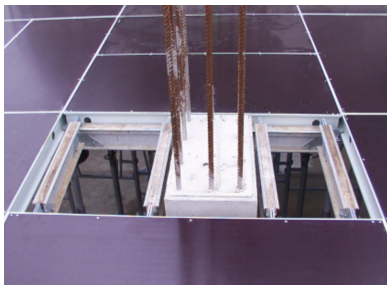
AIRODEK

LIGHTWEIGHT SOFFIT SYSTEM

Technical Data Sheets

Metric Specification



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AIRODEK

LIGHTWEIGHT SOFFIT SYSTEM

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Note: Clicking the RMDK logo in the top right hand corner of any page will bring you back to this Contents page

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LIGHTWEIGHT SOFFIT SYSTEM

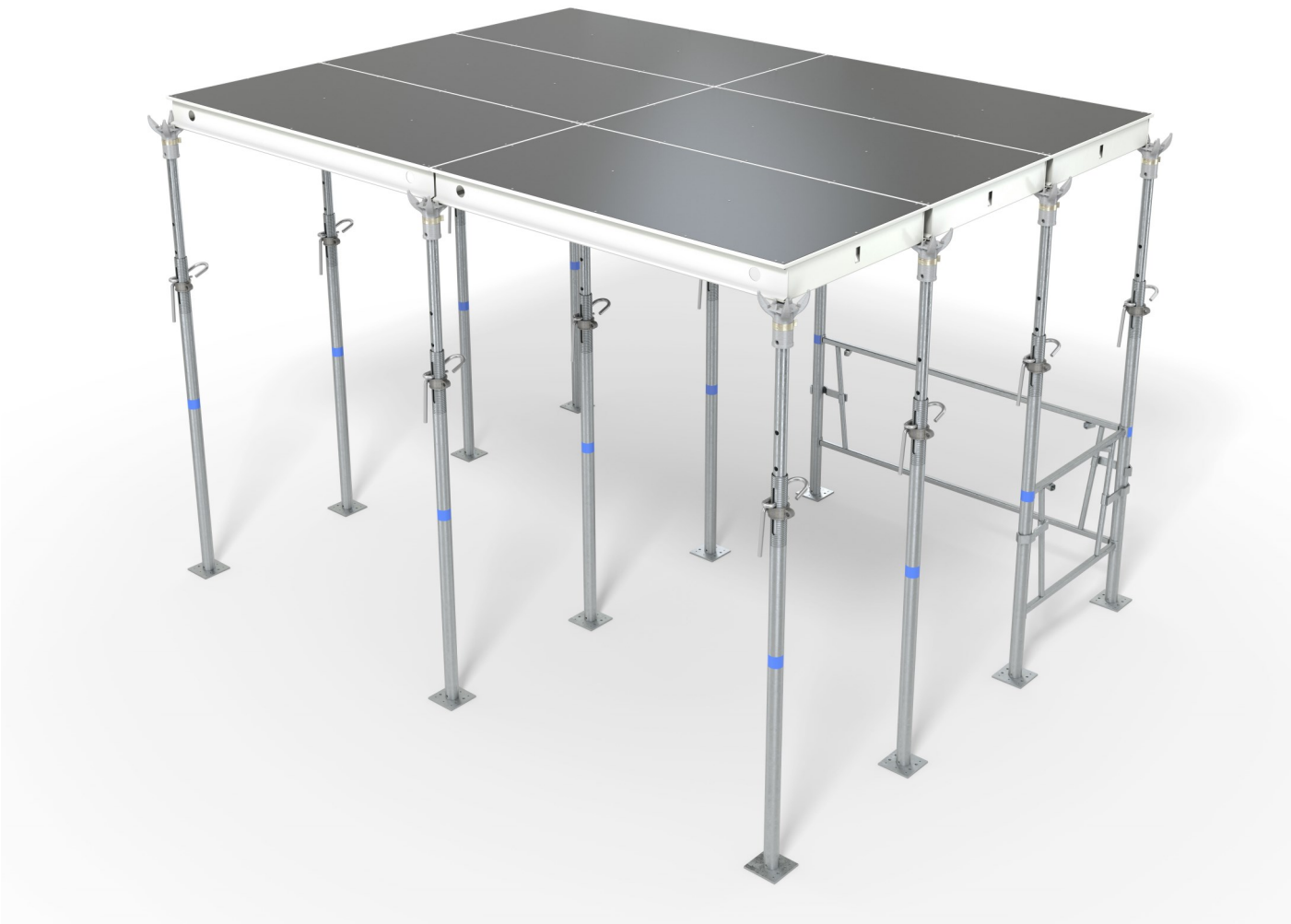
Introduction

RMD Kwikform Airodek soffit falsework is a lightweight, modular system that has been developed to provide the fastest construction cycle times on multi storey slabs with slab thicknesses up to 700mm with the minimum number and weight of components. Designed for easy assembly, transportation, storage and maintenance, the system comes in three variants; Panels on Props, Panels on Decking with Crowns & Shoring, and Panels on Decking with Quickstrike Dropheads & Shoring.

Airodek equipment is mainly for use in laterally top restrained applications only. For a full explanation of the stability requirements to ensure this condition refer to Applications Section 2 within this document.

Design to EN Standards

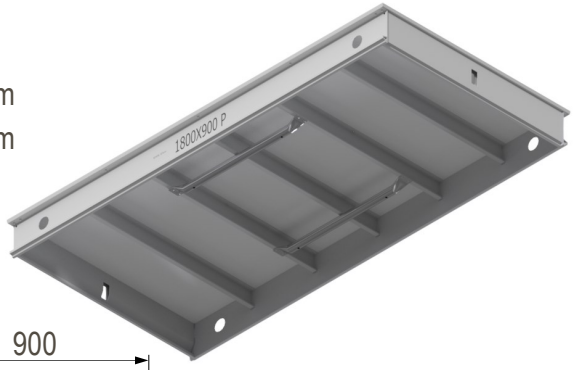
The RMD Kwikform Airodek system has been designed in accordance with European and British Standards, supported where appropriate by finite element analysis and physical load testing. To facilitate a simplified scheme design using established permissible load methods, load performance data in this document is displayed as an 'Allowable Working Load'. Should Limit State Design be required, the Design Resistance may be obtained by multiplying the Allowable working load by 1.5.



AIRODEK

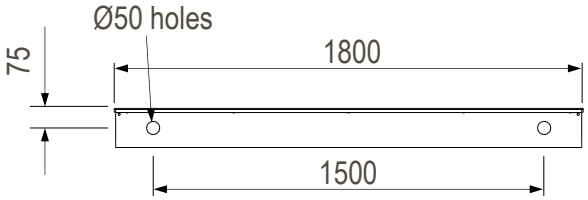
LIGHTWEIGHT SOFFIT SYSTEM

Airodek Panels

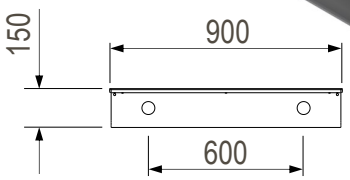


Manufactured from a welded, lightweight, powder coated, aluminium extruded frame with options of 9mm thick phenolic plywood or 10mm thick Alkus face material.

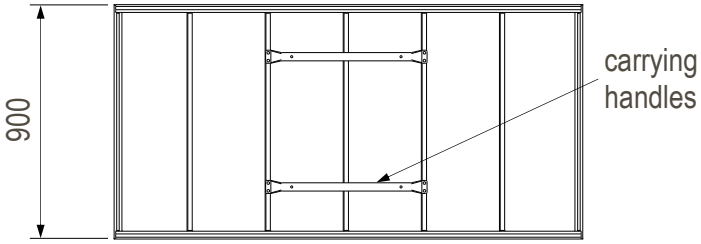
See Table Below for Allowable Slab Thicknesses



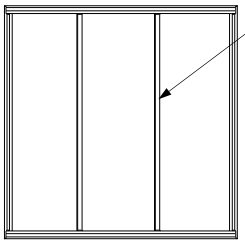
Side Elevation



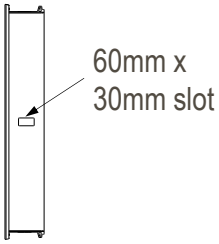
Side Elevation



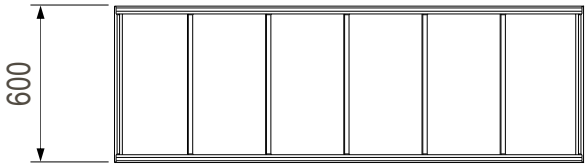
1800 x 900mm Panel Plan



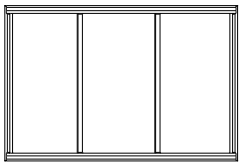
900 x 900mm Panel Plan



End Elevation

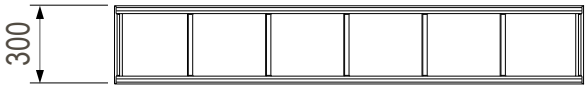


1800 x 600mm Panel Plan

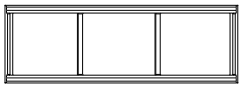


900 x 600mm Panel Plan

End Elevation



1800 x 300mm Panel Plan



900 x 300mm Panel Plan

End Elevation

Code		Description	Weight		Maximum Slab Thickness
Plywood	Composite		Plywood	Composite	
ADX18090	ADX18091	Airodek Panel 1800 x 900mm	24.2 kg	29.8 kg	500mm
ADX18060	ADX18061	Airodek Panel 1800 x 600mm	21.2 kg	21.6 kg	700mm*
ADX18030	ADX18031	Airodek Panel 1800 x 300mm	12.3 kg	14.1 kg	700mm
ADX09090	ADX09091	Airodek Panel 900 x 900mm	16.0 kg	16.3 kg	500mm
ADX09060	ADX09061	Airodek Panel 900 x 600mm	11.7 kg	11.9 kg	700mm*
ADX09030	ADX09031	Airodek Panel 900 x 300mm	6.62 kg	7.50 kg	700mm

* Deflection of both the Plywood and Alkus face material falls slightly outside the span/270 maximum. If face material deflection needs to be restricted to within span/270 overlay the panels with a 12mm thick plywood or similar.

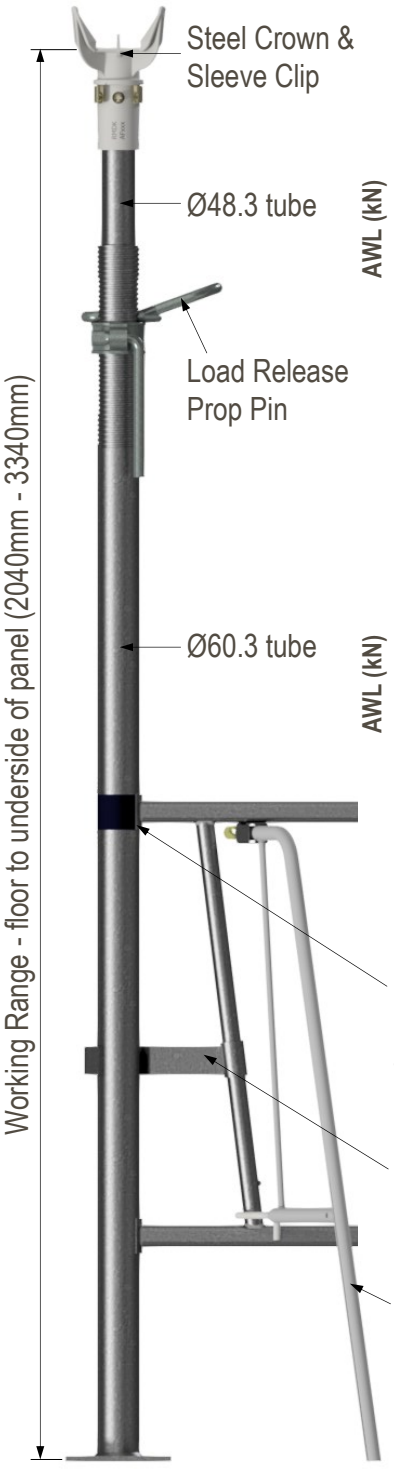
Note: Further checks should always be made on the allowable working load of the falsework system used for support.

Airodek Prop for 2150-3520mm (PRX10005) weight 18.1kg (excluding crown & prop pin)

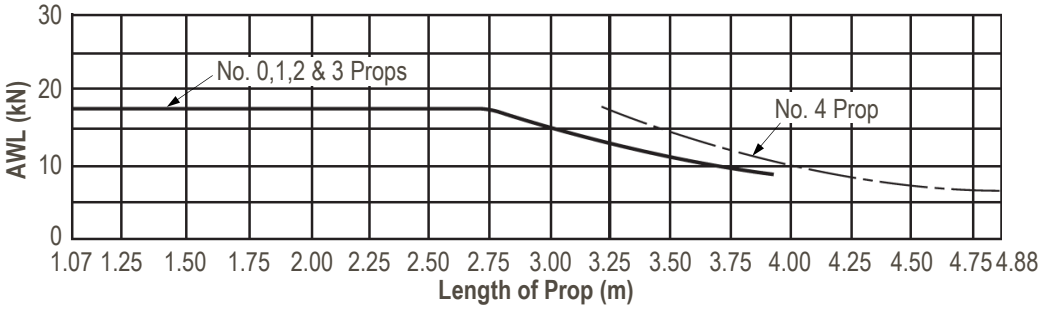
Use in conjunction with Airodek Steel Crown (ADX20015), Rapidshor Sleeve Clip (RCX10009) and Airodek Prop Pin (ADX20012) to support Airodek Panels and Infill Beams.

Note: Allowable Working Load of Airodek Prop Pin may limit - see sheet 8.

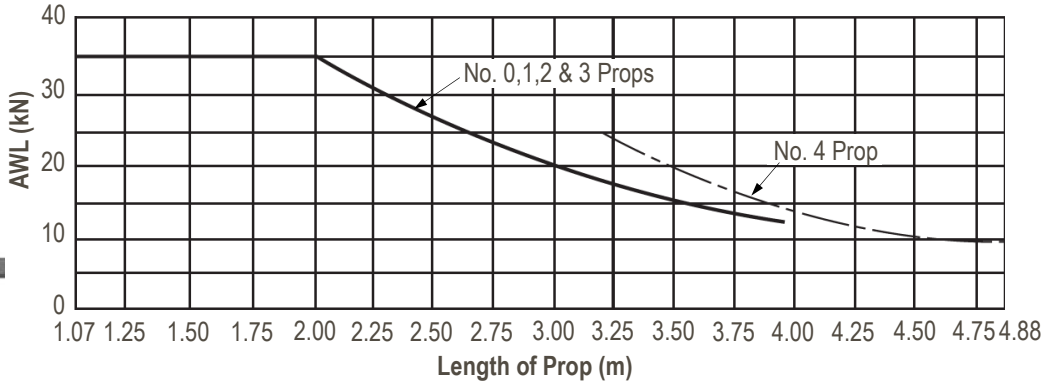
Safe working loads for BS 4074:1982 props erected 1.5° out-of-plumb

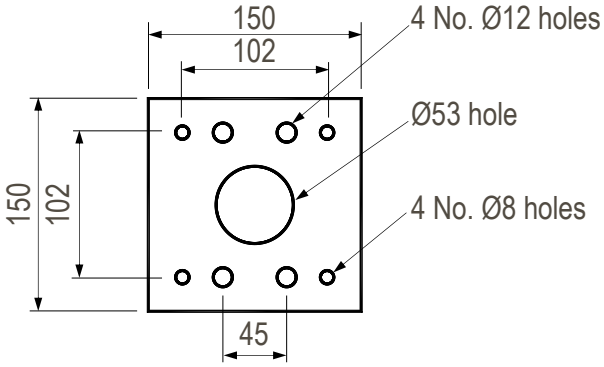


Safe working loads for props erected 1.5° maximum out-of-plumb and with up to 25mm maximum eccentricity of loading (i.e. concentric loading cannot be ensured)



Safe working loads for props erected 1.5° maximum out-of-plumb and with concentric loading ensured





Enlarged Plan on End Plate
(8mm thick plate)

AIRODEK

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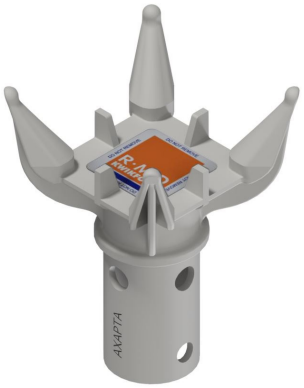
Airodek Steel Crown (ADX20015) weight 2.11kg



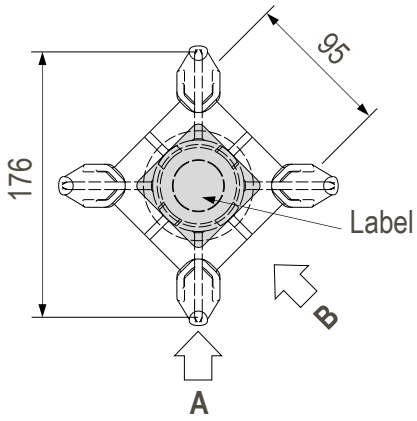
Use to locate and support Airodek Panels on top of the Airodek Prop or other alternative shoring solutions using an appropriate adapter.

Concentric Allowable Working Load = **60kN**
Eccentric Allowable Working Load = **30kN**

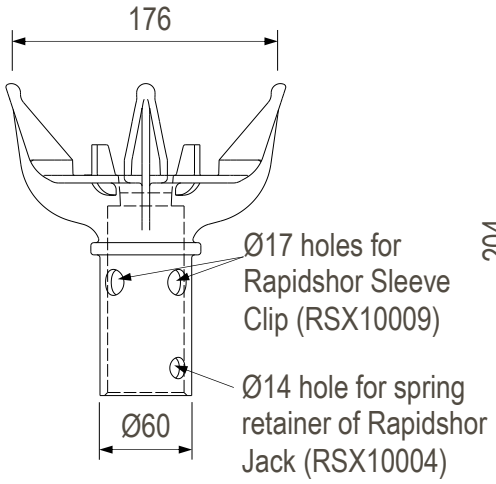
Maximum reaction from the corner of a panel onto a crown = **10kN**

Maximum reaction from an edge section of a panel onto a crown:
= **8kN** in the centre of the panel side member
= **4kN** near the end of the panel side member

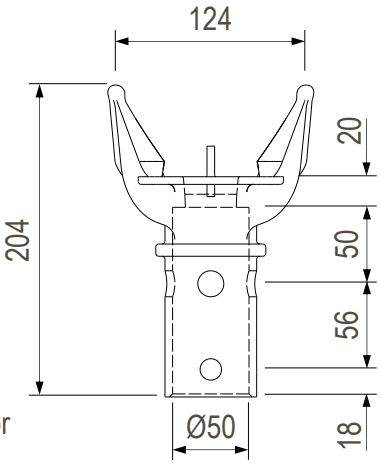
Note: Earlier versions were of aluminium construction and have the same Allowable Working Loads.



Plan



View on 'A'



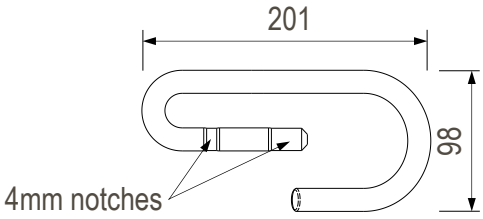
View on 'B'

Rapidshor Sleeve Clip (RSX10009) weight 0.09kg

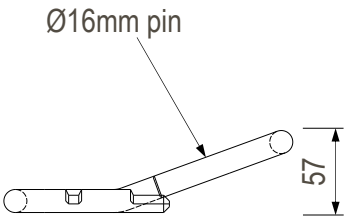
Use to connect the Airodek Steel Crown (ADX20015) to an Airodek Prop or a choice of several adapters - see sheet 39.

Airodek Load Release Prop Pin (ADX20012) weight 0.80kg

Use to fix the Airodek Prop to length and to provide an initial load release during soffit stripping. **AWL = 22kN**



Plan



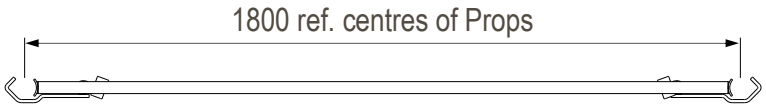
Elevation

Set Position

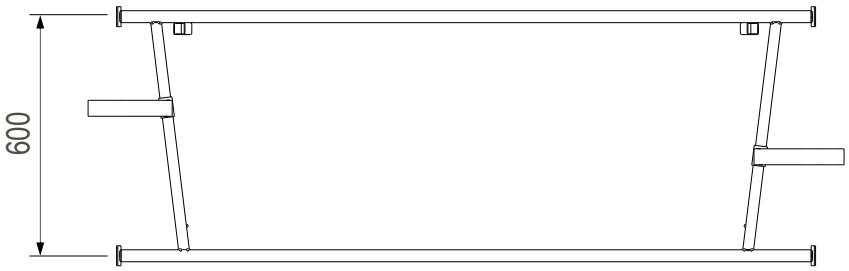
Load Release

Spacing Gates and Legs

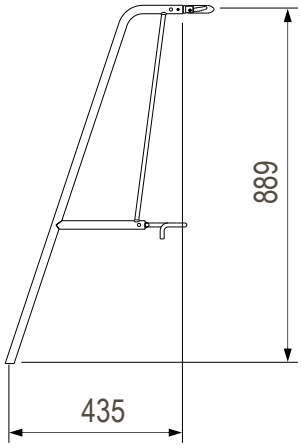
Use to stabilise the falsework during the erection and dismantling stages only. Use a continuous line of 900mm wide Spacing Gates with a pair of Spacing Gate Legs attached to every other gate for the first row of Airodek Props erected. Use single Spacing Gates in both directions at 5.4m centres thereafter.



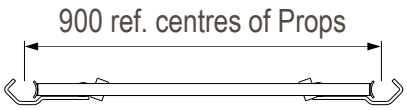
Spacing Gate 1800mm Plan



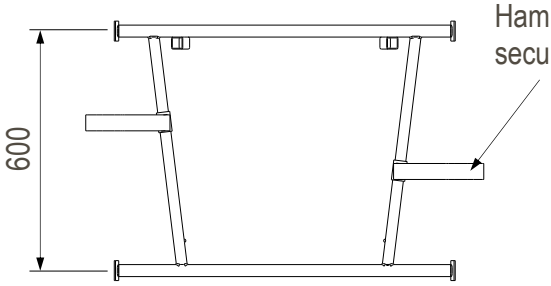
Spacing Gate 1800mm Elevation



Spacing Gate Leg Elevation



Spacing Gate 900mm Plan



Spacing Gate 900mm Elevation

Code	Description	Weight
ADX20007*	Airodek Spacing Gate 1800mm	9.56 kg
ADX20006*	Airodek Spacing Gate 900mm	6.73 kg
ADX20008	Spacing Gate Leg	2.38 kg

* These Spacing Gates will not fit E35 or E40 Props

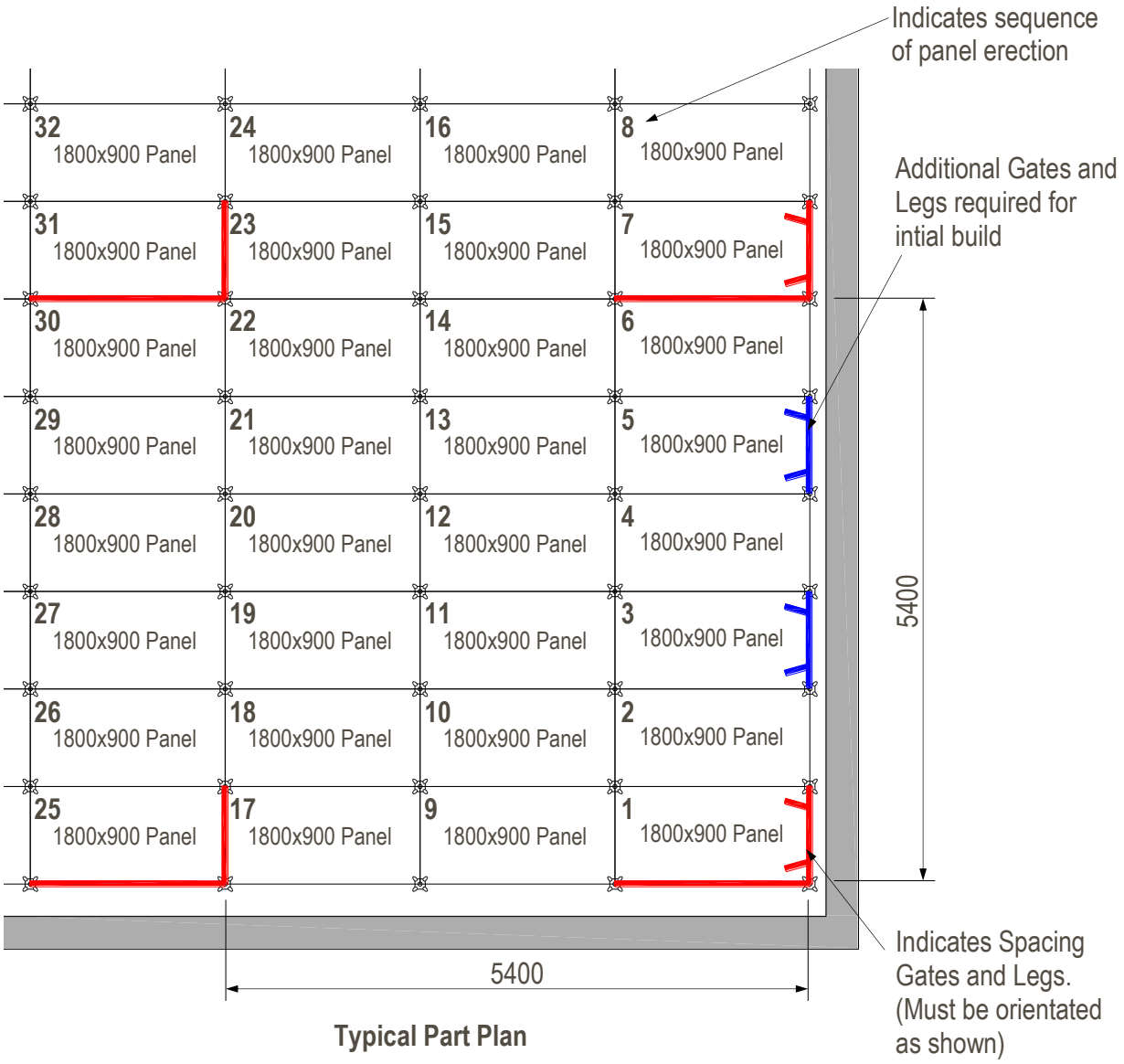
Airodek Prop & Panel System Spacing Gates - Typical Details

The Spacing Gates & Spacing Gate Legs provide temporary stability for the Airodek System during its erection & dismantling stages only.

