	External standard (kN)
1.0	1.8	57	57
1.0	2.5	57	57
1.5	1.8	45	42.5
1.5	2.5	45	42.5
2.0	1.8	33	29
2.0	2.5	33	28.5

The permissible loads given for verticals and jacks in CUPLOK support scaffolds assume that the structure has been braced in accordance with SGB's design recommendations in this document and CUPLOK support data sheets.

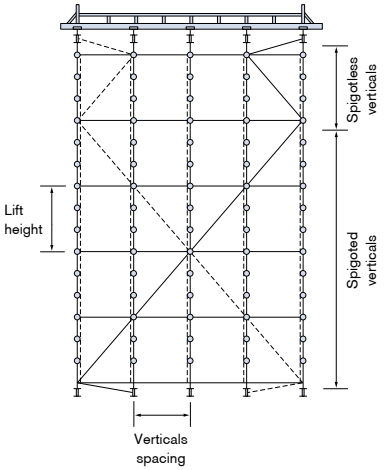
Typical support structure assembly



Section A-A



Front elevation



Side elevation

See SGB data sheets for full conditions and detailed explanation.

CUPLOK®

Safety
The wide range of grid and lift sizes allow CUPLOK to accommodate many different loads and decking options. CUPLOK for support structures should be erected in the same manner as for access scaffolding. Information on the safe erection and dismantling of scaffolding structures is available.

- Ledgers placed in the lowest cup give a strong, solid base
- Five sizes of spigotless verticals ensure minimum jack extension.

Layout
The simplest type of support structure is one with continuous lines of ledgers in both directions as this automatically gives accurate setting out of the verticals. This is particularly important when using a formwork system such as the DU-AL™ aluminium beam system.

CUPLOK® support

Bracing

The composition of the falsework structure will have a bearing on the amount of bracing required. Where access is required through the structure, rows of legs can be built as shown in the diagram below. In this case ledger bracing is required across each row. An effective diagonal brace must extend from the forkhead to the baseplate level in both directions across each lift.

To give greater access beneath the deck, the support structure can be built as a series of towers. These towers will have to be ledger braced in both directions and, depending on their height, plan braces may be necessary to keep the towers square.

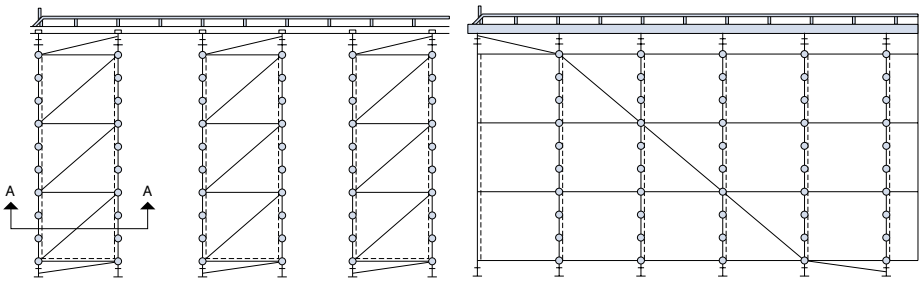
For rows of towers, horizontal lacing should be used at vertical intervals of more than four times the minimum base dimension. This may be in the form of CUPLOK® ledgers if the spacing is suitable or from tube and fittings.

Diagonal braces should be fixed to the ledgers, as close to the node point as possible within 300mm. The maximum gap between the side of the brace and the node point should be 50mm.

The bracing should be installed immediately after the erection of each lift to ensure that all bays are properly squared up and verticals are plumb.

The quantity of bracing should be calculated, but a minimum amount must always be used. This requires one complete line of bracing from the top to the bottom lacing level, on each row of verticals, one in seven bays, as a minimum, in each direction.