The stability of the whole system relies on the soffit formwork being laterally top-restrained (i.e. the Airodek panels or infill plywood butt snugly up against the permanent structure such as the walls and columns which then prevent the system from falling over). Where this cannot be relied upon, additional bracing will be required.

Preferably panels should be orientated so that the 1800mm length runs parallel with the longest wall. Spacing gates are required at 5.4m centres in each direction although additional 900mm gates and legs will be required for panels 3 and 5 until a sufficient area of panels has been erected to stabilise the system - approx. 32 panels. These additional gates and legs can be removed at this point for use elsewhere on the falsework.

Refer to Equipment Guidance Notes UIX10204 for further details.



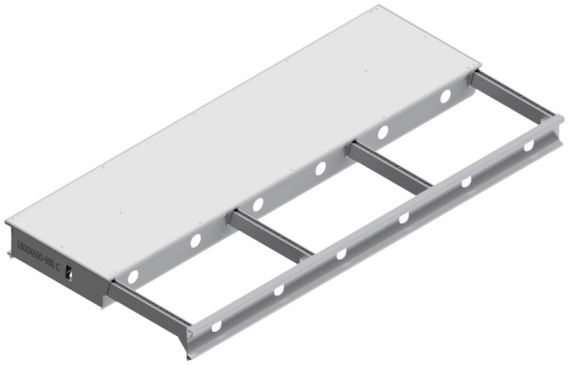
Typical Part Plan

AIRODEK NEW PRODUCT

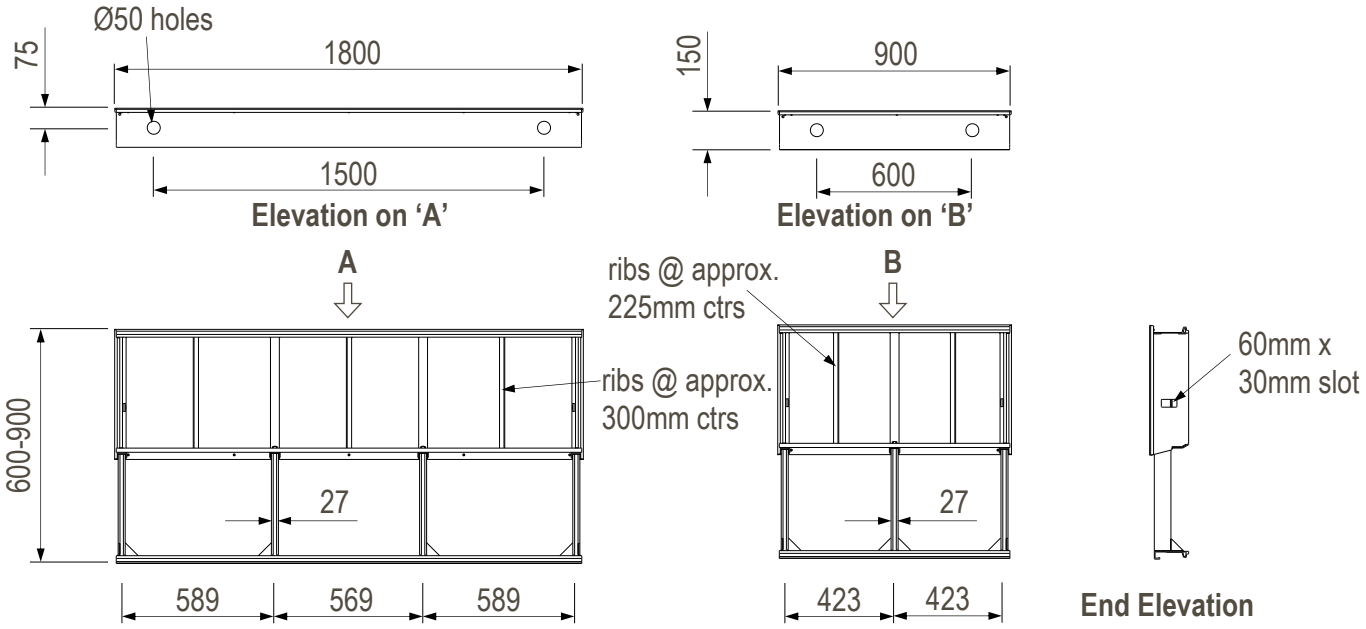
LIGHTWEIGHT SOFFIT SYSTEM

Airodek Telescopic Panels

Manufactured from a welded, lightweight, powder coated, aluminium extruded frame with a 10mm thick Alkus face material & integral plastic nailing strips, Telescopic Panels adjust in width from 600mm - 900mm and support 17-19mm thick plywood infill supplied by the customer.



Maximum Allowable Slab Thickness = 450mm

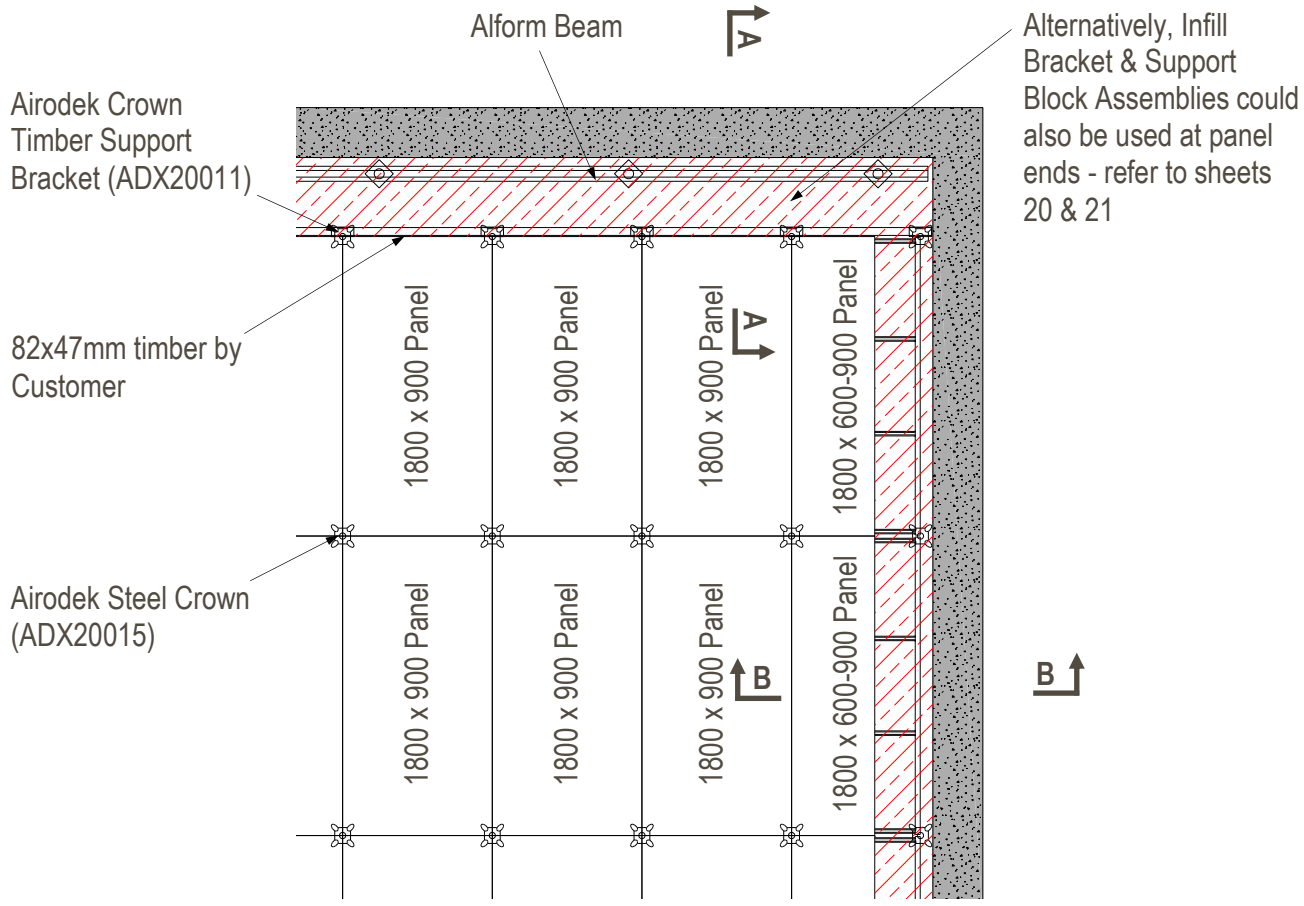


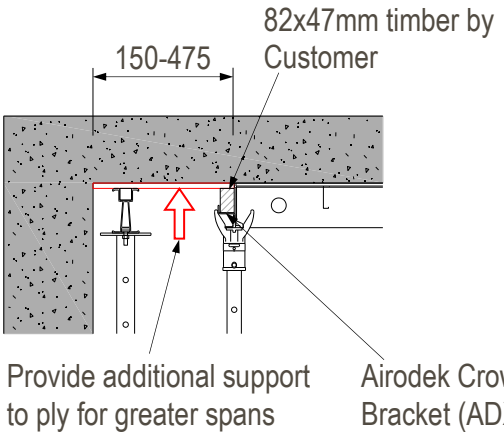
Note: Further checks should always be made on the allowable working load of the falsework system used for support.

Code	Description	Weight
ADX40500	1800 x 600-900mm Telescopic Panel	25.1 kg
ADX40501	900 x 600-900mm Telescopic Panel	14.4 kg

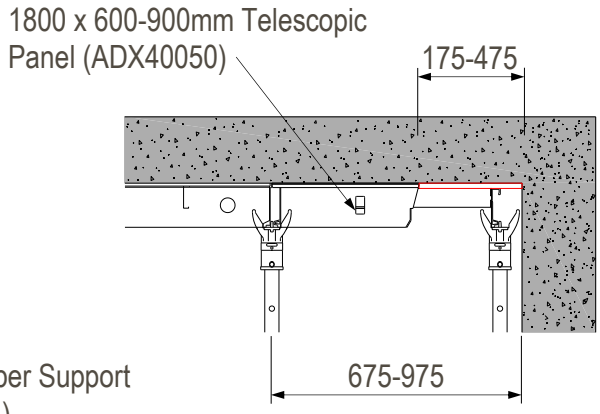
Infill at Perimeter Walls

The example below shows infill adjacent to perimeter walls using Telescopic Panels. Use Airodek Crown Timber Support Brackets with 82x47mm timbers at panel ends where the Support Beams will not fit.





Section A-A
(Spans 150-475mm)



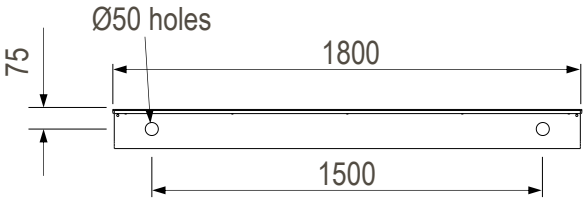
Section B-B
(Ply Rip 175-475mm)

Airodek Trapezoidal Panels

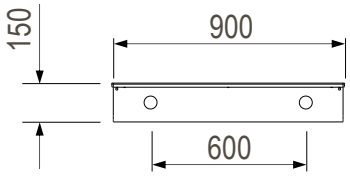
Manufactured from a welded, lightweight, powder coated, aluminium extruded frame with options of 9mm thick phenolic plywood or 10mm thick Alkus face material. Use to facilitate a change in panel grid direction or to reduce infill near skewed or curved perimeter walls - refer to sheet 14 for correct application.

Note: Project specific Trapezoidal Panels with bespoke angles can be accommodated as a sale only option.

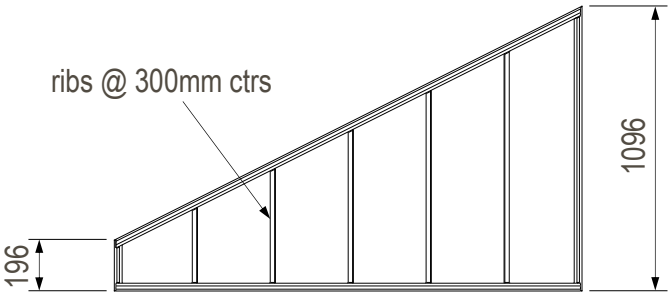
Allowable Slab Thickness = 500mm



Side Elevation

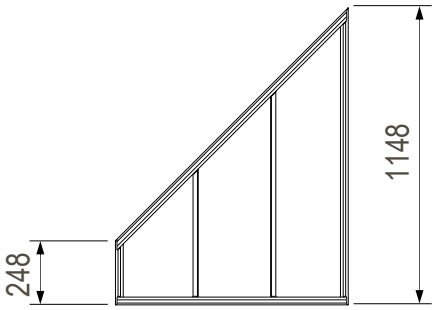


Side Elevation



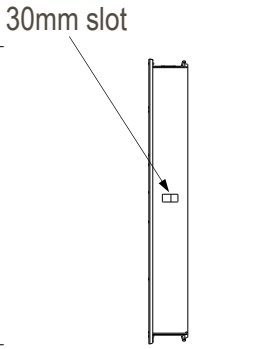
Underside of 1800 Triangular Panel RH

1800 Triangular Panel LH
Similar but Handed



Underside of 900 Triangular Panel RH

900 Triangular Panel LH
Similar but Handed



End Elevation

Triangular Panels DO NOT fit on Deck Beams!

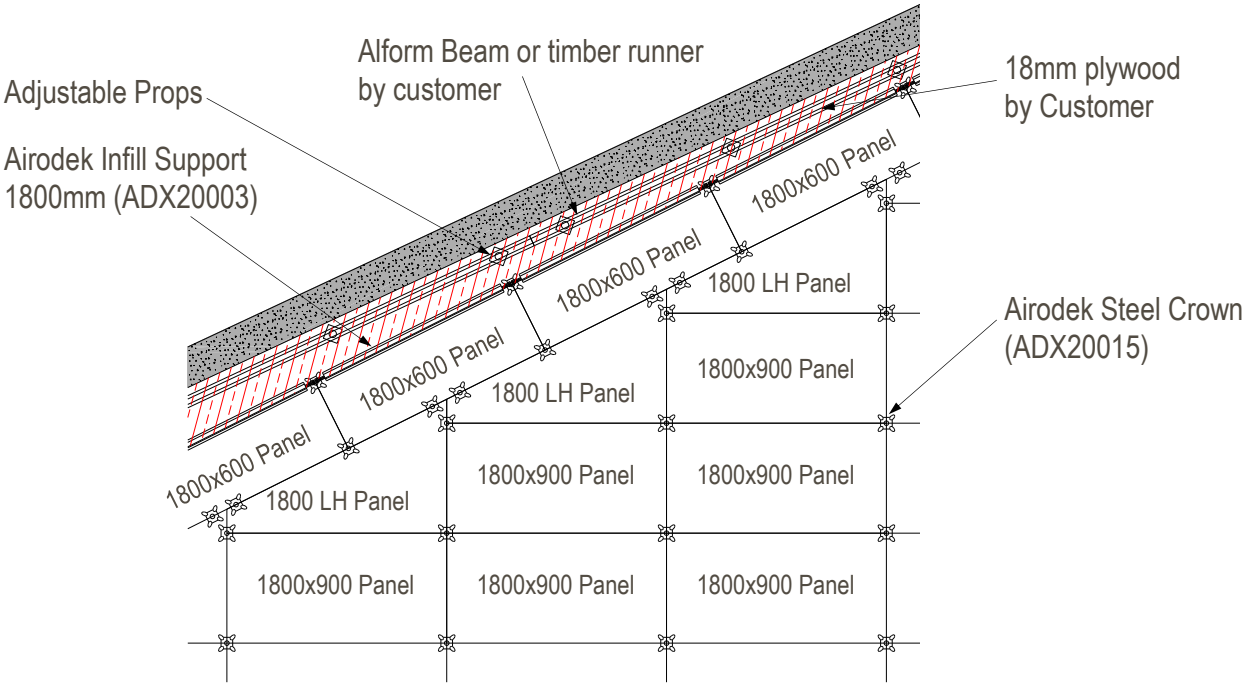
Code		Description	Weight	
Plywood	Composite		Plywood	Composite
ADX20033	ADX40007	Airodek Trapezoidal Panel 1800 RH	19.2 kg	23.2 kg
ADX20028	ADX40003	Airodek Trapezoidal Panel 1800 LH	19.2 kg	23.2 kg
ADX20034	ADX40008	Airodek Trapezoidal Panel 900 RH	13.8 kg	15.0 kg
ADX20029	ADX40004	Airodek Trapezoidal Panel 900 LH	13.8 kg	15.0 kg

Note: Further checks should always be made on the allowable working load of the falsework system used for support.

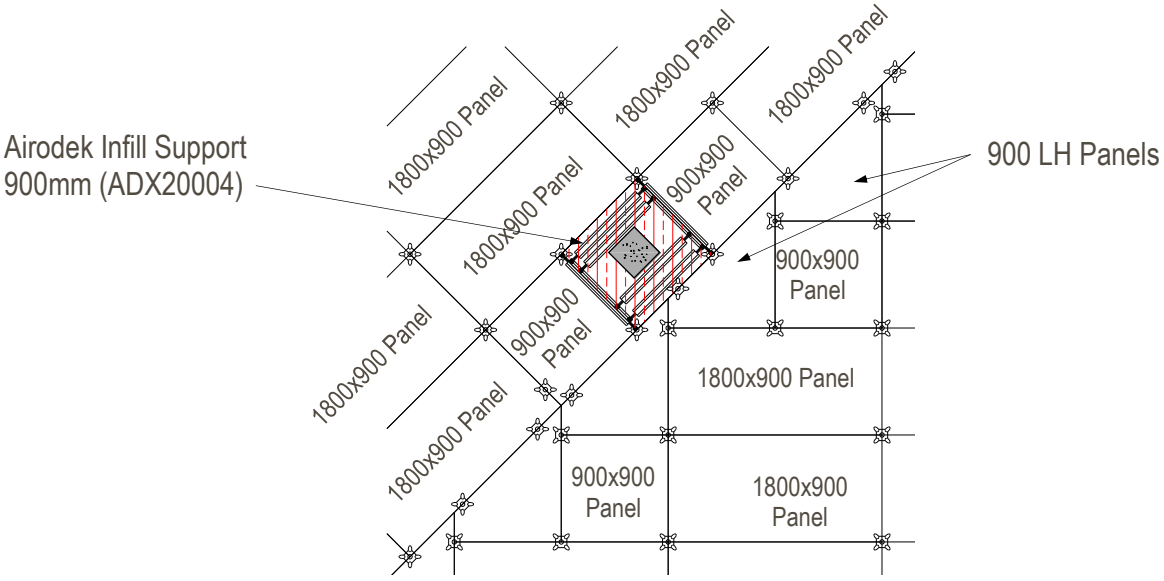
Airodek Triangular Panels - Typical Details

Airodek Triangular Panels are available in two sizes, 900mm with a 45° angle and 1800mm with a 63° angle. The examples below show how they can be used to help accommodate non-rectilinear building geometry, reducing timber makeup - therefore reducing cost and waste.

Note: the Airodek Steel Crown fits on all sides of the panels.



Typical Part Plan Showing 1800mm Triangular Panels Used Adjacent to a Skewed Perimeter Wall



Typical Part Plan Showing 1800mm Triangular Panels Used to Change the Direction of the Panels

AIRODEK

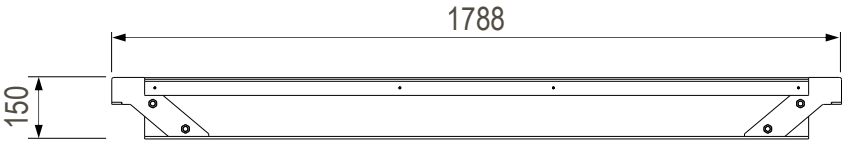
LIGHTWEIGHT SOFFIT SYSTEM

Aluminium Infill Beams

Use to support 17-19mm plywood infill around walls and columns.

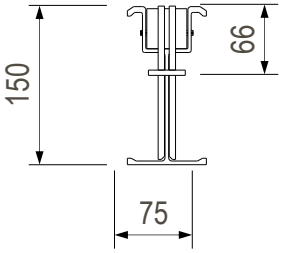
Allowable End Reaction = 12kN
Allowable Bending Moment = 7kNm
EI = 268kNm²

Code	Description	Weight
ADX20003	Airodek Infill Support 1800mm	10.1 kg
ADX20004	Airodek Infill Support 900mm	7.30 kg

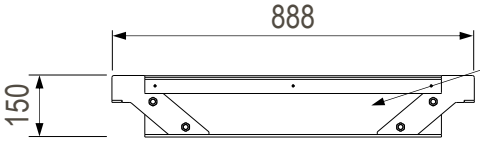


Infill Support 1800mm Elevation

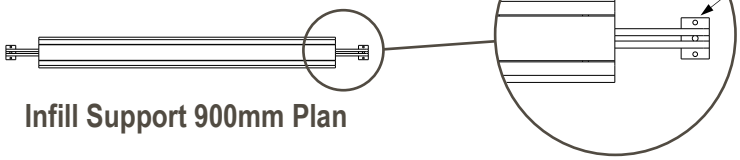
Infill Support 1800mm Plan



Enlarged Section

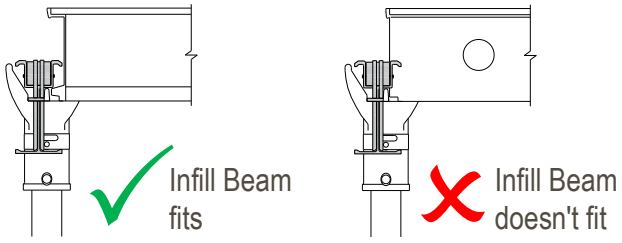


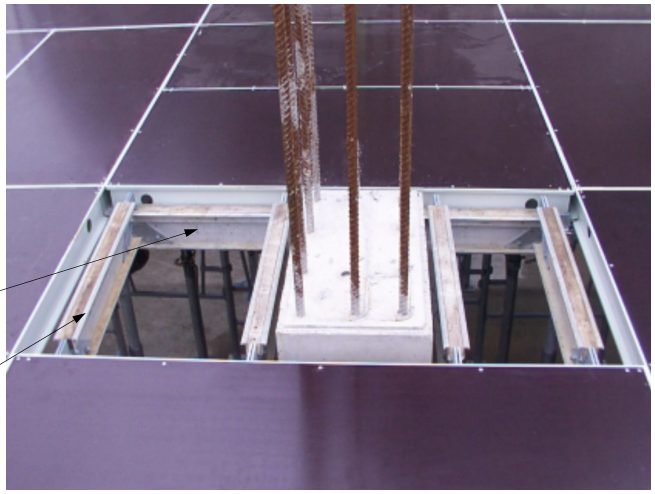
Infill Support 900mm Elevation



Infill Support 900mm Plan

Note: Due to the differing shape of the Airodek Panel profiles between sides and ends the lower primary Infill Beams can only fit adjacent to the **sides** of panels - see detail below.