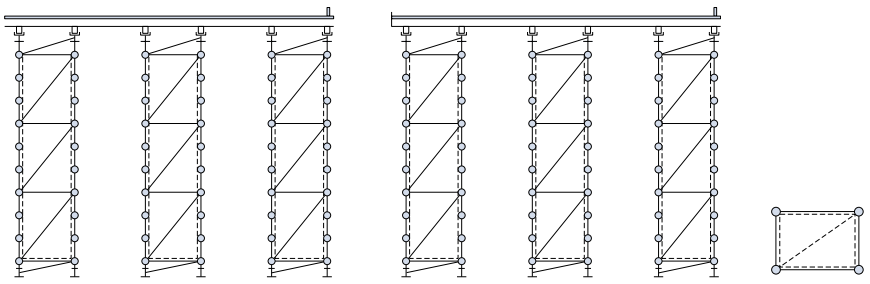
Rows of legs



Front elevation

Side elevation with ledger braces

Individual towers



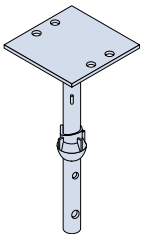
Front elevation

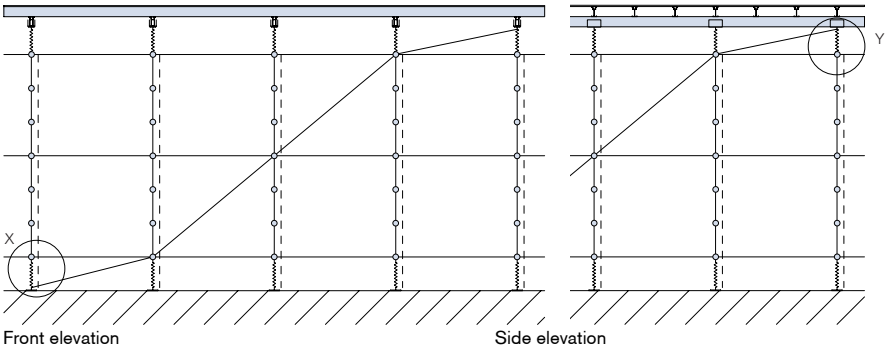
Side elevation

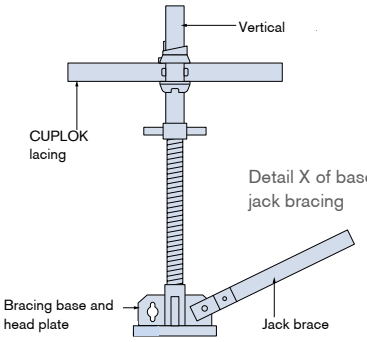
Section A-A

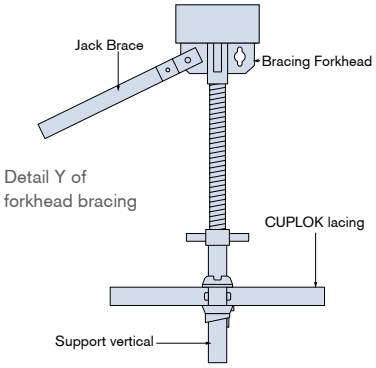
See SGB data sheets for full conditions and detailed explanation.

Jack bracing with bracing coupler
The drophead bracing adaptor is normally used on top of the jack and allows lacing with CUPLOK® ledgers.





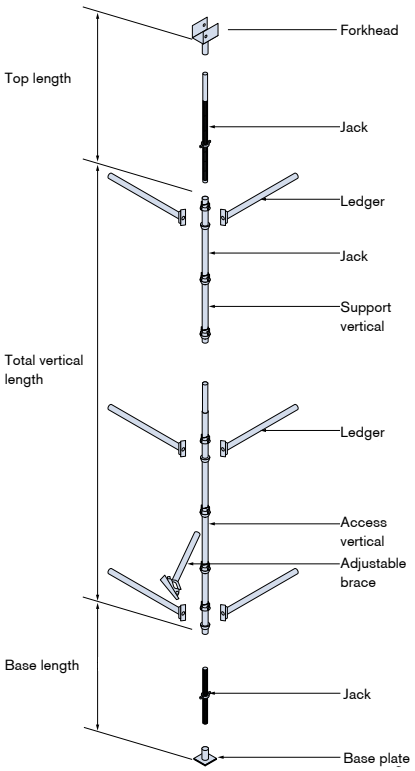




Height make-up
The height of the support structure is determined by the total vertical length plus the length taken up by the jacks, base plates and adaptors. Note that the verticals must always finish with a spigotless standard at the top so that a jack can be inserted. The overall height of the various combinations of verticals is shown in the table adjacent.