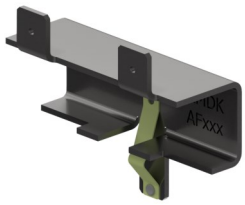




Sit primary Infill Beams adjacent to panels on Steel Crowns or Deck Beams

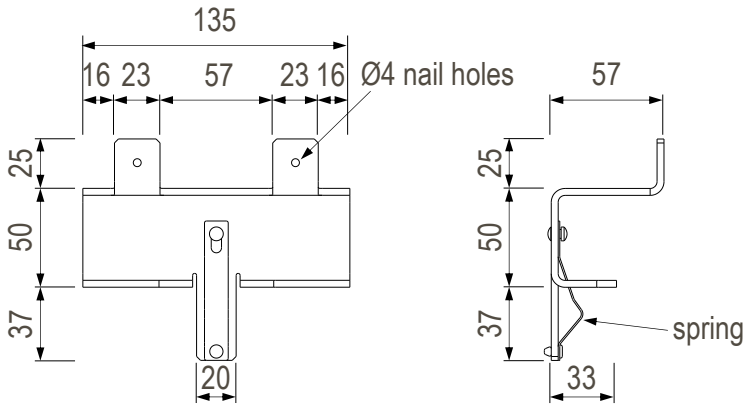
Sit secondary Infill Beams on primary Infill Beams at centres to suit maximum plywood span

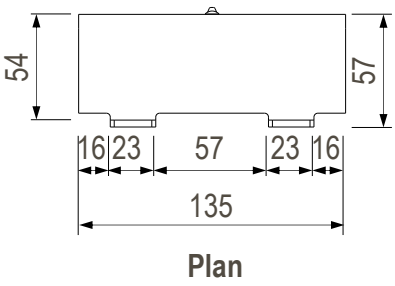
Airodek Crown Timber Support Bracket (ADX20011) weight 0.48kg

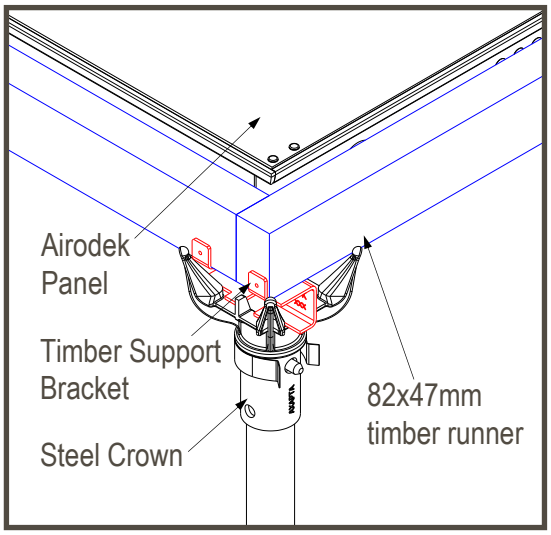


Fix in the Airodek Steel Crown to support an 82x47mm timber runner below 18mm plywood infills. (The label on the Crown must be punctured or removed to accommodate this item).

Note: The Airodek Crown Timber Support Bracket cannot be used when a Rapidshor Jack supports the Steel Crown or where an Infill Support Beam shares the same Steel Crown in a straight run - refer to example on sheet 19.

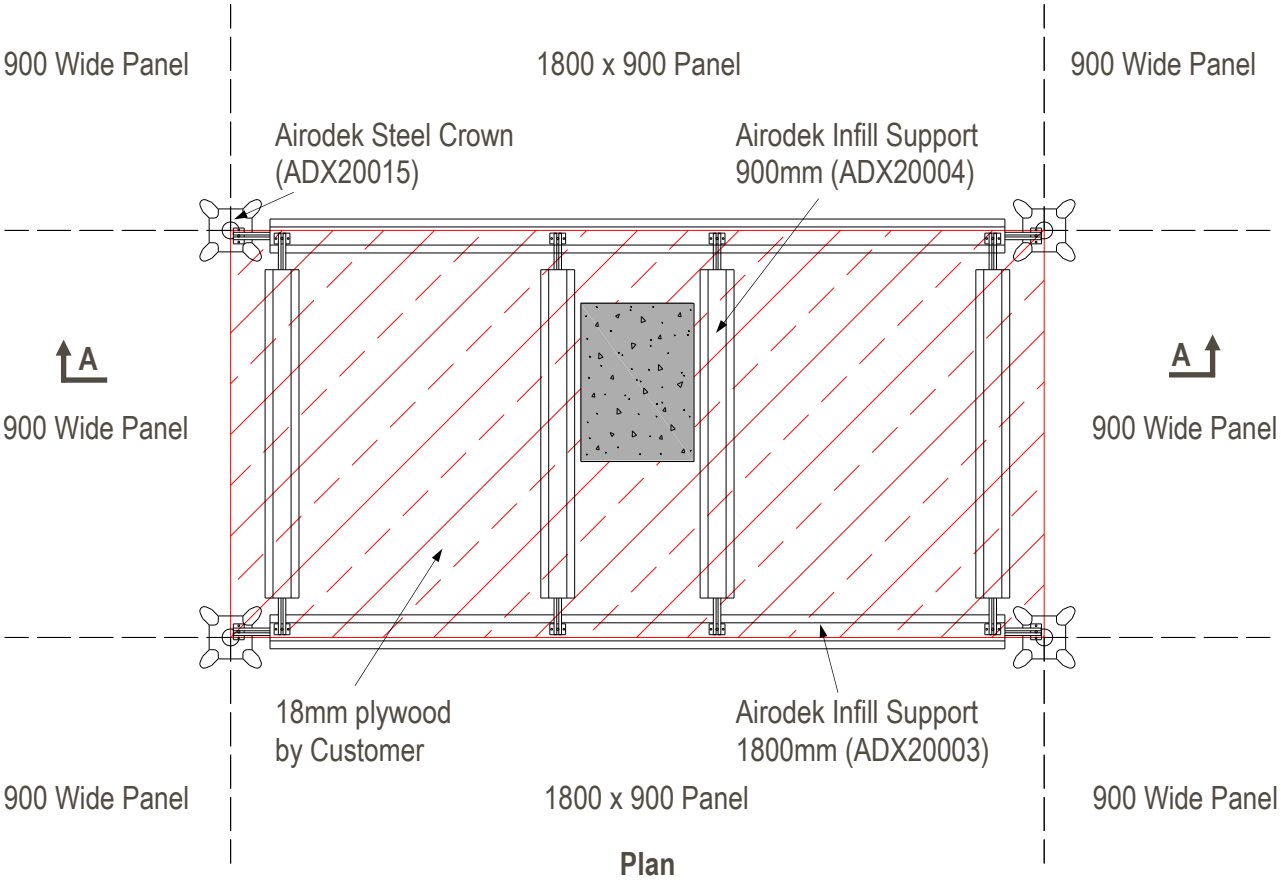




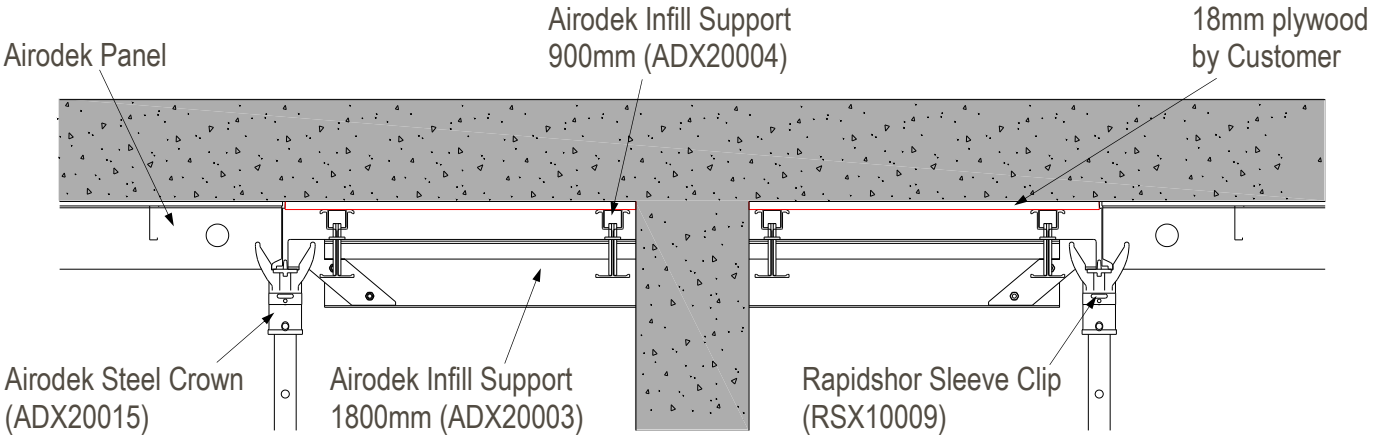


Infill at Columns Falling in One Panel

The example below shows an 1800x900mm infill. Primary infill beams (i.e. the infill beams sitting on the crown) must be fitted adjacent to the side of a panel as they will not fit adjacent to the end of a panel - see sheet 15.



Plan

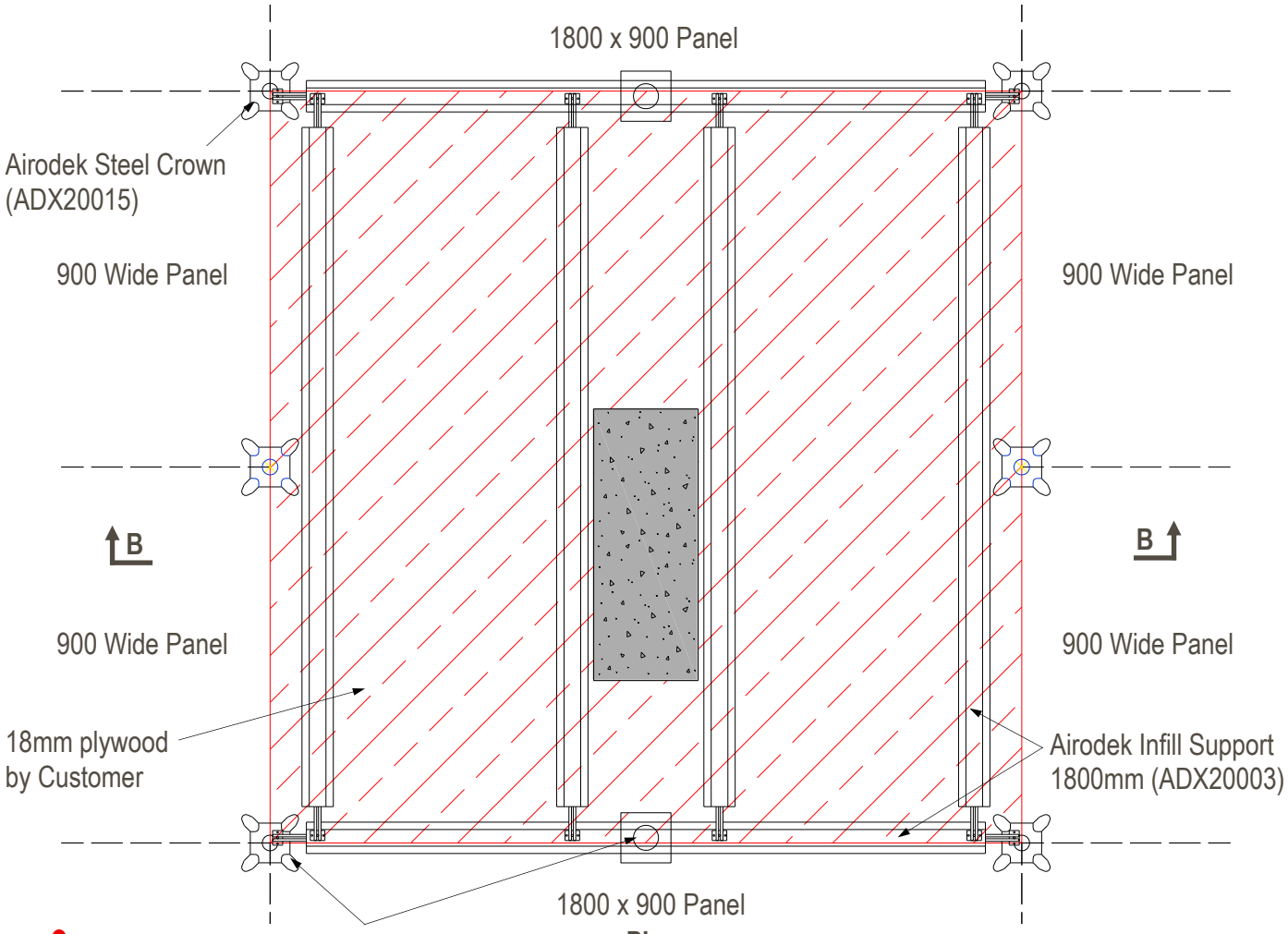


Section A-A

Note: for wider columns where the spacings of the 900mm infill beams exceed the maximum span of the plywood, additional timber secondary beams may need to be introduced either side of the column sitting on the 1800mm infill beams one end with local propping the other end.

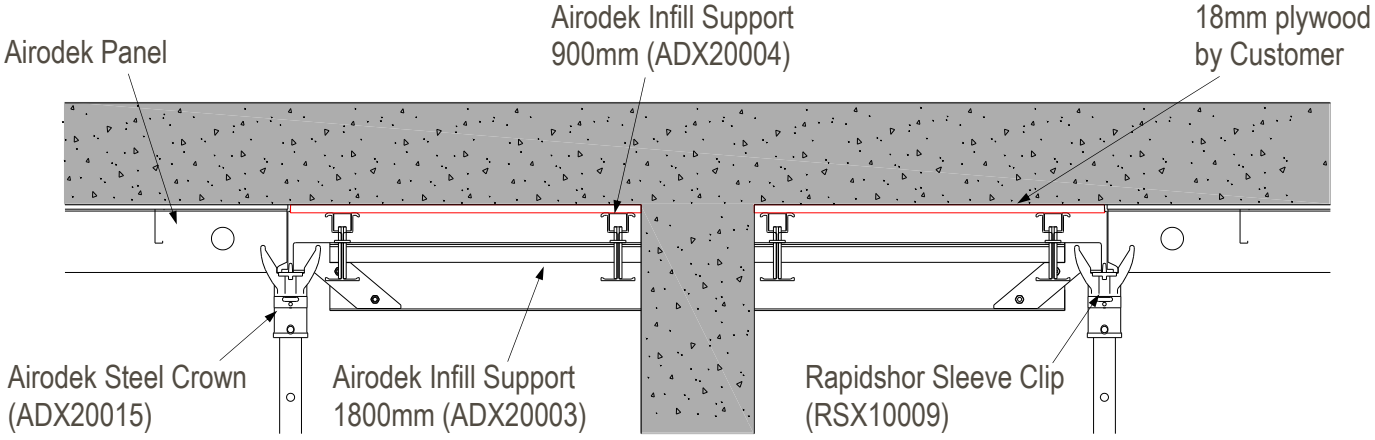
Infill at Columns Falling in Two Panels

The example below shows an 1800x1800mm infill. Primary infill beams (i.e. the infill beams sitting on the crown) must be fitted adjacent to the side of a panel as they will not fit adjacent to the end of a panel - see sheet 15.



Plan

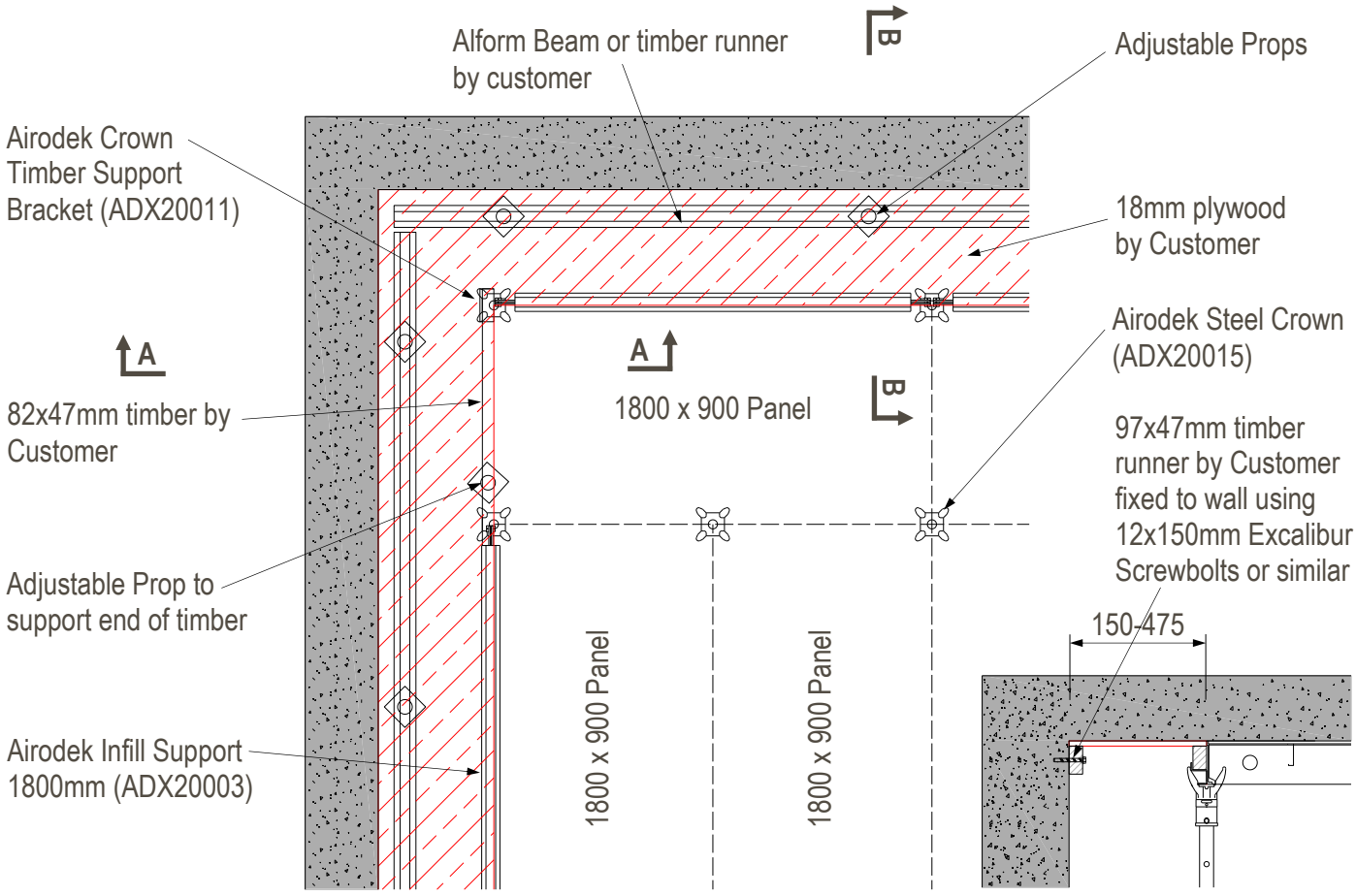
Important! Check infill beam for strength and deflection.
Add props to mid span if overloaded



Section B-B

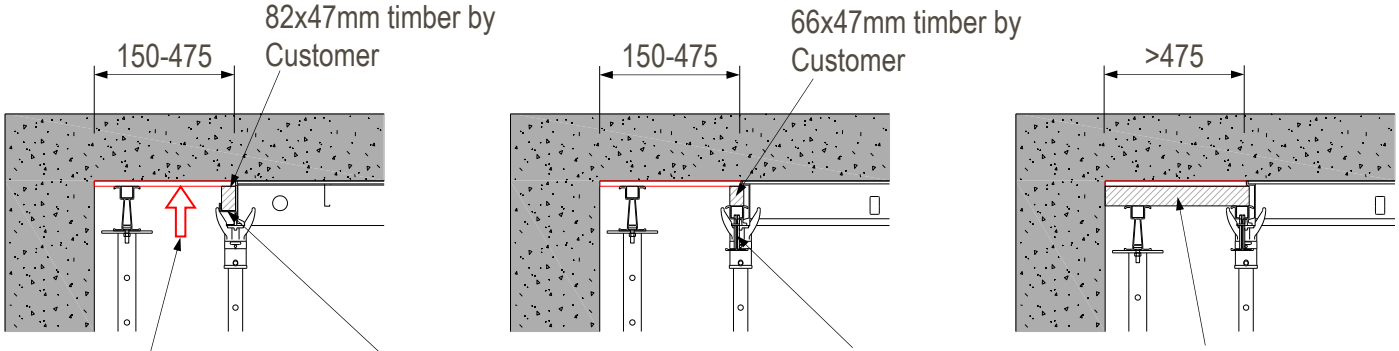
Infill at Perimeter Walls

The example below shows infill adjacent to perimeter walls using Infill Support Beams. Use Airodek Crown Timber Support Brackets with 82x47mm timbers at panel ends where the Support Beams will not fit.



Plan

Alternative Detail
(Spans 150-475mm)



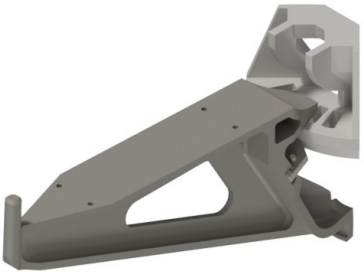
Section A-A
(Spans 150-475mm)

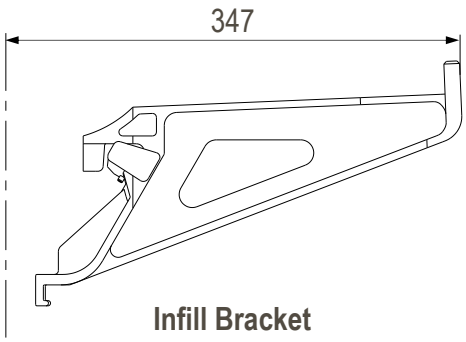
Section B-B
(Spans 150-475mm)

Section B-B
(Spans > 475mm)

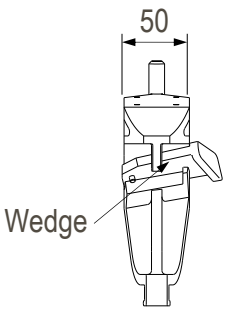
Airodek Infill Bracket & Support Block Assembly

Used as an alternative to Airodek Telescopic Panels to support soffit infills between 160 and 330mm wide adjacent to walls, the assembly attaches over one or more prongs of an Airodek Steel Crown to support 150mm deep timbers and 18mm plywood.

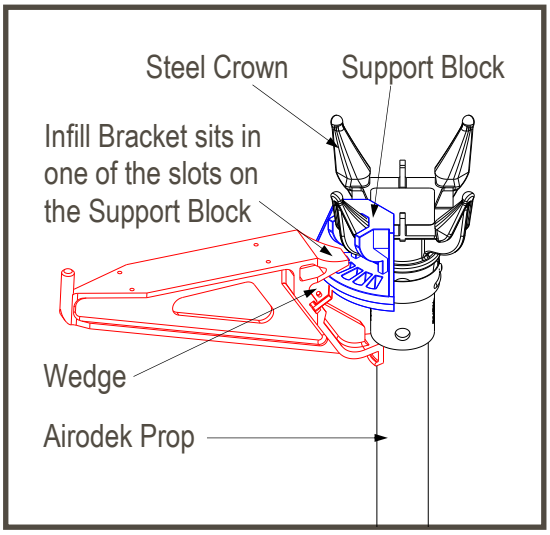


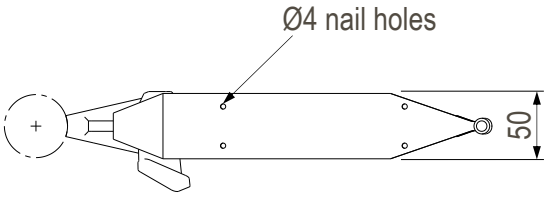


Infill Bracket Side Elevation

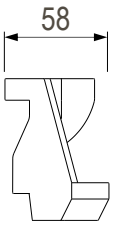


Rear Elevation

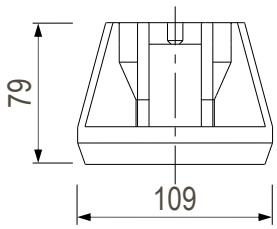




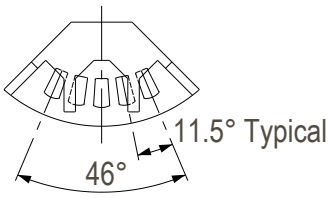
Plan



Support Block Side Elevation



Front Elevation



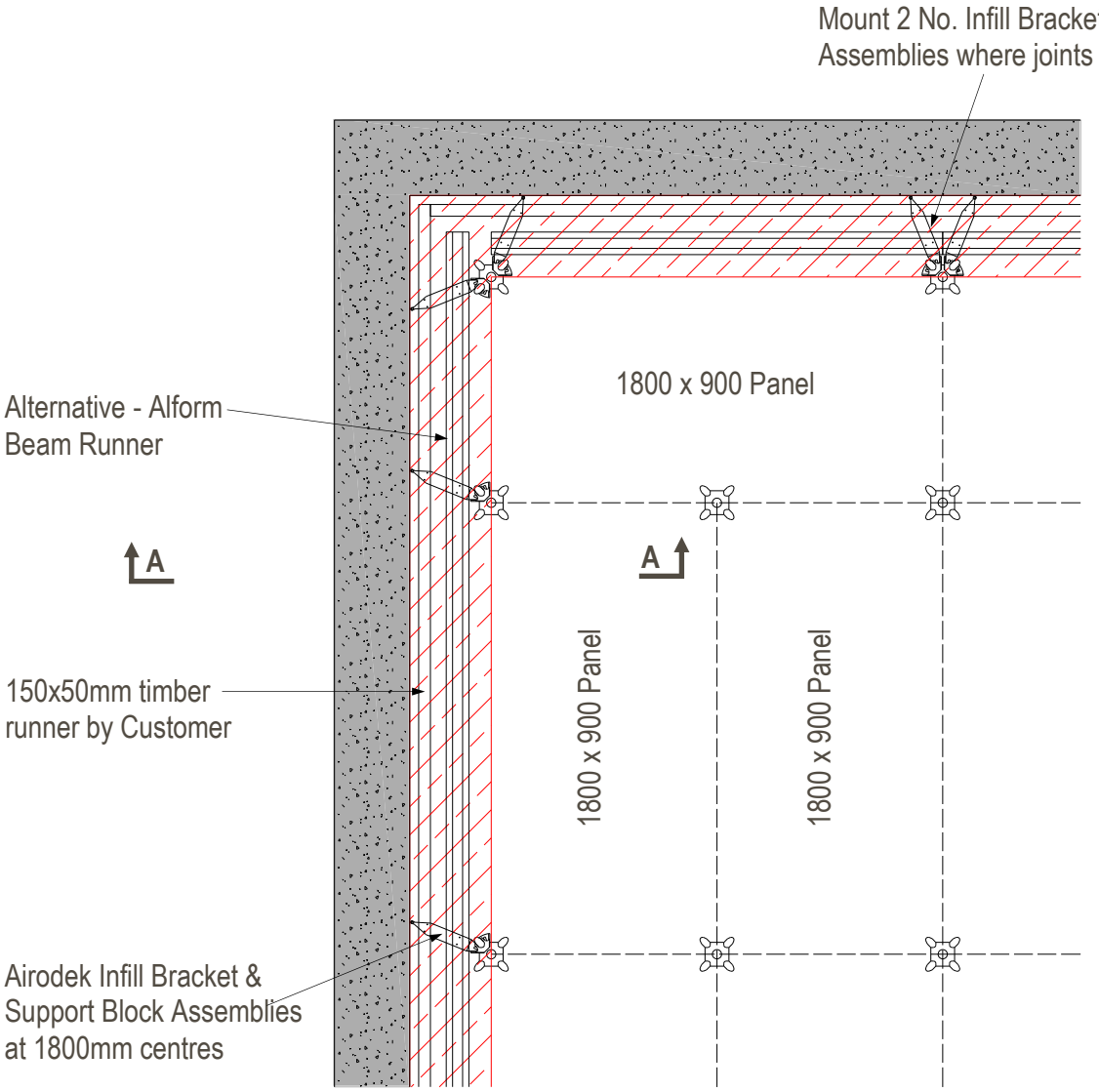
Plan

Code	Description	Weight
ADX20026	Airodek Infill Bracket	2.14 kg
ADX20027	Airodek Support Block	0.81 kg

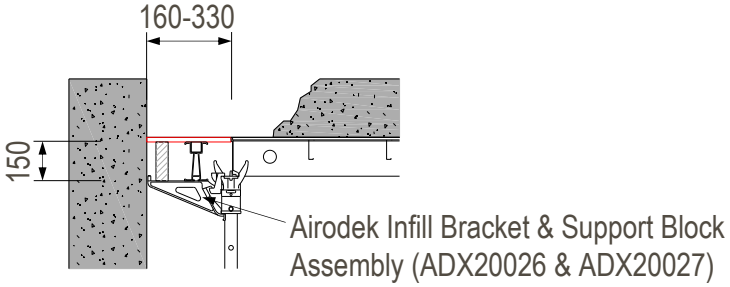
Infill at Perimeter Walls

The example below shows infill adjacent to perimeter walls using Airodek Infill Bracket & Support Block Assemblies.