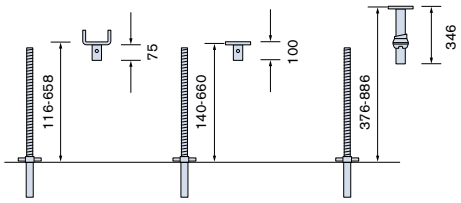
Care should be taken to make a suitable allowance in the extension of the top and base jack for general adjustment and for striking the formwork.

Total standard length (m)	Number of verticals					
	Support			Access		
	1.3	1.8	2.3	1.0	2.0	3.0
1.3	1	---	---	---	---	---
1.8	---	1	---	---	---	---
2.3	---	---	1	---	---	---
2.8	---	1	1	---	---	---
3.3	1	---	---	1	---	---
3.8	---	1	---	1	---	---
4.3	---	---	1	---	1	---
4.7	---	1	---	---	1	---
5.3	---	---	1	---	---	1
5.8	---	1	---	2	---	---
6.3	---	---	1	---	2	---
6.8	---	1	---	1	1	---
7.3	---	---	2	---	1	1
7.8	---	1	---	---	2	---
8.3	---	---	1	---	---	2
8.8	---	1	---	2	1	---
9.3	---	---	1	---	2	1
9.8	---	1	---	1	2	---
10.3	---	---	1	---	1	2

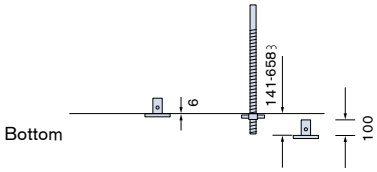


CUPLOK® support

Top and base adjustment
These diagrams show the overall dimensions of various component combinations at the top and base of the structure. Any arrangement at the top can be combined with any arrangement at the base. To ascertain the overall length of verticals required, deduct the top and base adjustments from the overall soffit height and any sleepers, soleboards and formwork.