Note: It is only possible to fit a single 150mm deep timber on the Infill Bracket for 160mm wide Infills. Where this occurs, additional timber packing will be required across the tops of the Support Block Assemblies to support the edge of the plywood nearest the panels.



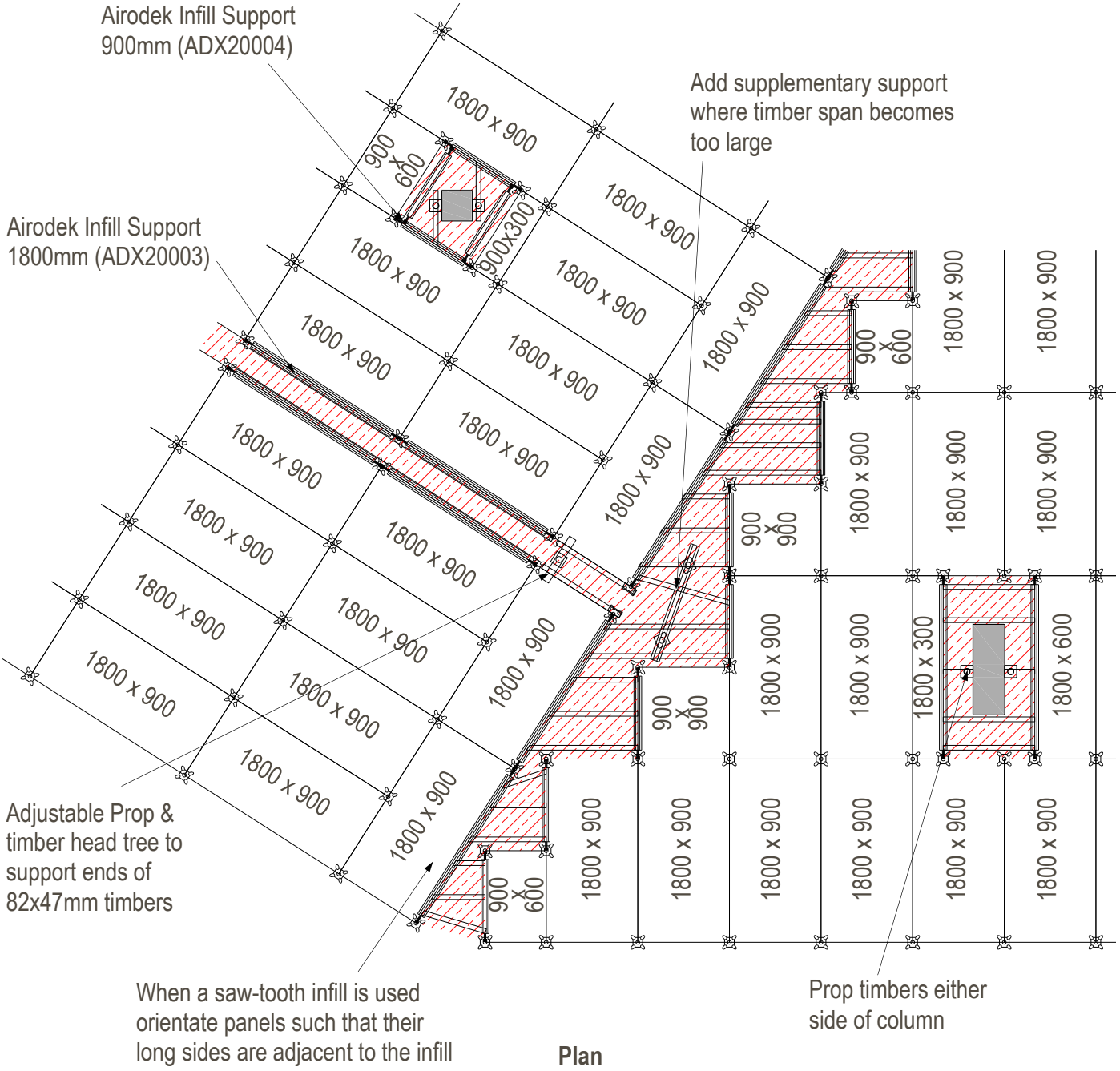
Plan



Section A-A

Example Showing Non-Standard Infills

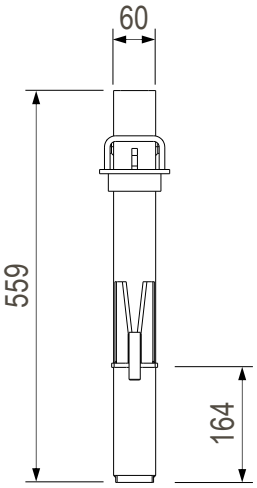
Note: Where spanning from infill beams with timbers use either 66mm deep x 47mm wide timbers or 147mm deep x47mm wide timbers notched at the ends so that they are 66mm deep.



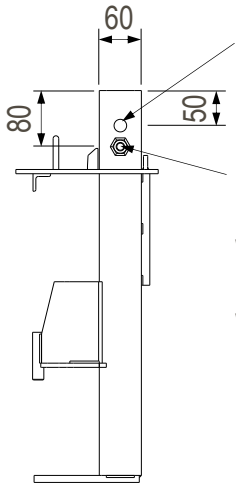
Plan

Airodek Crown Ultraguard Socket (ADX20051) weight 7.15kg

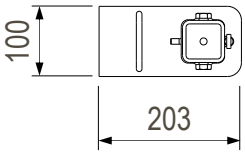
Use to connect Ultraguard Posts or scaffold tube posts to Airodek Steel Crowns around the perimeter of an Airodek Prop and Panel falsework solution. (Can also be used between Deck Beams when supported by the Airodek Steel Crown).



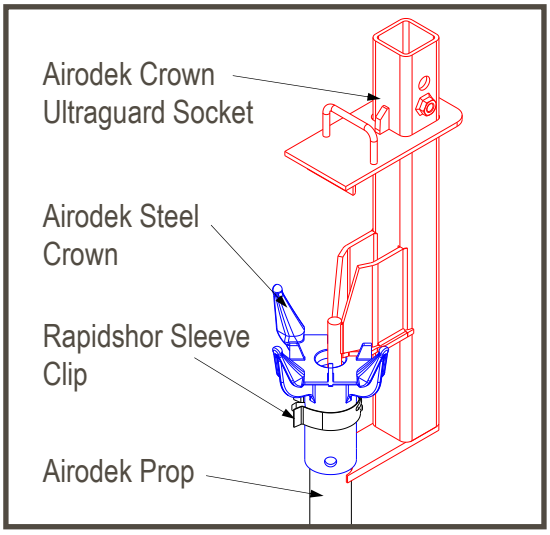
Front Elevation

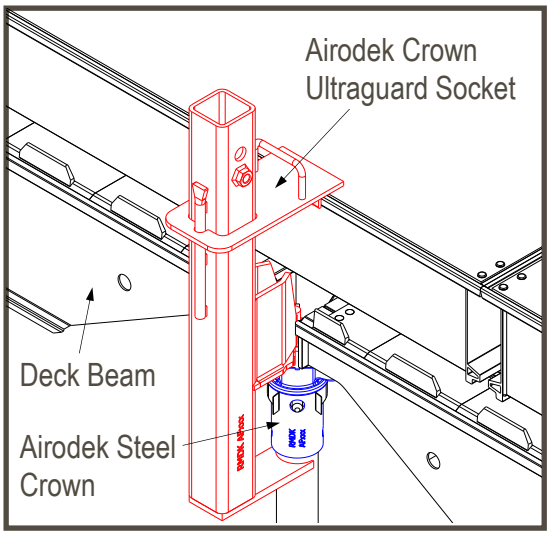


Side Elevation



Plan



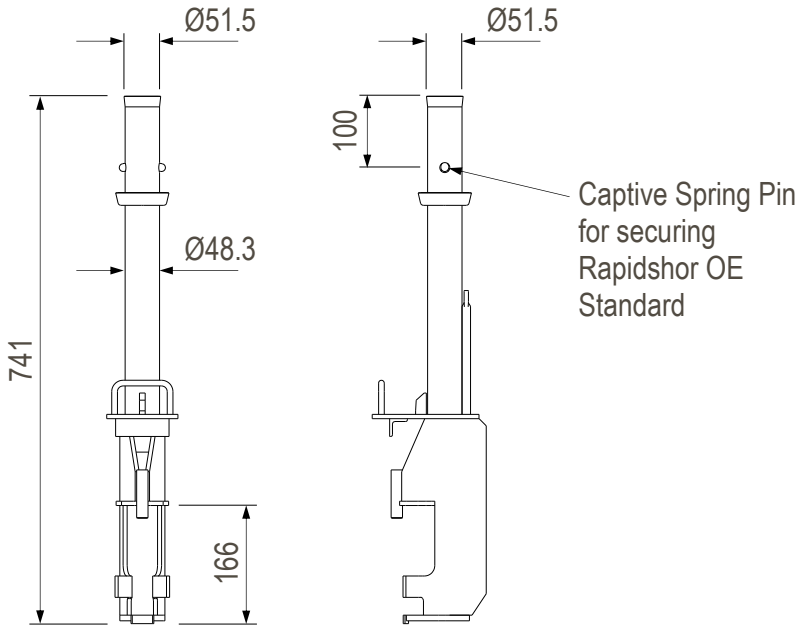


Code	Description	Weight
SAX11200	Ultraguard Post 1.2m	5.51 kg
SAX12550	Ultraguard Barrier 2550mm	17.3 kg
SAX13150	Ultraguard Barrier 3150mm	25.0 kg

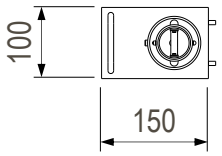
Airodek Crown Guardrail Socket (ADX20018) weight 5.43kg

An alternative guardrail adapter used to connect Rapidshor OE Standards to Airodek Steel Crowns around the perimeter of an Airodek Prop and Panel falsework solution. (Can also be used between Deck Beams when supported by the Airodek Steel Crown).

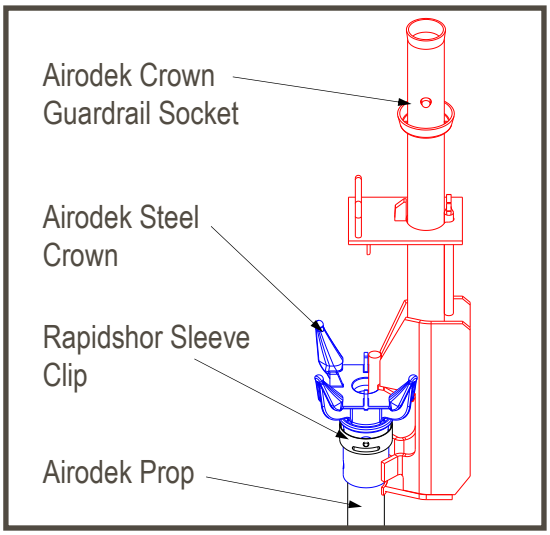
Note: Rapidshor Sleeve Clip is NOT required with this unit.

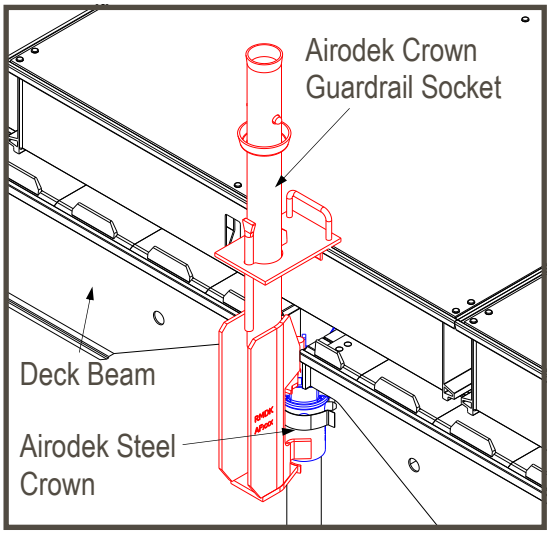


Front Elevation **Side Elevation**



Plan

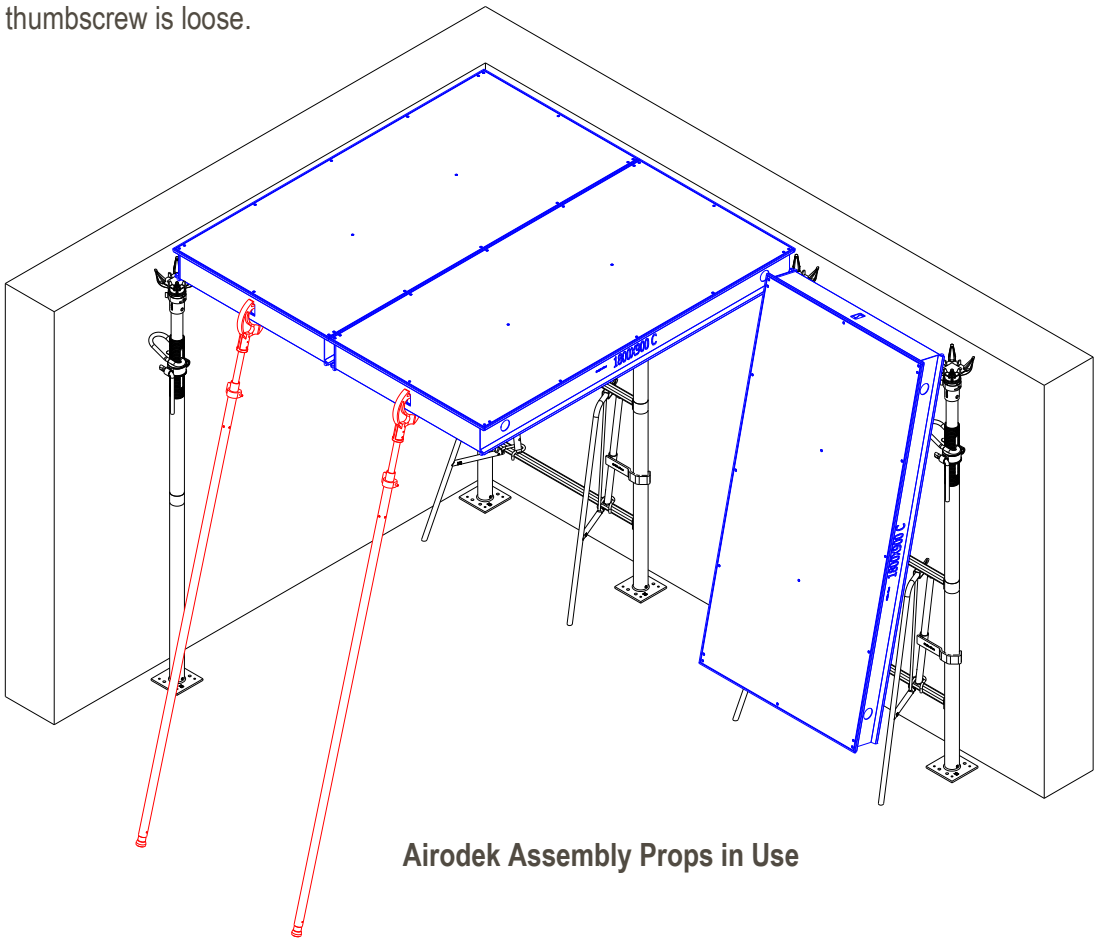




Code	Description	Weight
RSX41000	Rapidshor Standard OE 1000mm	5.36 kg
RSX20600	Rapidshor Ledger 600mm	3.08 kg
RSX20900	Rapidshor Ledger 900mm	3.96 kg
RSX21800	Rapidshor Ledger 1800mm	6.59 kg
RSX10005	Rapidshor Joint Sleeve 300mm	1.53 kg
RSX10009	Rapidshor Sleeve Clip	0.09 kg
SFX10026	Toe Board Clip	0.19 kg
SFX20240	Scaffold Board 2.4m - No. 2	11.0 kg
SFX20300	Scaffold Board 3.0m - No. 3	14.0 kg
SFX20395	Scaffold Board 3.95m	17.7 kg

Airodek Assembly Prop (ADX20013) weight 4.17kg

Use in pairs at an angle of approximately 25° to temporarily support the ends of Airodek Panels until an Airodek Prop with Steel Crown is installed between them.

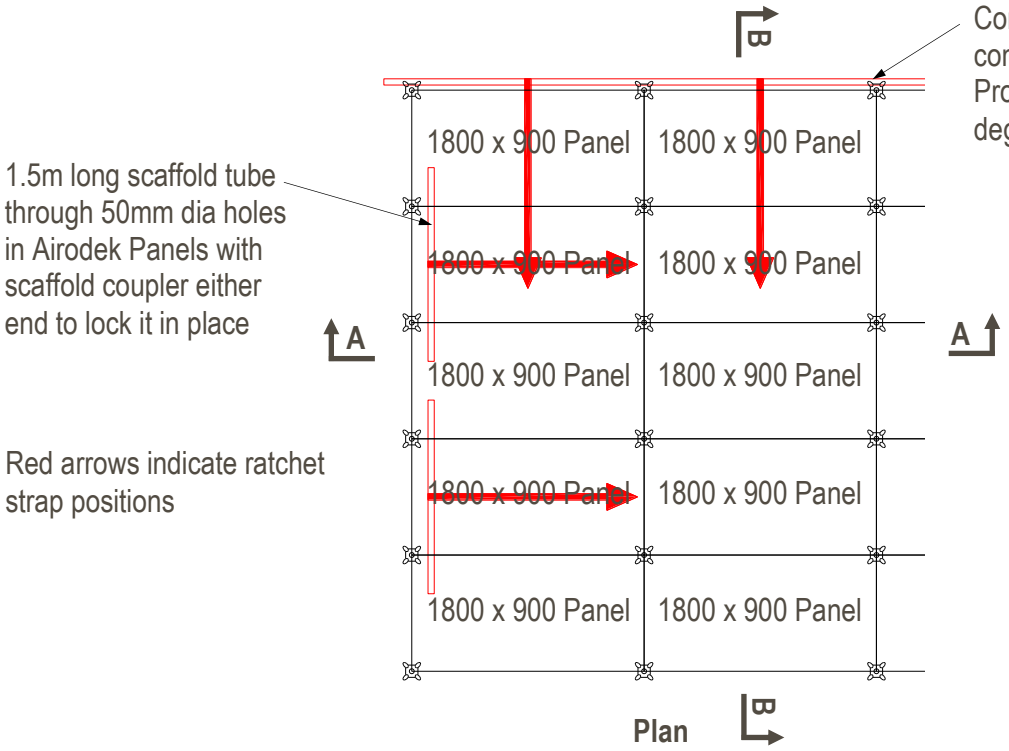


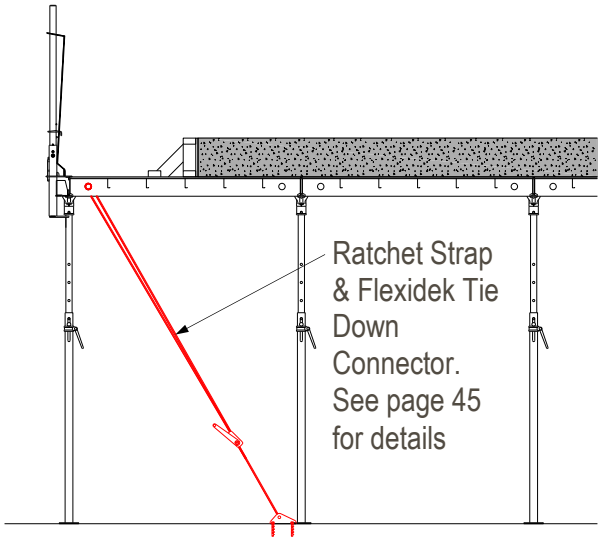
Airodek Assembly Props in Use

Horizontal Restraint Details - Prop & Panel

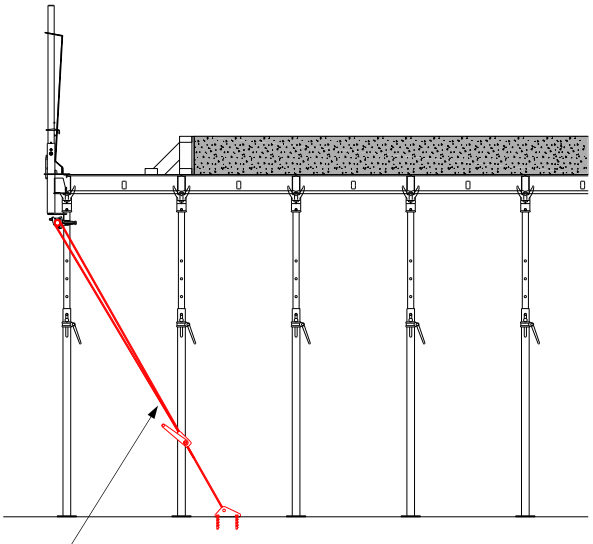
The example below shows the preferred method of providing horizontal restraint at leading edges of prop and panel falsework.

Note: Restraint details also apply where there is a break in soffit continuity such as at a step in a slab.





Section A-A



Section B-B

AIRODEK NEW PRODUCT

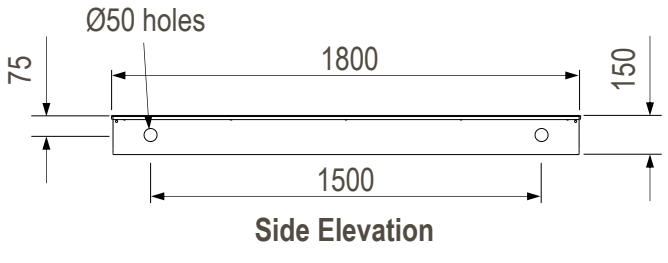
LIGHTWEIGHT SOFFIT SYSTEM

R·M·D KWIKFORM

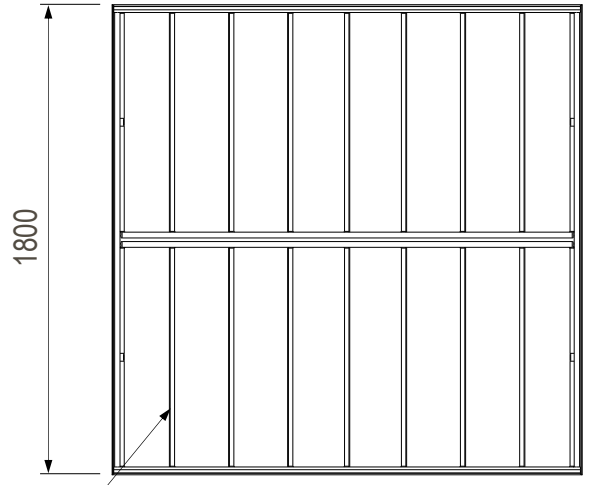
Airodek XL Panel 1800 x 1800mm - Composite (ADX18180) weight 48.3kg

Manufactured from a welded, lightweight, powder coated, aluminium extruded frame with 6mm thick Alkus face material.

Maximum Allowable Slab Thickness = 450mm
(can be increased to 600mm if central prop & crown is added)

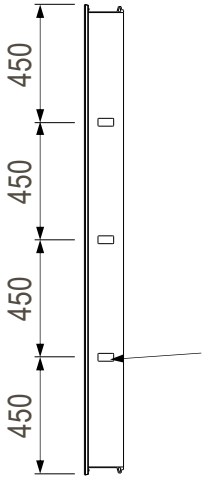


Side Elevation



Plan

ribs @ 220mm nominal ctrs



End Elevation

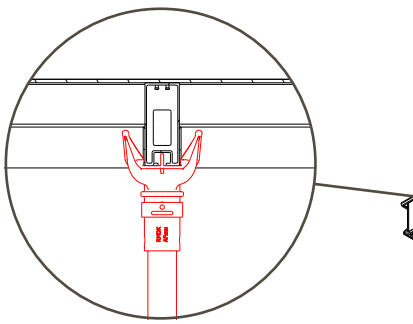
60mm x 30mm slots

Slot in central profile facilitates connection of Flexidek Tie Down Connector (FXX10008).

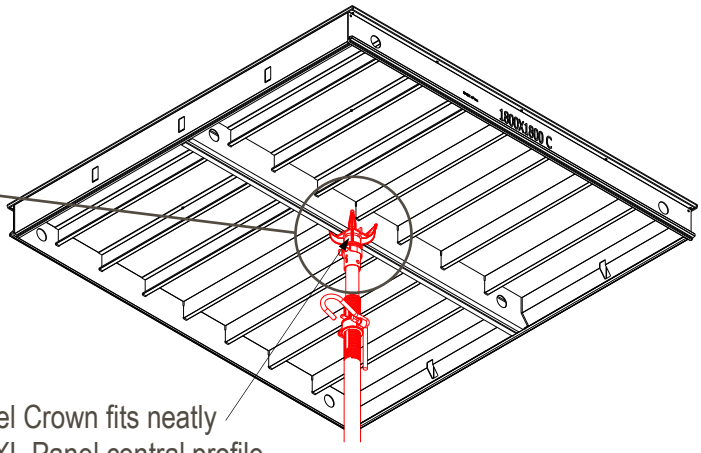
Note: Ensure that this profile is parallel with the direction of any lateral restraint chains/lashings.

Panels can be rotated on plan to accommodate lateral restraints in either direction.

Note: Further checks should always be made on the allowable working load of the falsework system used for support.



Section Through Central Profile



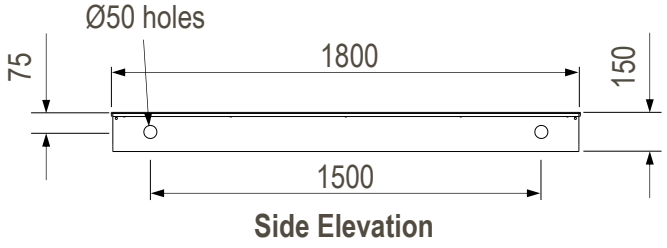
Airodek Steel Crown fits neatly around the XL Panel central profile where additional support is required

Airodek XL Panel 1800 x 1800mm - Plywood (ADX40502) weight 46.6kg

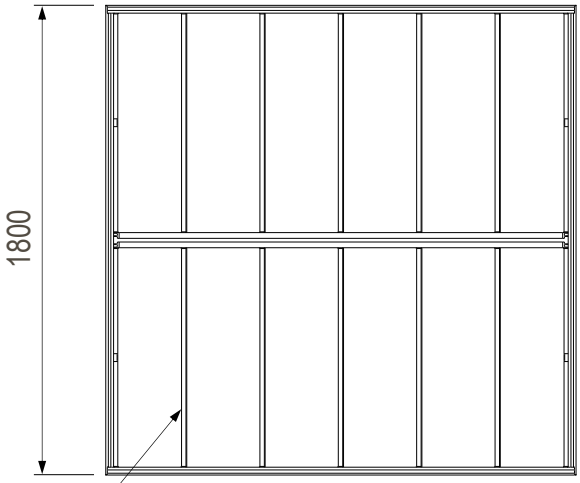
Manufactured from a welded, lightweight, powder coated, aluminium extruded frame with 9mm thick phenolic plywood face material.

Maximum Allowable Slab Thickness = 450mm

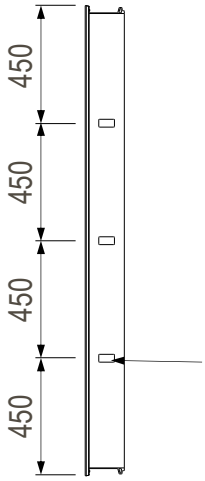
(can be increased to 600mm if central prop & crown is added)



Side Elevation



Plan



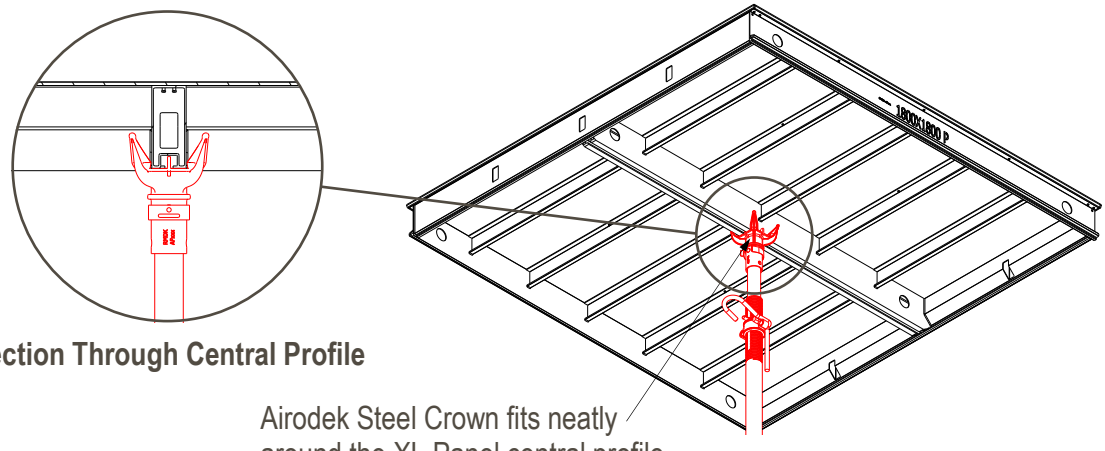
End Elevation

Slot in central profile facilitates connection of Flexidek Tie Down Connector (FXX10008).

Note: Ensure that this profile is parallel with the direction of any lateral restraint chains/lashings.

Panels can be rotated on plan to accommodate lateral restraints in either direction.

Note: Further checks should always be made on the allowable working load of the falsework system used for support.



Section Through Central Profile

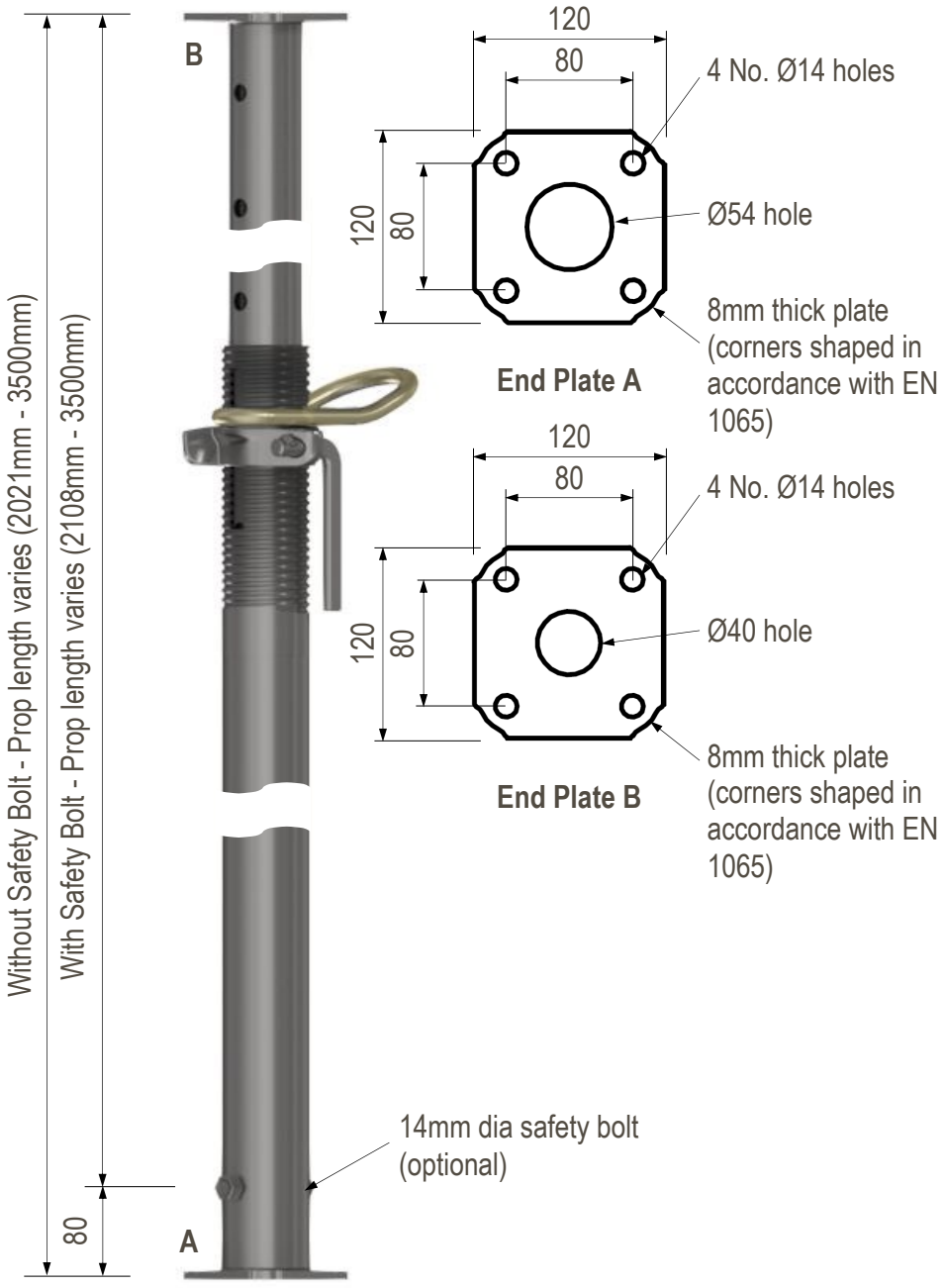
Airodek Steel Crown fits neatly around the XL Panel central profile where additional support is required

E35 Prop 2.02m - 3.5m Galv. (PRX10005) weight 21.7kg

A lightweight versatile Class 'E' prop with an Allowable Working Load of at least 30kN over its entire range in accordance with EN 1065.

Enhanced Loading Table

(AWLs stated are for props erected 1° maximum slope at base and with load applied concentrically at the top).



Extension (m)	AWL* (kN)
2.1	40
2.2	40
2.3	40
2.4	40
2.5	40
2.6	40
2.7	40
2.8	40
2.9	40
3.0	40
3.1	39
3.2	37
3.3	35
3.4	32
3.5	30

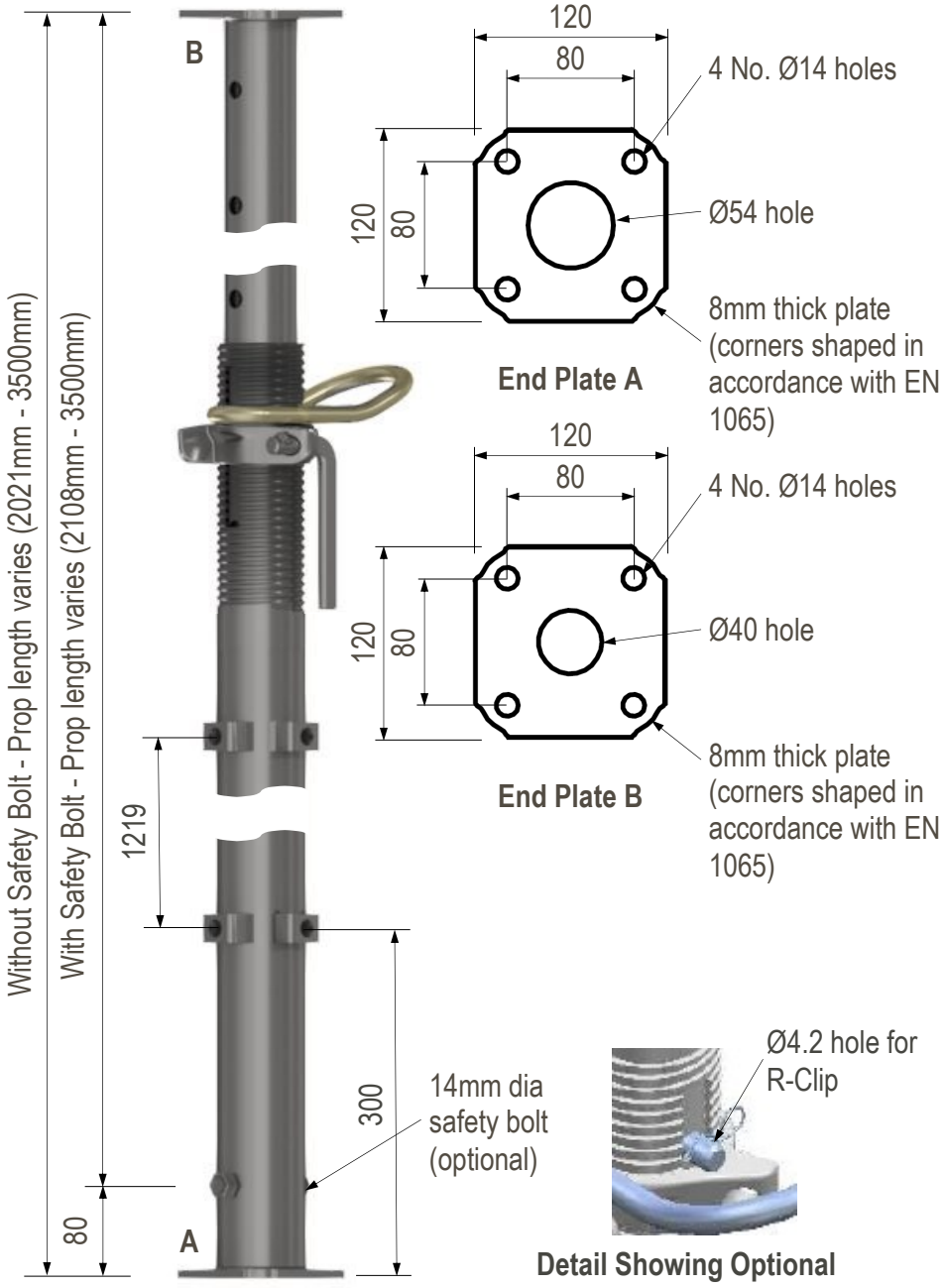
* Note: load capacity depends upon correct installation of prop pin.

E35 Prop with Jet Locks 2.02m - 3.5m Galv. (PRX20005) weight 22.3kg

A lightweight versatile Class 'E' prop with an Allowable Working Load of at least 30kN over its entire range in accordance with EN 1065. Use where scissor braces are required.

Enhanced Loading Table

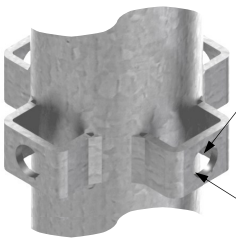
(AWLs stated are for props erected 1° maximum slope at base and with load applied concentrically at the top).



Extension (m)	AWL* (kN)
2.1	40
2.2	40
2.3	40
2.4	40
2.5	40
2.6	40
2.7	40
2.8	40
2.9	40
3.0	40
3.1	39
3.2	37
3.3	35
3.4	32
3.5	30

* Note: load capacity depends upon correct installation of prop pin.

Detail Showing Optional R-Clip to Prevent Accidental Dislodging of Prop Pin



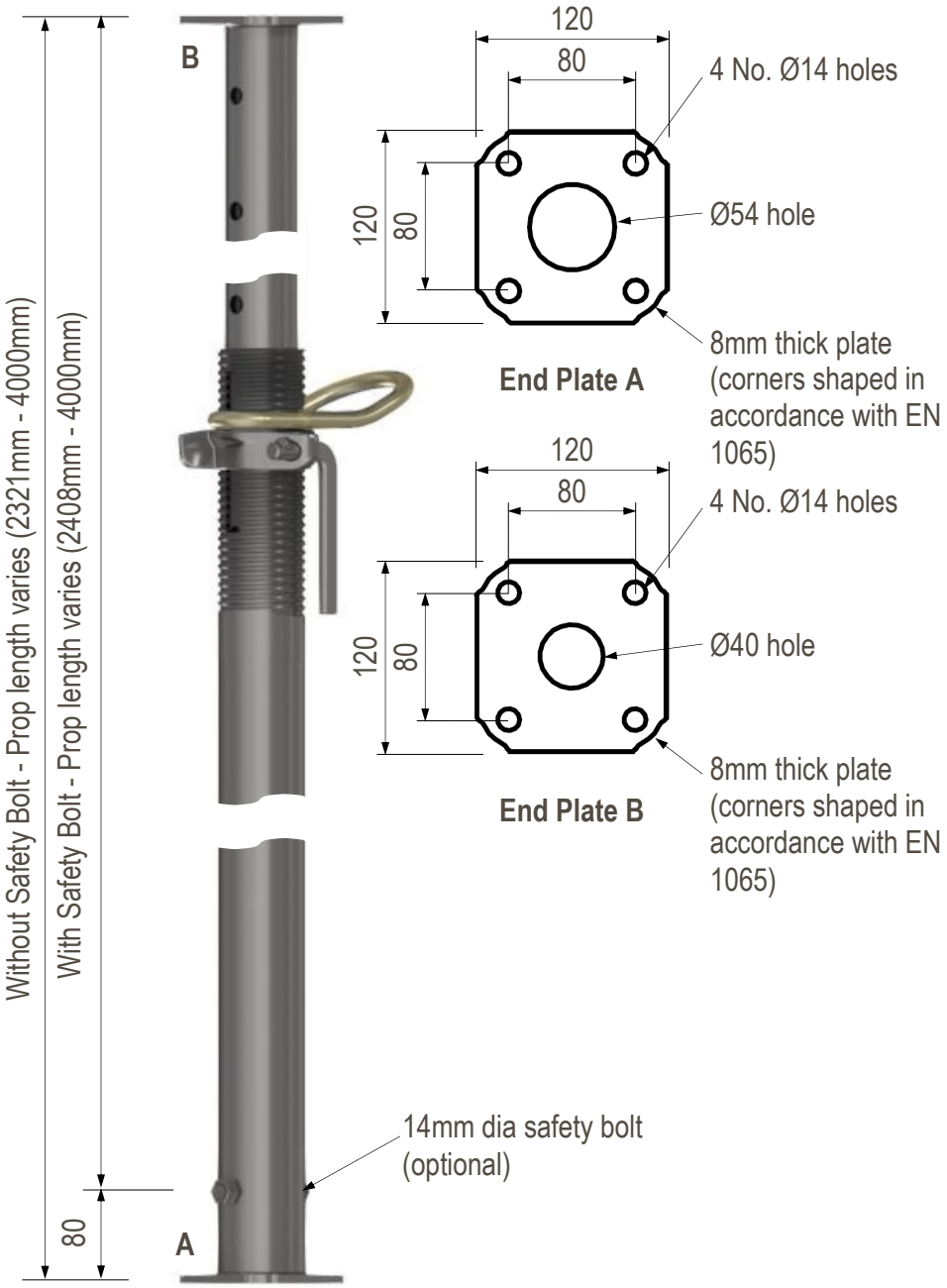
Detail Showing Jet Lock Brackets

E40 Prop 2.32m - 4.0m Galv. (PRX10006) weight 30.3kg

A lightweight versatile Class 'E' prop with an Allowable Working Load of at least 30kN over its entire range in accordance with EN 1065.

Enhanced Loading Table

(AWLs stated are for props erected 1° maximum slope at base and with load applied concentrically at the top).



Extension (m)	AWL* (kN)
2.4	40
2.5	40
2.6	40
2.7	40
2.8	40
2.9	40
3.0	40
3.1	40
3.2	40
3.3	40
3.4	40
3.5	40
3.6	39
3.7	37
3.8	35
3.9	32
4.0	30

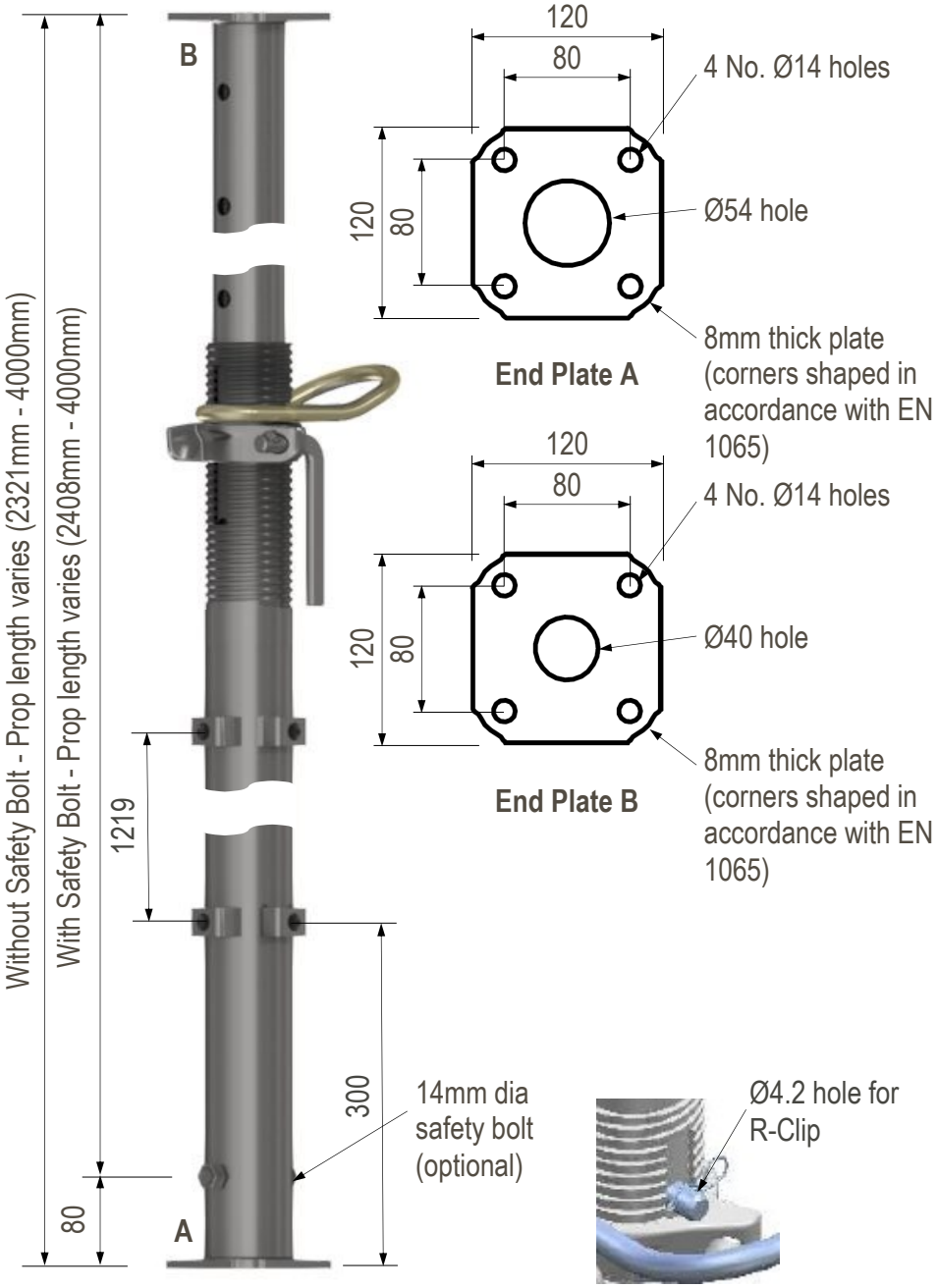
* Note: load capacity depends upon correct installation of prop pin.

E40 Prop with Jet Locks 2.32m - 4.0m Galv. (PRX20006) weight 30.9kg

A lightweight versatile Class 'E' prop with an Allowable Working Load of at least 30kN over its entire range in accordance with EN 1065. Use where scissor braces are required.

Enhanced Loading Table

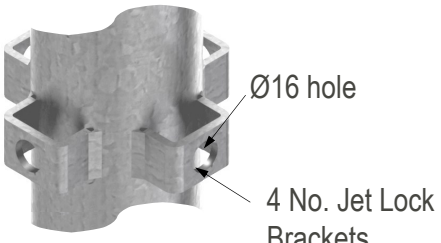
(AWLs stated are for props erected 1° maximum slope at base and with load applied concentrically at the top).