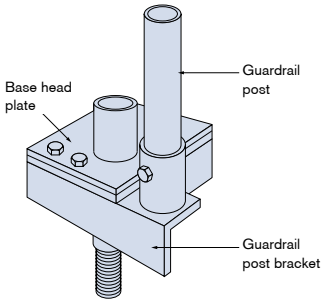
Top

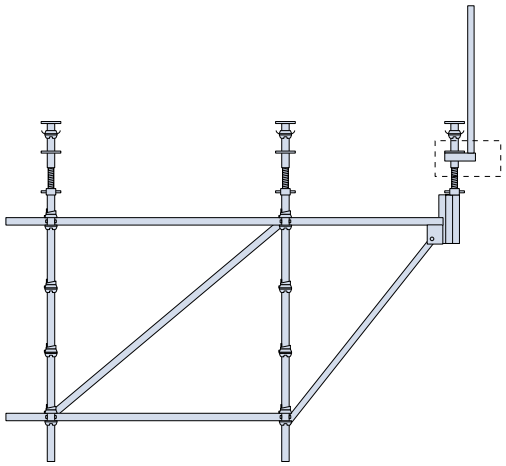


Bottom

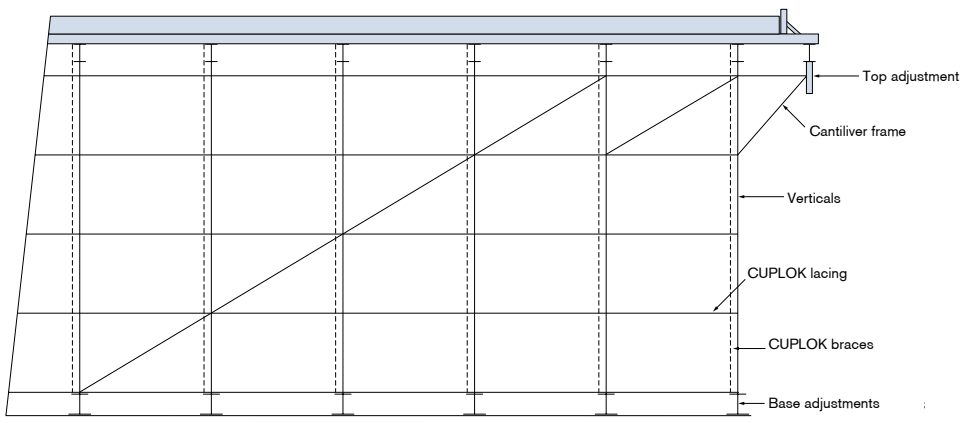
All dimensions are in mm

Use of cantilivered frames
The cantilever frame incorporates three sockets at 1.2m, 1.25m and 1.3m centres to provide support for cantilever slabs formwork and access. If the cantilever frame is used, ledgers and bracing must be placed as shown in the diagram below. The guardrail post bracket can be connected to the adaptors as shown and will accept a standard scaffold tube as a guardrail post.





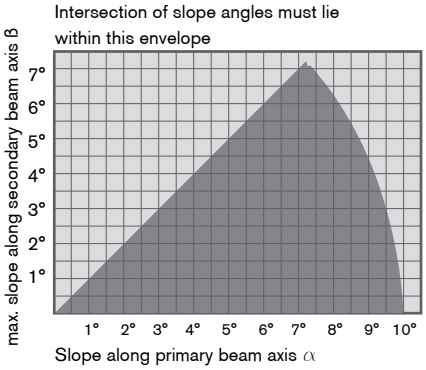
Bracing and use of cantilever frames



Temporary working platforms
When a working platform is required just below soffit level and the bay length exceeds 1.5m then intermediate transoms of 1.2m, 1.3m, 1.8m or 2.5m can be used to ensure scaffold boards are supported at the required centres. This will accommodate a safe working deck without overlapping boards.

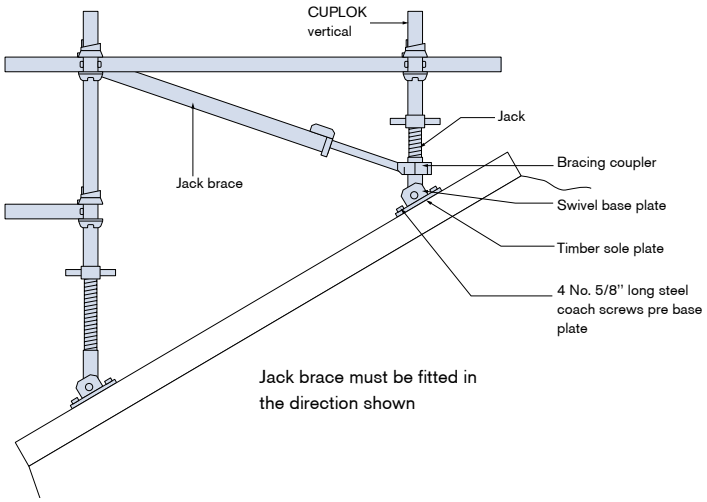
Where the cantilever frames are used, one or two additional braces may have to be used, as shown in the diagram, to cater for the horizontal forces created at the top and bottom of the cantilever bracket.

Use of the rocking forkhead
The maximum permissible slope of the formwork can be checked using the graph opposite. After the grid layout of the scaffold has been established, the slopes in two directions at right angles along the grid lines can be ascertained.



Note that the primary bearers must run in the direction of the maximum slope.

Use of the swivel base plate



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Further information
This guide provides an overview of the CUPLOK system. More detailed data sheets on all products are available in electronic or hard copy format upon request. Contact your nearest regional office for further information.

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