Extension (m)	AWL* (kN)
2.4	40
2.5	40
2.6	40
2.7	40
2.8	40
2.9	40
3.0	40
3.1	40
3.2	40
3.3	40
3.4	40
3.5	40
3.6	39
3.7	37
3.8	35
3.9	32
4.0	30

* Note: load capacity depends upon correct installation of prop pin.

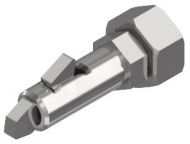
Detail Showing Optional R-Clip to Prevent Accidental Dislodging of Prop Pin



Detail Showing Jet Lock Brackets

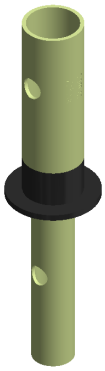
Jet Lock Connector with Nut (ASS10014) weight 0.08kg

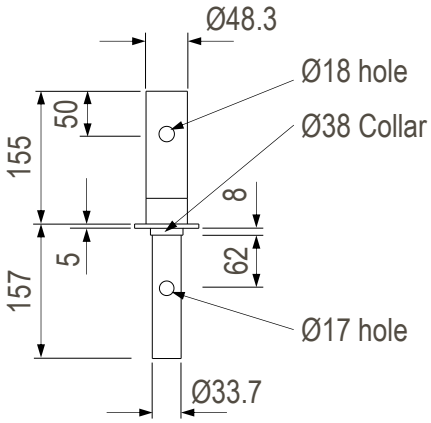
A spring-lock pin used to secure scissor braces to E35 & E40 Props with Jet Lock Brackets (PRX20005 & PRX2006).



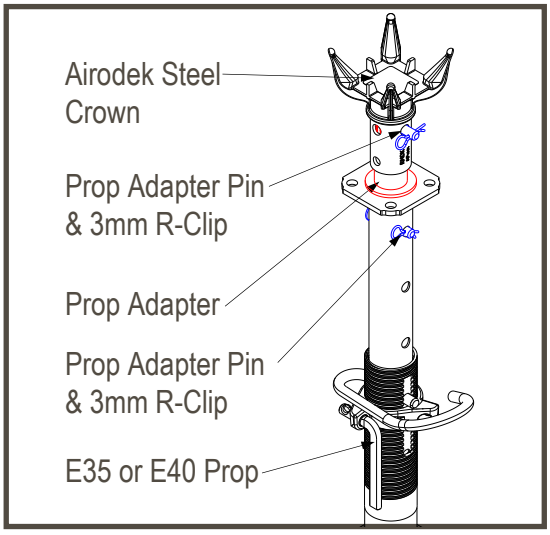
Airodek Prop Adapter (ADA10050) weight 1.02kg

Use in conjunction with Airodek Prop Adapter Pin and Superslim 3mm R-Clip (ADA10565 + SSX10045) as a transition unit to connect a Steel Crown or Airodek Drophead onto an E35 or E40 Prop. **AWL = 40kN**





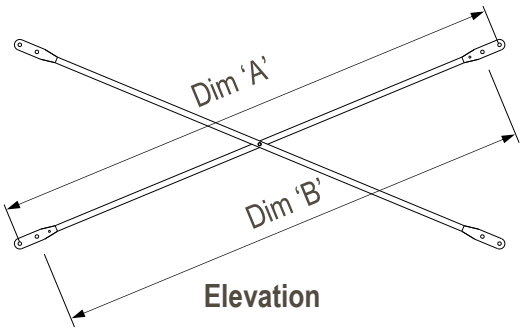
Elevation



Prop Scissor Braces

Use with Airodek XL Panels to stabilise the falsework during the erection and dismantling stages only. Locate holes in ends of scissor braces over Jetlock Connectors. Use outer holes where Jet Lock Brackets are spaced at 1219mm vertical centres and inner holes when they are spaced at 914mm. Folds flat for easy storage.


Plan



Elevation

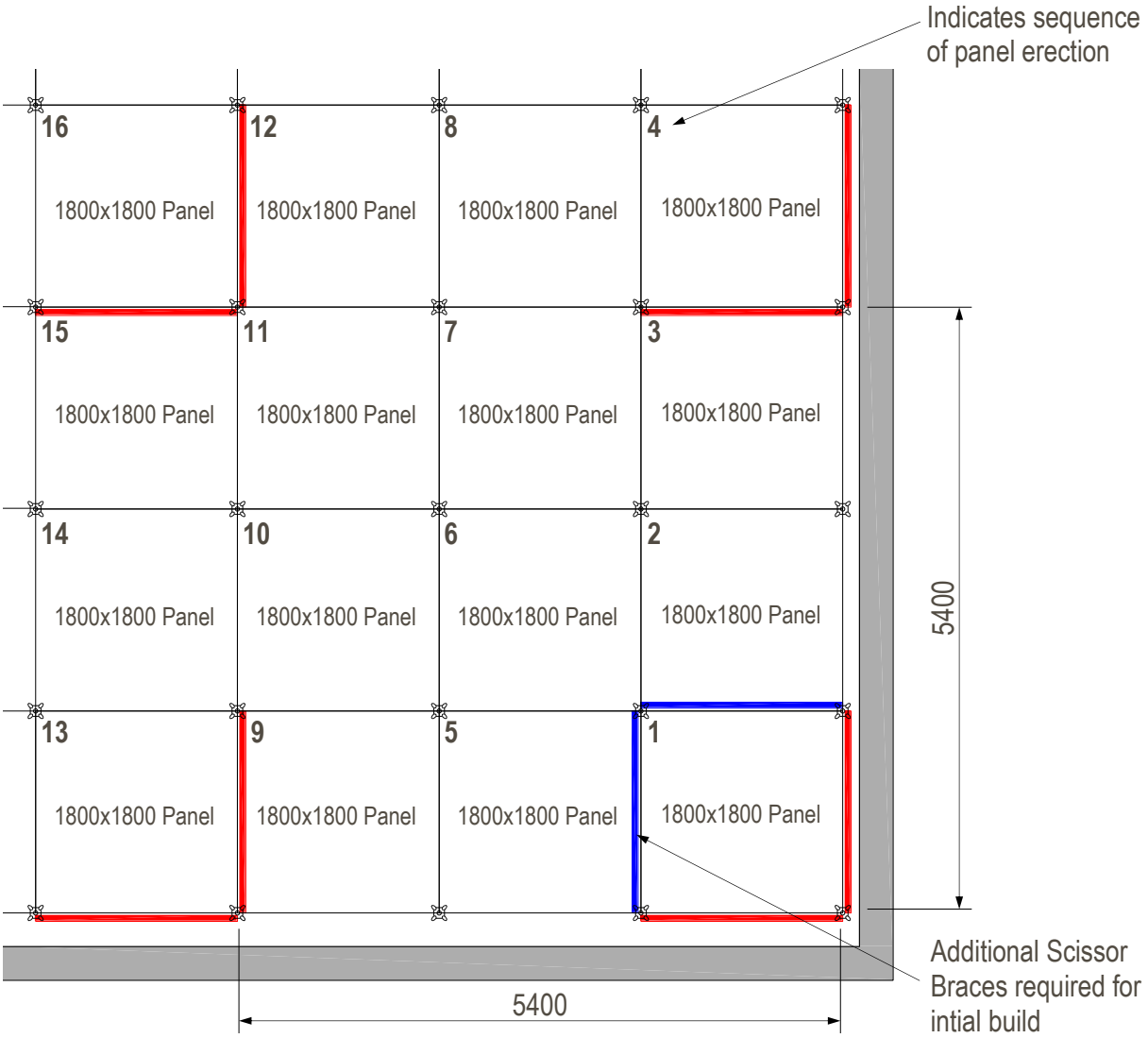
Code	Description	Dim 'A'	Dim 'B'	Weight
PRX50001	Prop Scissor Brace 1800mm	2174mm	2019mm	4.76 kg
PRX50002	Prop Scissor Brace 900mm	1515mm	1283mm	3.22 kg

Airodek XL Prop & Panel System Scissor Braces - Typical Details

The Scissor Braces provide temporary stability for the Airodek System during its erection & dismantling stages only.

The stability of the whole system relies on the soffit formwork being laterally top-restrained (i.e. the Airodek panels or infill plywood butt snugly up against the permanent structure such as the walls and columns which then prevent the system from falling over). Where this cannot be relied upon, additional bracing will be required.

Scissor Braces are required at 5.4m centres in each direction. Erect the first XL Panel on a tower of props linked together with 4 Scissor Braces. This tower will need to remain in place until a sufficient area of panels has been erected to stabilise the system - approx. 16 panels. Two of the tower Scissor Braces can be removed at this point for use elsewhere on the falsework.



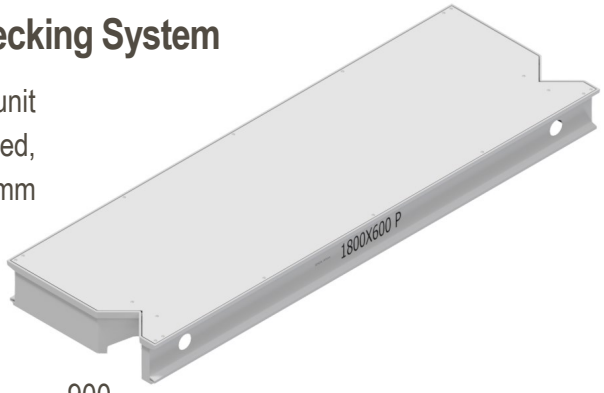
Typical Part Plan

AIRODEK NEW PRODUCT

LIGHTWEIGHT SOFFIT SYSTEM

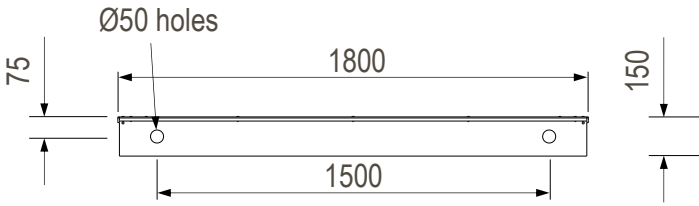
R·M·D KWIKFORM

Airodek Drophead Panels - For use with Airodek Decking System

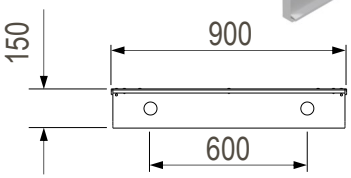


Panels have dedicated triangular voids that accept the Drophead unit and are manufactured from a welded, lightweight, powder coated, aluminium frame with options of 9mm thick phenolic plywood or 10mm thick Alkus face material.

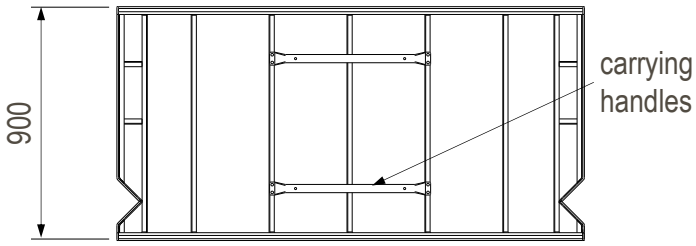
See Table Below for Allowable Slab Thicknesses



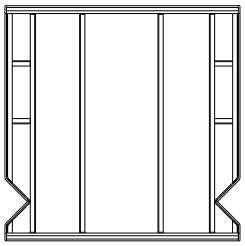
Side Elevation



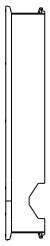
Side Elevation



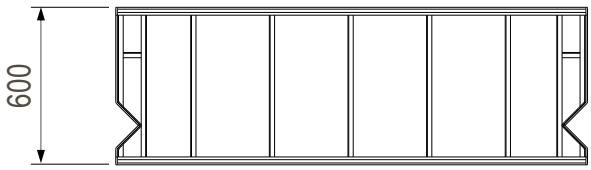
1800 x 900mm Panel Plan



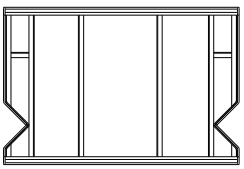
900 x 900mm Panel Plan



End Elevation

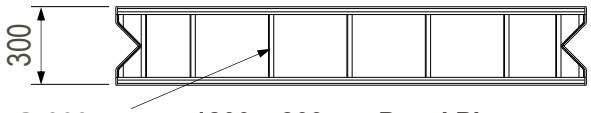


1800 x 600mm Panel Plan

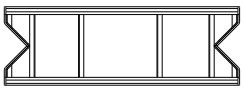


900 x 600mm Panel Plan

End Elevation



ribs @ 300mm ctrs **1800 x 300mm Panel Plan**



900 x 300mm Panel Plan

End Elevation

Code		Description	Weight		Maximum Slab Thickness
Plywood	Composite		Plywood	Composite	
ADX30009	ADX40009	Airodek Drophead Panel 1800 x 900mm	23.9 kg	29.7 kg	500mm
ADX30006	ADX40005	Airodek Drophead Panel 1800 x 600mm	18.3 kg	22.0 kg	700mm*
ADX30003	ADX40001	Airodek Drophead Panel 1800 x 300mm	12.4 kg	14.1 kg	700mm
ADX30010	ADX40010	Airodek Drophead Panel 900 x 900mm	13.3 kg	16.2 kg	500mm
ADX30007	ADX40006	Airodek Drophead Panel 900 x 600mm	10.5 kg	12.2 kg	700mm*
ADX30004	ADX40002	Airodek Drophead Panel 900 x 300mm	6.70 kg	7.50 kg	700mm

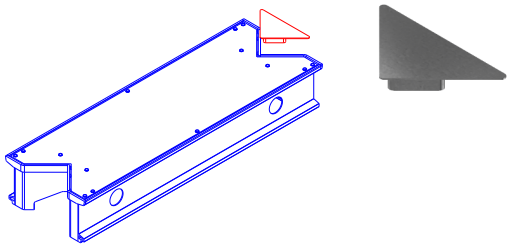
* Deflection of the Alkus face material falls slightly outside the span/270 maximum. If face material deflection needs to be restricted to within span/270 overlay the panels with a 12mm thick plywood or similar.

Note: Further checks should always be made on the allowable working load of the falsework system used for support.

AIRODEK

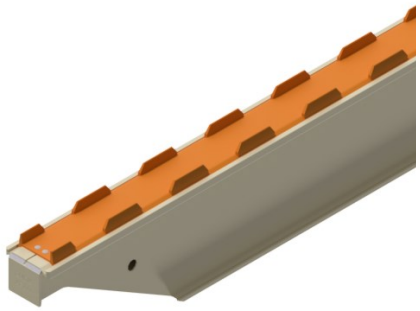
LIGHTWEIGHT SOFFIT SYSTEM

Airodek Drophead Infill Plate (ADX30005) weight 0.21kg



A triangular plate that engages with the Drophead void at the end of the panel to prevent grout loss during pouring. Use where a Drophead Panel is without a Drophead present.

Deck Beams

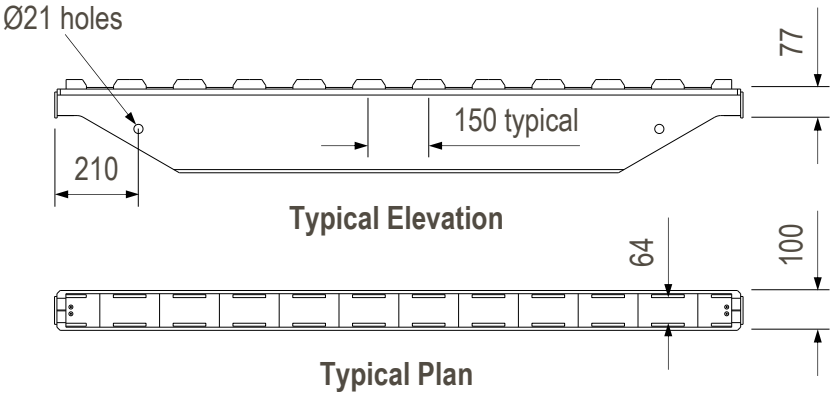


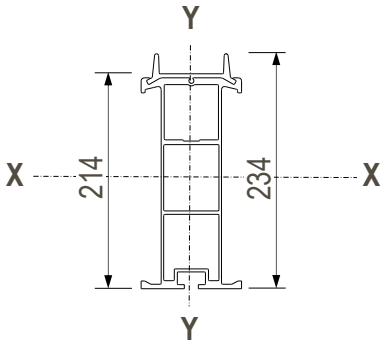
Deck Beams enable panels to be used on other falsework systems such as Alshor Plus and Rapidshor, thus requiring fewer legs per square metre than a prop & panel solution. Integral plastic or aluminium upstands ensure secure location and prevent unintentional dislodging of panels.

The choice to use Deck Beams in an Airodek falsework solution will be based upon one of the following three constraints:

- Large expanses of soffit (larger grid sizes & fewer legs).
- The propping height (floor to soffit height exceeds 3.5m).
- The requirement for a Drophead system (earlier striking of Airodek panels and Deck Beams).

Section Properties	
Area: Gross	28.2cm²
I $_{xx}$	1758 cm^4
EI $_{xx}$	1213 kNm²
M max $_{xx}$	21.5 kNm
Max Reaction (Intermediate)	60 kN
Max Reaction (End)	30 kN
Self Weight	7.8 kg/m





Enlarged Section

Code	Description	Weight	Maximum Slab Thickness
ADX31800	Airodek Decking Beam 1800mm	13.0 kg	700mm*
ADX32400	Airodek Decking Beam 2400mm	18.1kg	500mm
ADX33000	Airodek Decking Beam 3000mm	23.3 kg	300mm

Note: Further checks should always be made on the allowable working load of the falsework system used for support.

* Be sure to choose appropriate Airodek Panel sizes when using 1800mm Deck Beams for 700mm thick slabs.

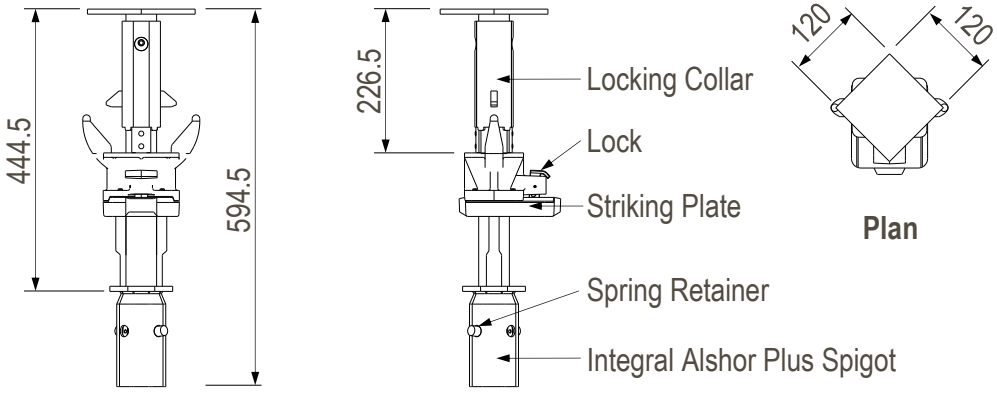
AIRODEK

LIGHTWEIGHT SOFFIT SYSTEM

Airodek to Alshor Drophead (ADX10016) weight 8.61kg

Use to connect the decking system to Alshor Plus legs. The Drophead's quick strike system lowers the Airodek Panels and Deck Beams by 75mm for early removal whilst the freshly poured concrete slab remains propped. An integral collar locks the Deck Beams securely onto the Drophead's twin prongs to prevent accidental dislodging / wind uplift. A vertical orange band provides a clear indication of when the collar is in the locked position.

AWL = 60kN during concrete placement
AWL = 65kN during back-propping phase



Note: Further checks should always be made on the allowable working load of the Alshor Plus falsework system used to support these Dropheads. Refer to Alshor Plus datasheets - Graphs 801 to 804.

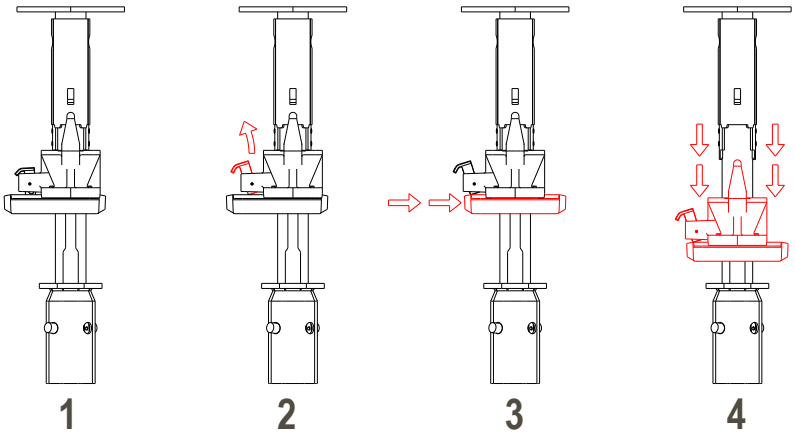
Striking the Drophead

1, Drophead in 'un-struck' position. (Striking plate can be set either to the left or the right of the lock).

2, Lift & rotate lock until the bottom is free of the striking plate. Rest lock in 'unlocked' position.

3, Hit the striking plate firmly with a hammer so that it travels horizontally by 25mm.

4, The striking plate and twin prongs drop by 75mm.



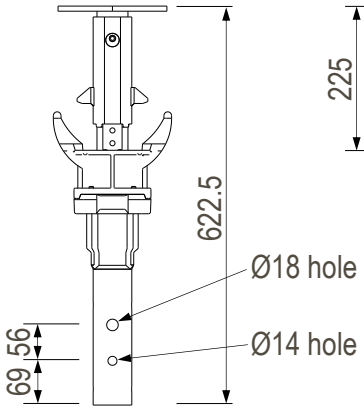
Note: When Dropheads are placed close to walls, ensure that the striking plate is pre-set remote from the wall to facilitate striking.

Airodek Drophead (ADX30001) weight 7.91kg

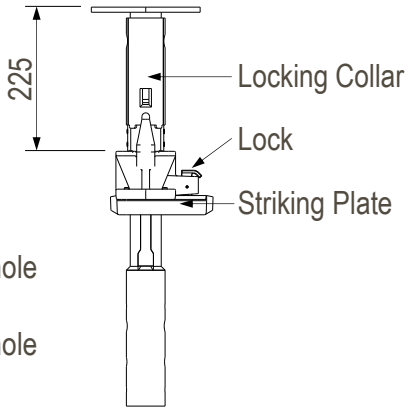
Use to connect the decking system to a number of different propping systems, see bottom of page. The Drophead's quick strike system lowers the Airodek Panels and Deck Beams by 75mm for early removal whilst the freshly poured concrete slab remains propped. An integral collar locks the Deck Beams securely onto the Drophead's twin prongs to prevent accidental dislodging / wind uplift . A vertical orange band provides a clear indication of when the collar is in the locked position.

AWL = 60kN during concrete placement

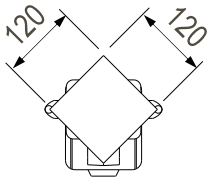
AWL = 65kN during back-propping phase



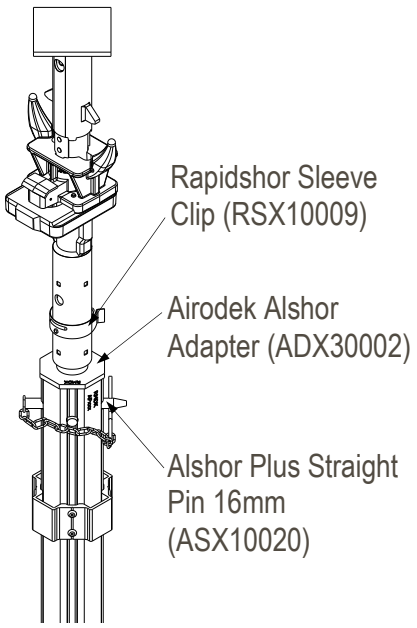
Front Elevation



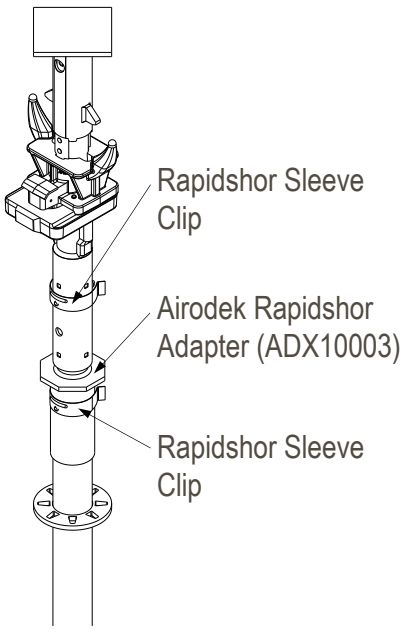
Side Elevation



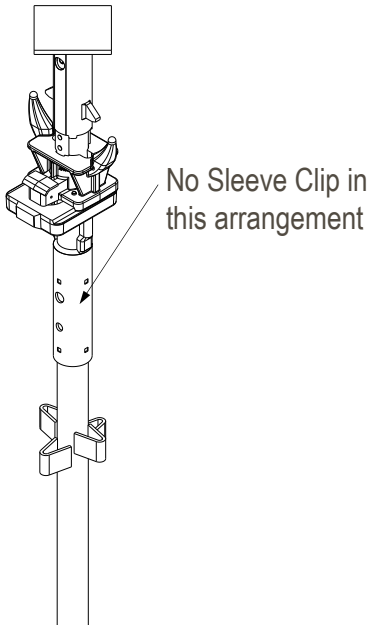
Plan



Alshor Plus Leg



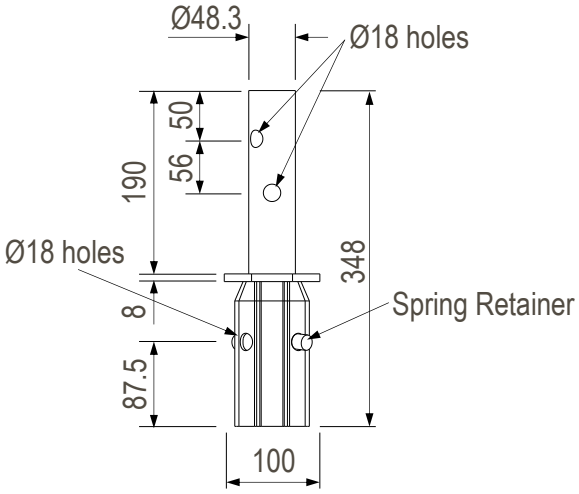
Rapidshor Leg



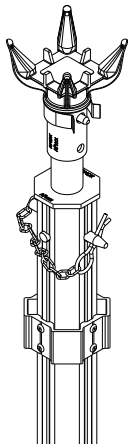
Rapidstage / Kwikstage Leg

Airodek Alshor Adapter (ADX30002) weight 4.12kg

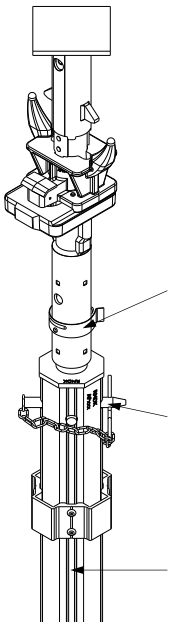
Use as a transition unit to connect a Steel Crown or Airodek Drophead onto an Alshor Plus Leg. **AWL = 65kN**



Elevation



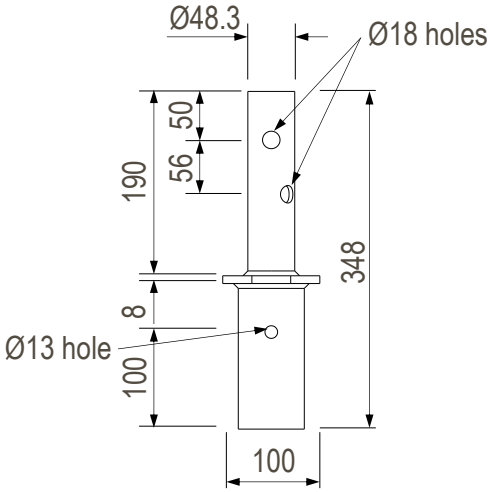
Steel Crown



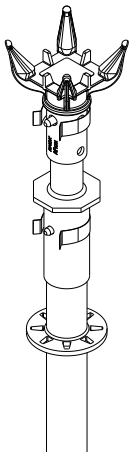
Drophead

Airodek Rapidshor Adapter (ADX10003) weight 2.23kg

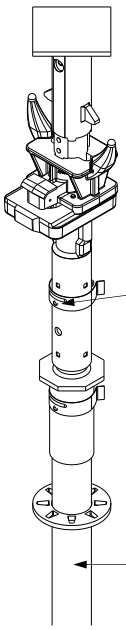
Use as a transition unit to connect a Steel Crown or Airodek Drophead onto a Rapidshor Leg. **AWL = 65kN**



Elevation



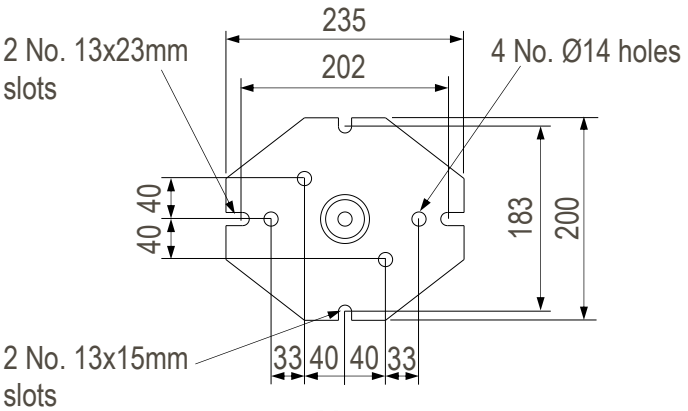
Steel Crown



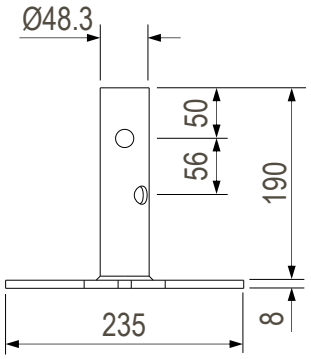
Drophead

Universal Adapter (ADX10011) weight 3.24kg

Allows the use of the Airodek system on competitor's falsework systems (i.e. Titan, Gass and Multiprop). **AWL = 65kN**



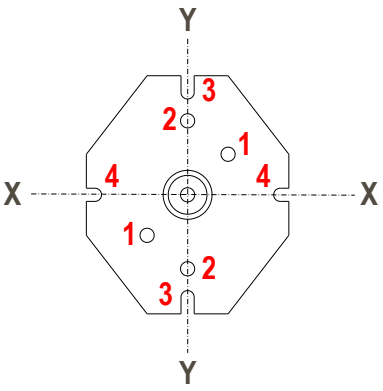
Plan



Elevation

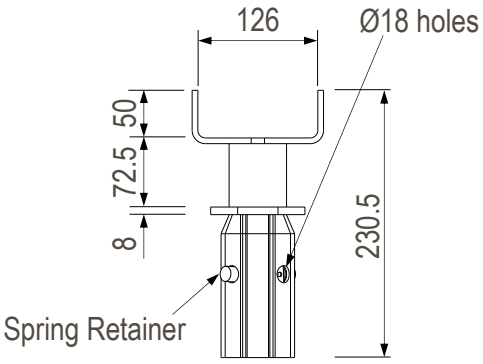
Hole Configuration Chart

	TITAN		GASS		MULTIPROP		Primary Beam	
Hole Set	Jack	Leg	Jack	Leg	Outer	Inner	x-x	y-y
1	✓				✓	✓	✓	✓
2		✓					✓	
3		✓						✓
4			✓	✓			✓	✓

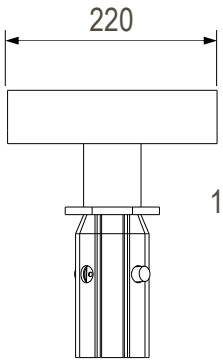


Alshor - Airodek U-Head (ASX10066) weight 4.24kg

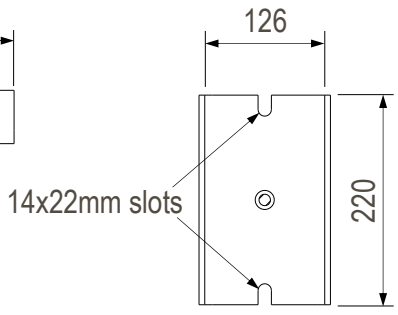
Use to support Airodek Deck Beams in perimeter applications where the opposing end of the beam is supported by either an Airodek Crown or an Airodek/Alshor Plus Drop-head. Fix to the Airodek Deck Beam with 2 No. M12 Unifix Bolts & M12 Wing Nuts (AFX20022 + BNU12001). **AWL in compression = 65kN, AWL in tension with straight pin = 20kN**



Front Elevation

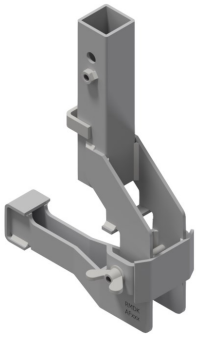


Side Elevation



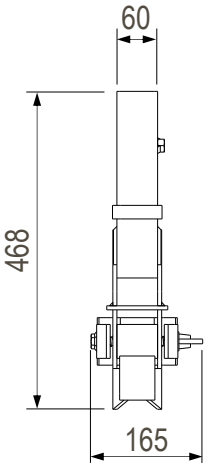
Plan

Ultraguard Deck Beam Guardrail Socket (ADX10014) weight 6.80kg

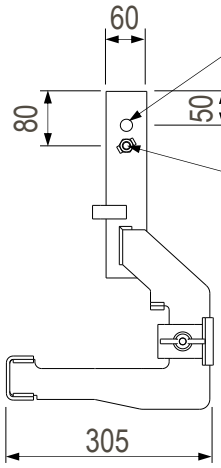


Use to connect Ultraguard Posts or scaffold tube posts to the end of cantilevered Deck Beams and to safely transmit slab edge loads from the sides of the panel back into these beams. Two spring-loaded clamps positively secure the socket onto the end of the beam. Hand tighten wing nut and tighten an additional ¼ turn with a hammer.

Refer to sheet 23 for Ultraguard component list.

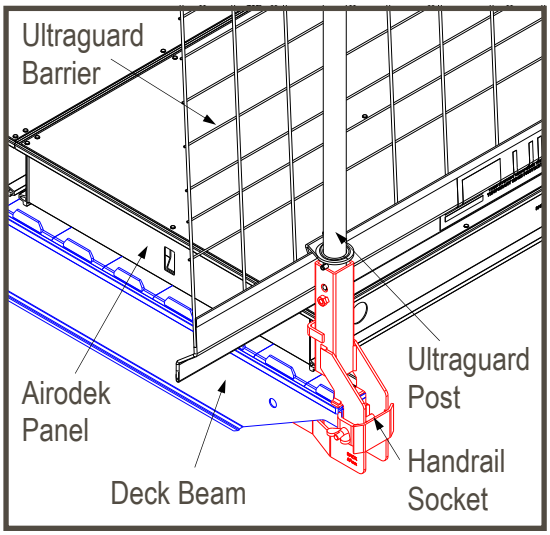


Front Elevation

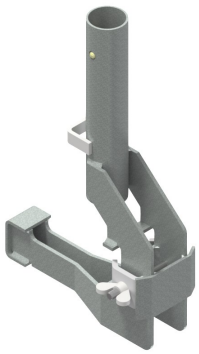


Side Elevation

Captive 12mm Hex Nut for use with M12 Unifix Bolt (AFX20022) when scaffold tube handrail posts are used

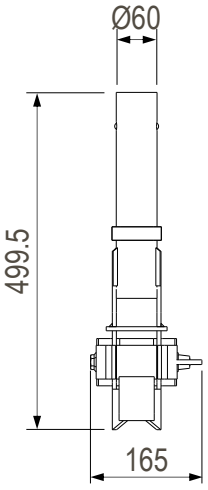


Airodek Deck Beam Guardrail Socket (ADX20016) weight 6.14kg

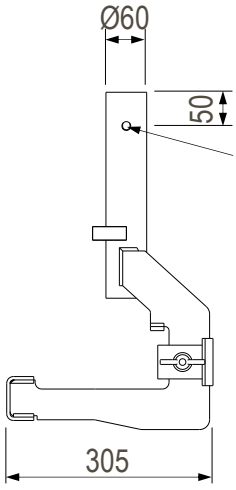


An alternative guardrail adapter used to connect Rapidshor OE Standards to the end of cantilevered Deck Beams and to safely transmit slab edge loads from the sides of the panel back into these beams. Two spring-loaded clamps positively secure the socket onto the end of the beam. Hand tighten wing nut and tighten an additional ¼ turn with a hammer.

Refer to sheet 24 for Rapidshor component list.

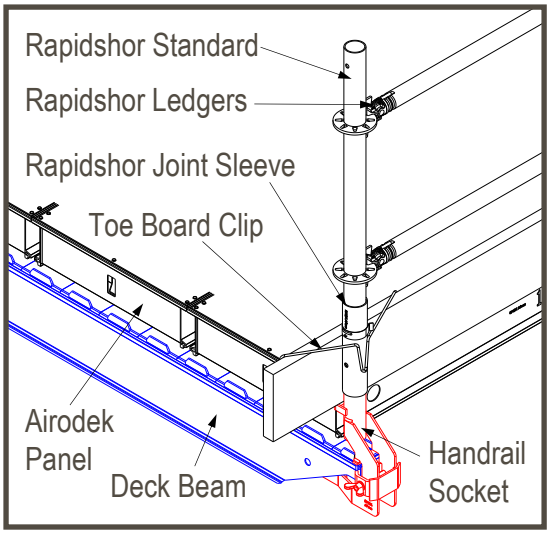


Front Elevation



Side Elevation

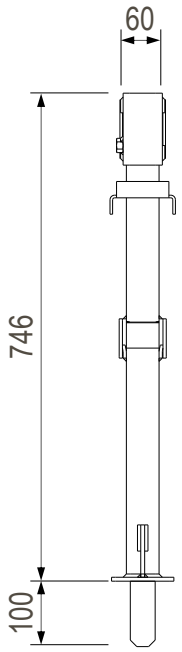
Captive Spring Pin for securing Rapidshor OE Standard



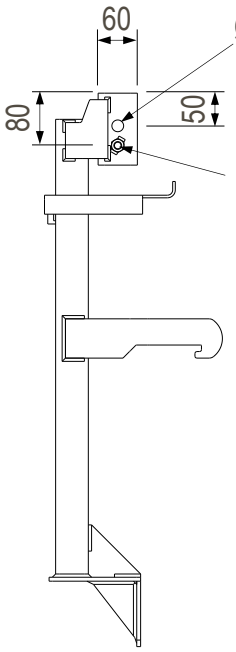
Alshor Drophead Ultraguard Socket (ADX10019) weight 7.28kg

A guardrail adapter used to connect Ultraguard Posts to an Airodek to Alshor Drophead (ADX10016). This item does not fit the Airodek Drophead (ADX30001).

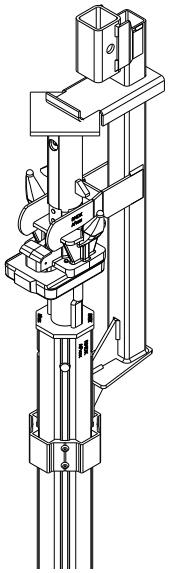
Refer to sheet 23 for Ultraguard component list.



Front Elevation



Side Elevation

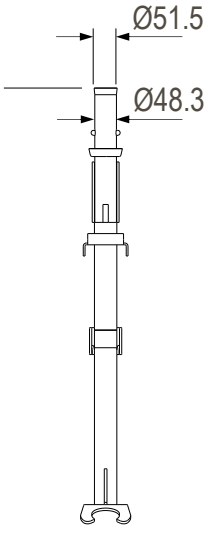


Do not release Drophead units when Guardrail Sockets are attached as this may result in accidental detachment of the guardrail assembly!

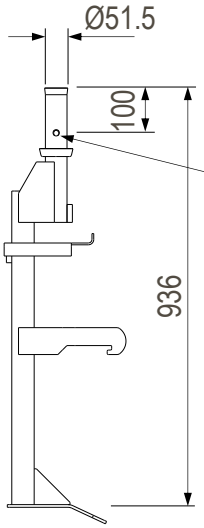
Airodek Drophead Guardrail Socket (ADX10004) weight 7.88kg

An alternative guardrail adapter used to connect Rapidshor OE Standards to an Airodek Drophead (ADX30001). This item does not fit the Airodek to Alshor Drophead (ADX10016).

Refer to sheet 24 for Rapidshor component list.

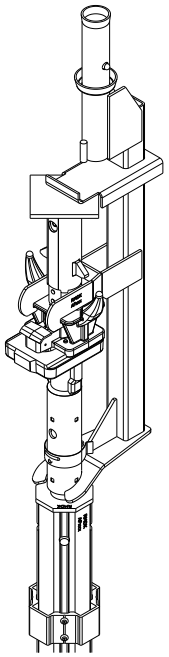


Front Elevation



Note: Rapidshor Sleeve Clip is NOT required with this unit.

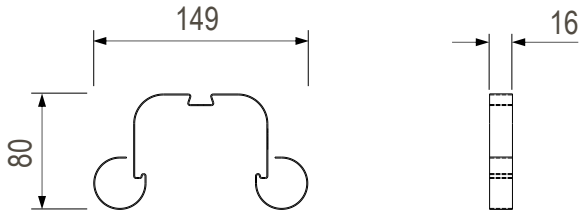
Side Elevation



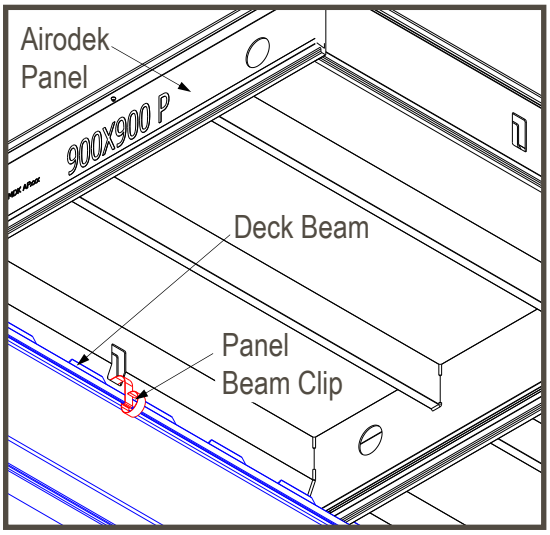
Airodek Panel Beam Clip (ADX20030) weight 0.04kg

Use to connect the ends of Airodek Panels to Deck Beams to provide wind uplift restraint. Clips have finger loops for ease of erection & dismantling and work with either one or two panels (the clip has been designed with weak point in the middle to enable it to be snapped in half for use with one panel).

AWL = 0.5kN



Section **Side Elevation**



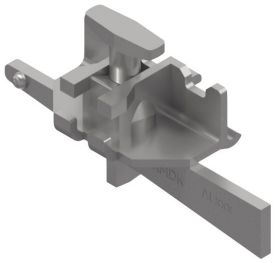
Airodek Panel Strap (ADX10008) weight 0.02kg

A 12.7mm wide Nylon strap used to secure panels to the support structure during conditions of high wind. Maximum usable length 730mm.

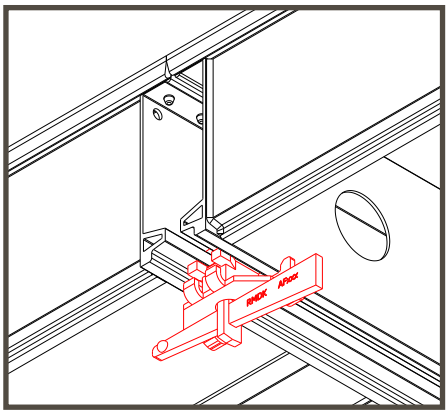
AWL = 0.57kN

Left hand picture shows connection of panel to crown. Right hand picture shows connection of panel to panel.

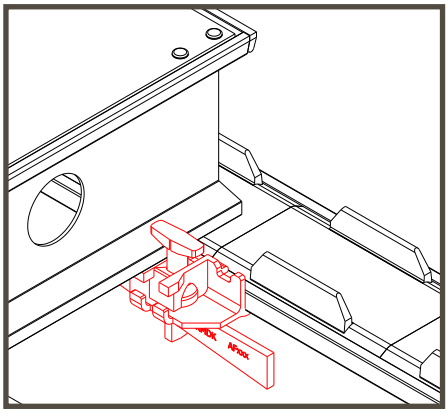
Airodek Wind Restraint Clamp (ADX20038) weight 0.42kg



Use to secure the side member of an Airodek Panel to either an Airodek Steel Crown or a Deck Beam. A captive wedge ensures quick assembly and dis-assembly on site.

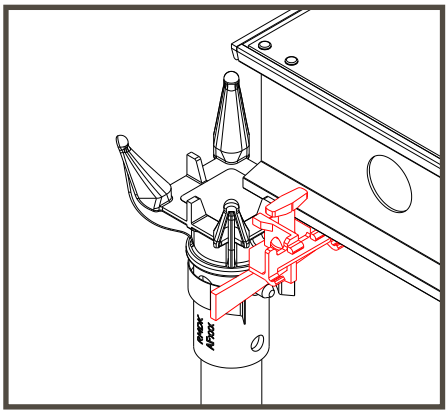


Fitted after the panels have been positioned on the Steel Crowns or Deck Beams, the Wind Restraint Clamp locks down on the edge sections of two panels to connect them together.



One Wind Restraint Clamp can be used to restrain either a single panel or a pair of panels to a Deck Beam.

Where four panels meet on a Deck Beam, two Clamps are required.



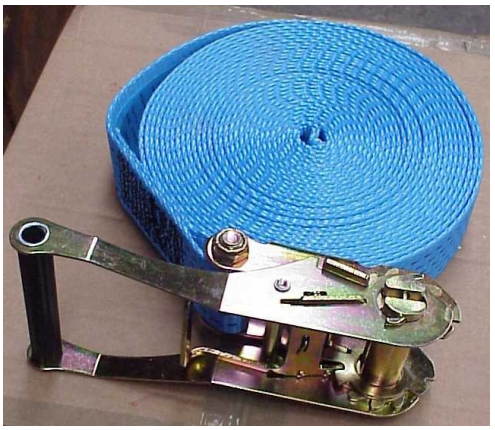
One Wind Restraint Clamp can be used to restrain either a single panel or a pair of panels to a Steel Crown.

Where four panels meet on a Steel Crown, two Clamps are required.

Rapidclimb Ratchet Lashing 12m (RCX10008) weight 2.20kg

A multipurpose ratchet lashing supplied with 12 metres of 50mm wide, endless polyester webbing. Used for providing horizontal restraint to the underside of Airodek Decking Beams at the edge of a pour where the head fixity provided by the interface with the permanent works is in doubt and/or there is a possibility of load on the cantilever lifting the rear of the beam. Cut the webbing length to suit the application on site. **AWL 25kN.**

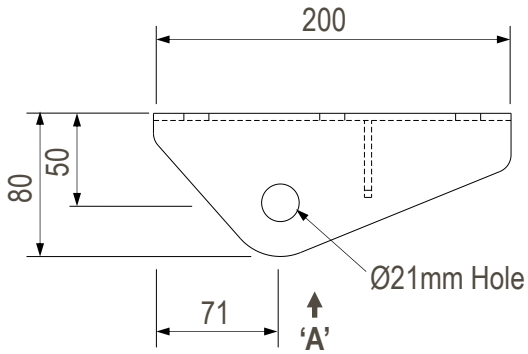
Note that inclined webbing lashings are highly elastic and rely on user pre-tensioning against stiff supports to the restrained components in both vertical and horizontal directions.



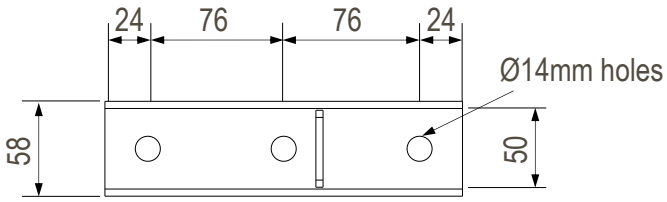
Flexidek Tie Down Connector (FXX10008) weight 0.93kg

Used in conjunction with a Ratchet Lashing or Rapid Tie accessories to restrain cantilever beams against overturning and also to provide lateral top restraint to the decking system at edges where the permanent works cannot.

AWL = 9.0kN at any angle with 2 outer holes connected

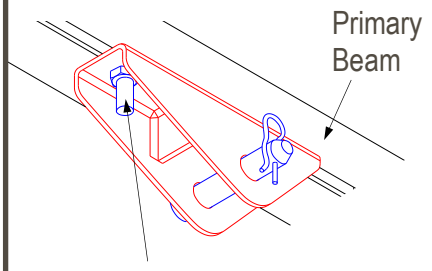


Side Elevation



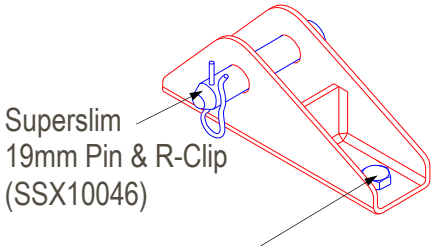
View on 'A'

Fixing to Underside of Primary Beam



Tie Down Connector fixed with 2 No. M12 Unifix Bolts & M12 Hex Nuts gr.8 BZP (AFX20022 + BNU12001)

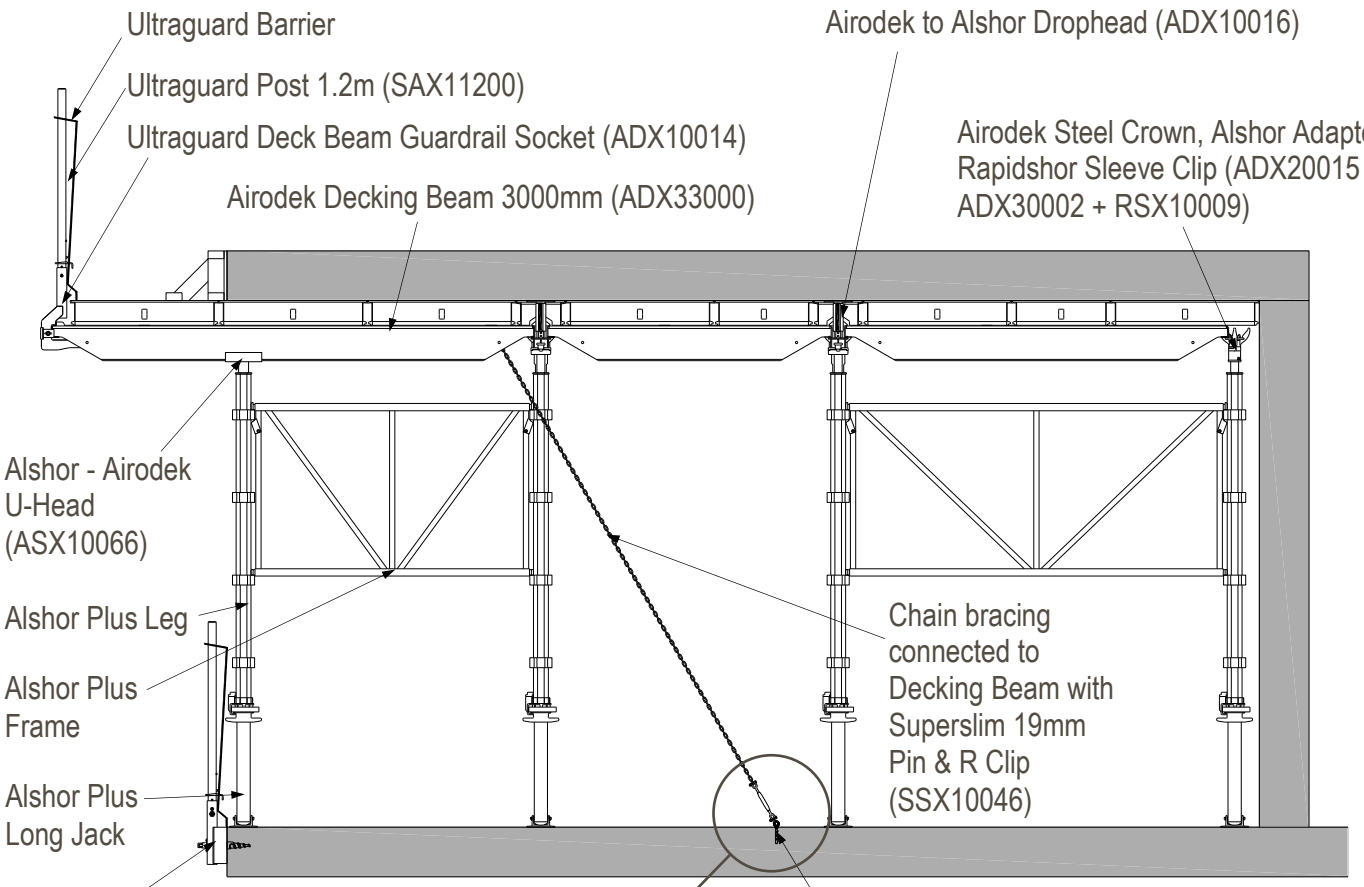
Fixing at Base of Restraint



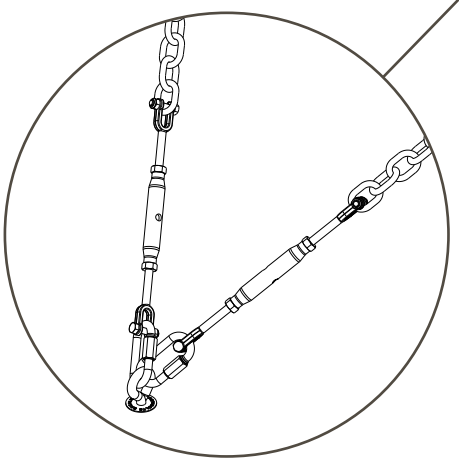
Tie Down Connector fixed to slab with 1 or 2 No. M12x100 Excalibur Screwbolts (FAU10051).
When using a single bolt place in central hole.

Airodek Decking System - Typical Details

The example below shows the Airodek Decking System which is generally used either for large expanses of soffit, where the floor to soffit height exceeds 3.5m or where there is a requirement for early striking of Airodek panels and Deck Beams.



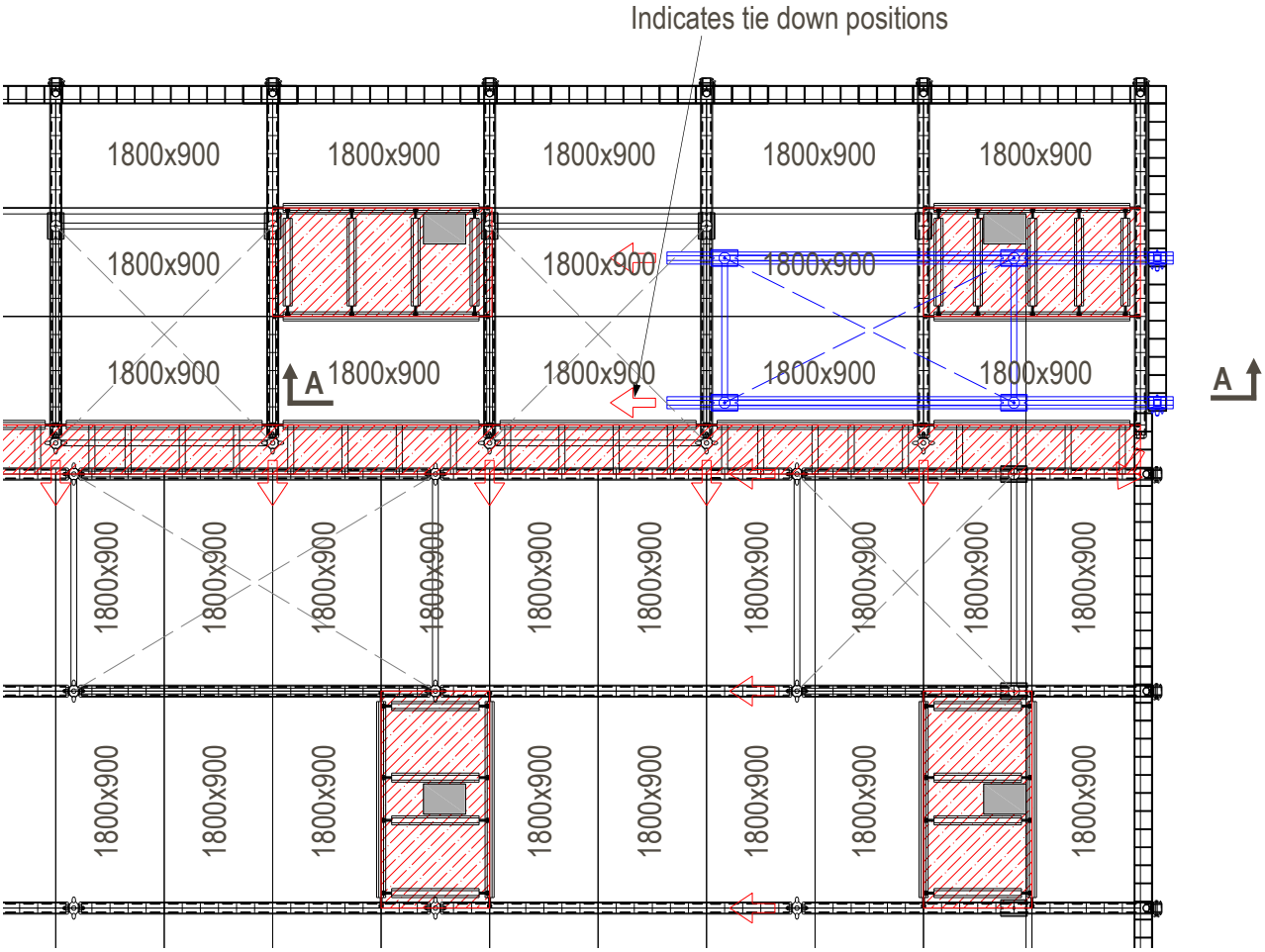
Typical Section



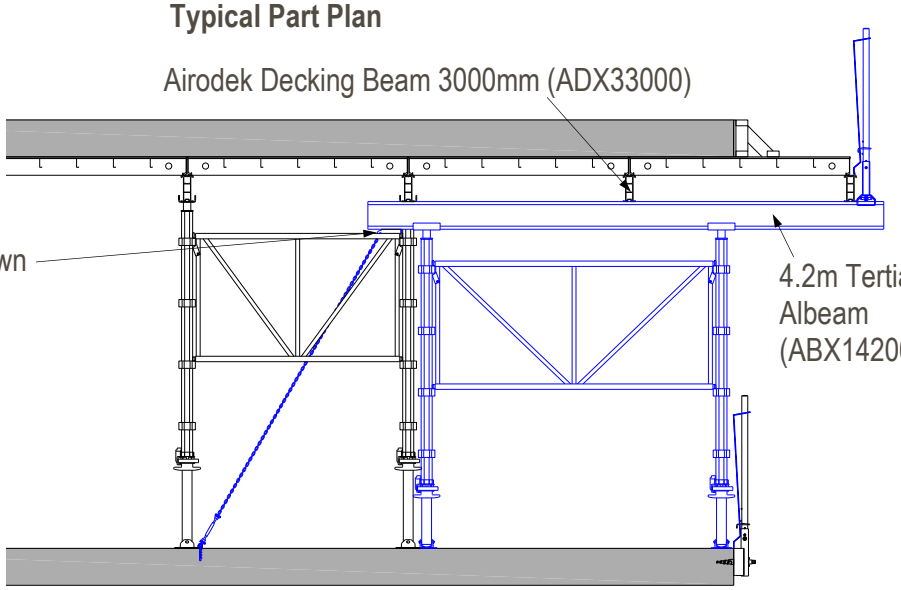
Note: Two Chain Braces or Ratchet Lashings can share a single Wetset Eyebolt

Airodek Decking System - Typical Details

The example below shows how a typical external corner with column can be accommodated using the Airodek Decking System.



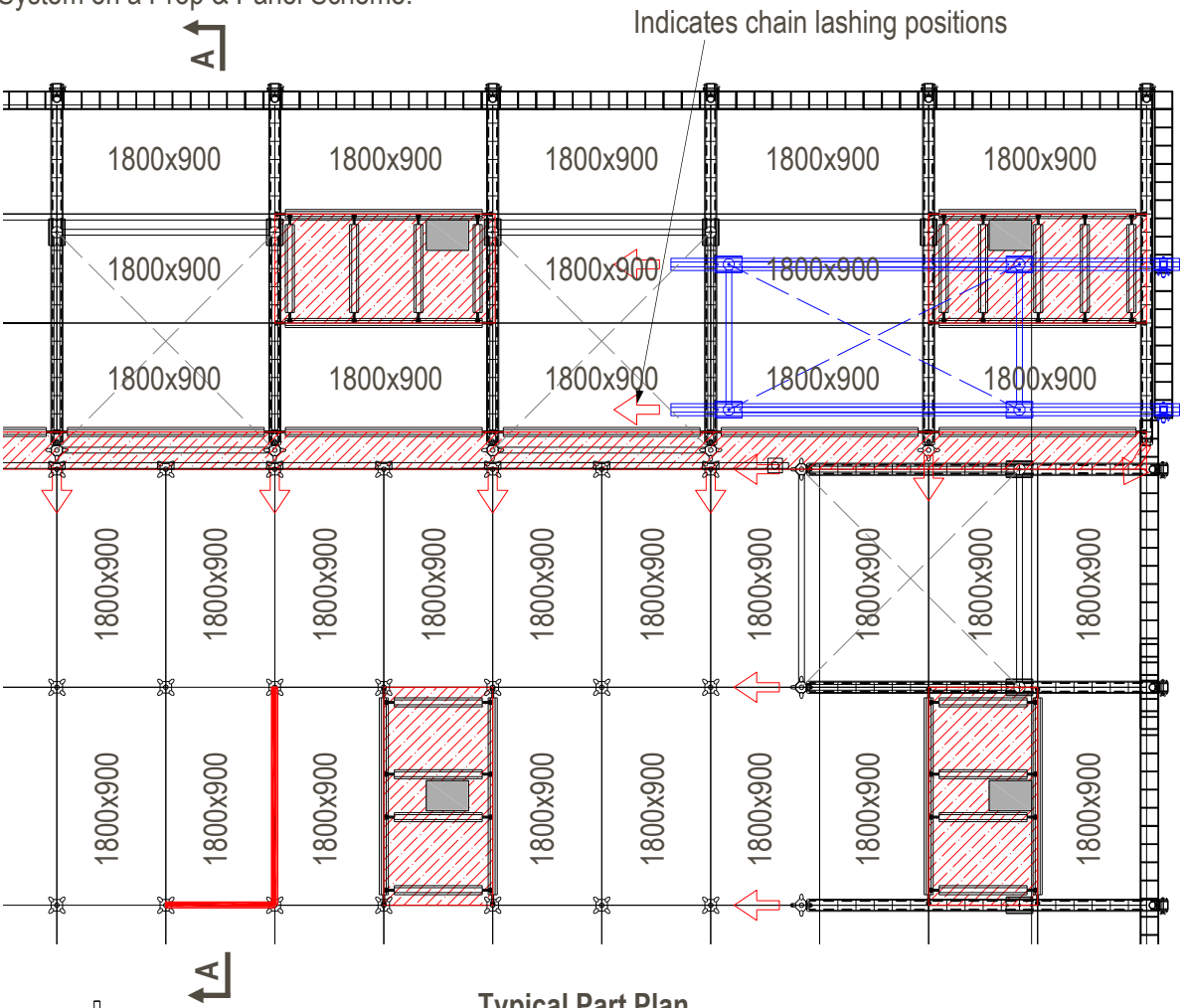
Typical Part Plan



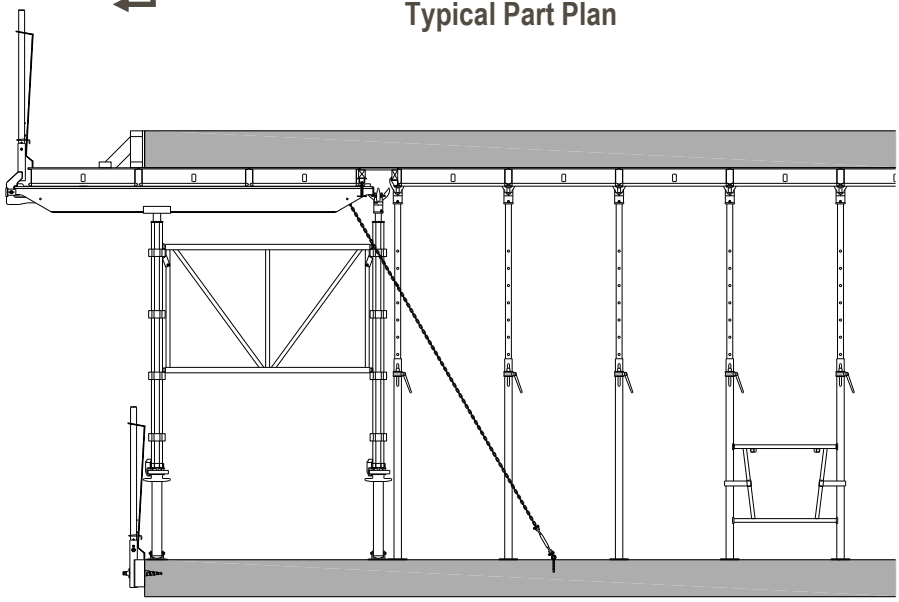
Section A-A (corners of building only)

Airodek Decking and Prop & Panel Combination - Typical Details

The example below shows how a typical building perimeter external corner can be accommodated using the Airodek Decking System on a Prop & Panel Scheme.



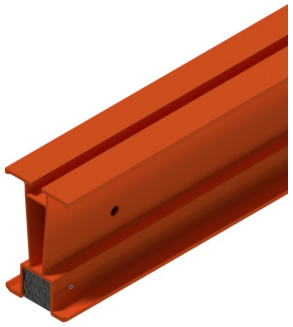
Typical Part Plan



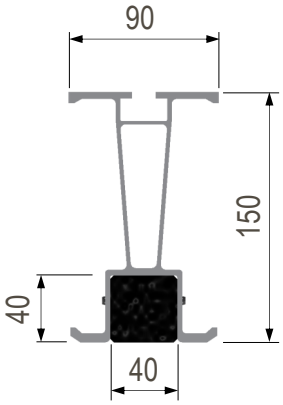
Section A-A

Airodek Launching Alform Beam (ADX40507) weight 16.9kg

A 3m long powder coated Alform Beam used in conjunction with Panel Slider Shoes to enable Airodek Panels to be safely launched out beyond the slab edge in hi-rise building construction. The Launching Alform Beam is used inverted in this application with plastic nailing strip facing downwards.



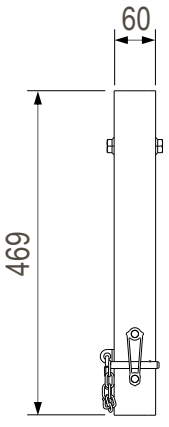
Alform Beam Properties	
Gross Area	17.6cm²
Modulus of Elasticity E	6890kN/cm²
Second Moment of area I xx	558cm⁴
Flexural Rigidity EI	385kNm²
Shear Rigidity GA xx	18489kN
Section Modulus xx	74.1cm³
Maximum Bending Moment xx	10kNm
Max Reaction (Intermediate) 75mm bearing	55kN
Max Reaction (End) 44mm bearing	40kN
Self Weight (with recycled plastic insert)	5.66kg/m



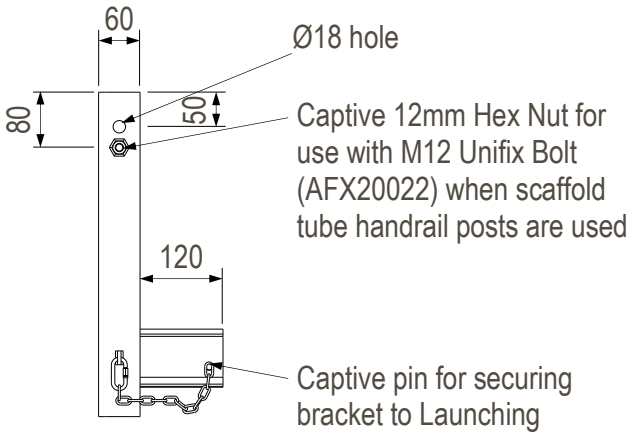
Typical Section

Airodek Launching Ultraguard Socket (ADX20052) weight 4.49kg

Use to connect Ultraguard Posts or scaffold tube posts to the end of cantilevered Alform Beams. A captive pin secures the socket onto the end of the beam.



Front Elevation



Side Elevation

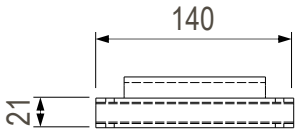
AIRODEK NEW PRODUCT

LIGHTWEIGHT SOFFIT SYSTEM

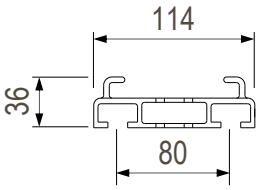
Airodek Launching Prophead (ADX40505) weight 1.09kg

Used to facilitate the sliding of the Alform Launching Beam beyond the slab edge in hi-rise building construction. Connect to end plate of E35 or E40 Prop using 2 No. diagonally opposed M12 Unifix Bolts & M12 Hexagon Nuts gr.8 BZP (AFX20022 + BNU12001).

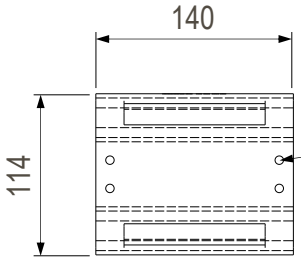
AWL = 40kN



Side Elevation

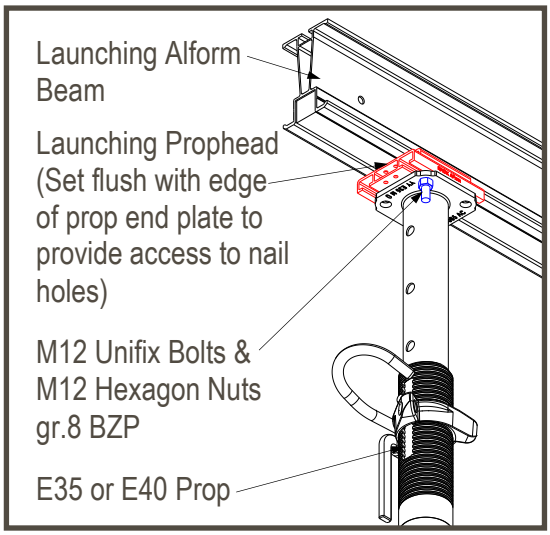


Front Elevation



Plan

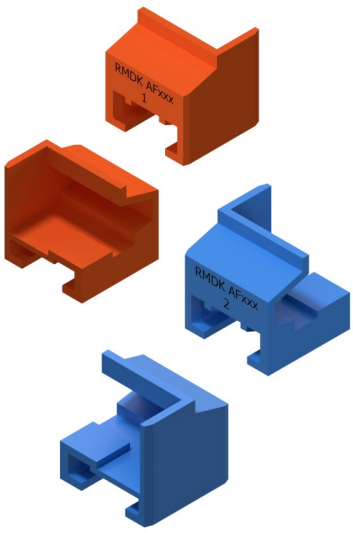
4 No. Ø6 nail or screw holes facilitate fixing to the Airodek Launching Alform Beam nailing strip.

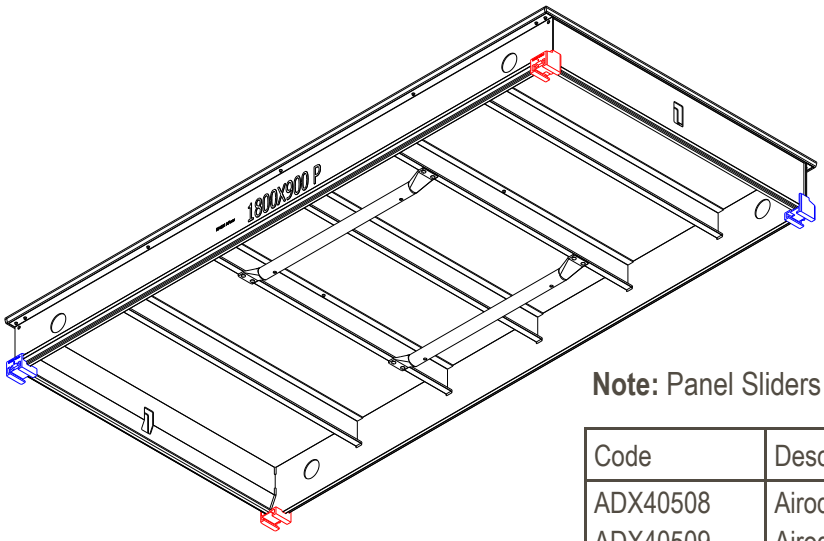


Airodek Panel Slider Shoes

Polypropylene units that snap onto the four corners of Airodek Panels to enable the assembly to be slid along a pair of Airodek Launching Alform Beams whilst captivating them to these beams at the same time. Fit left and right hand shoes in diagonally opposing corners of the Airodek Panel.

AWL = 10kN





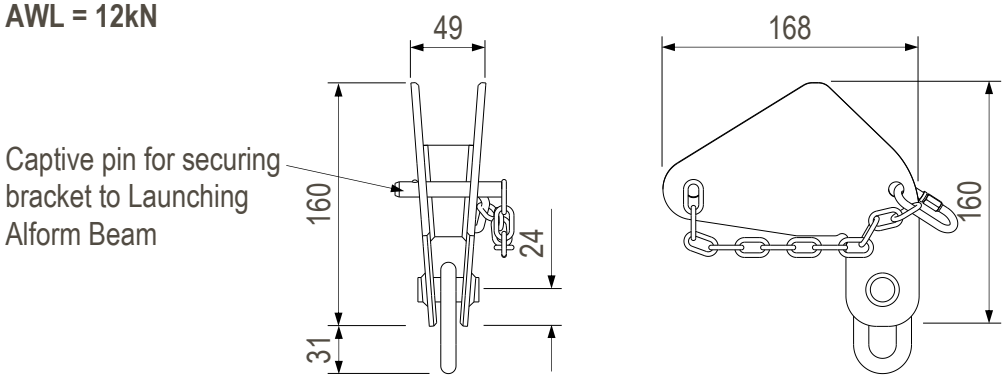
Note: Panel Sliders may be supplied in other colours

Code	Description	Weight
ADX40508	Airodek Panel Slider Shoe L.H.	0.03 kg
ADX40509	Airodek Panel Slider Shoe R.H.	0.03 kg

Airodek Launching Tie Down Bracket (ADX40506) weight 1.42kg

Use in conjunction with chains to hold down the rear of the Alform Launching Beam to prevent it overturning. Connect to the Alform Launching Beam using the captive pin that is chained to the unit.

AWL = 12kN



Galvanised Chain 8mm x 3050mm (AGU20015) weight 3.29kg/m

Used in tension to tie down the rear of the Alform Launching Beam. **AWL = 12kN**

Quicklink 10mm (AGU20013) weight 0.13kg

Used to connect 8mm chain bracing to the Airodek Launching Tie Down Bracket (ADX40506). **AWL = 12kN**

10mm Turnbuckle 222-320mm (AGU20016) weight 0.05kg

Used to take up the slack in 8mm chain bracing. **Important!** ensure max extension of 55mm at each end is not exceeded. **AWL = 12kN**

Excalibur 12 x 125mm Wetset Eyebolt (FAU10147) weight 0.18kg

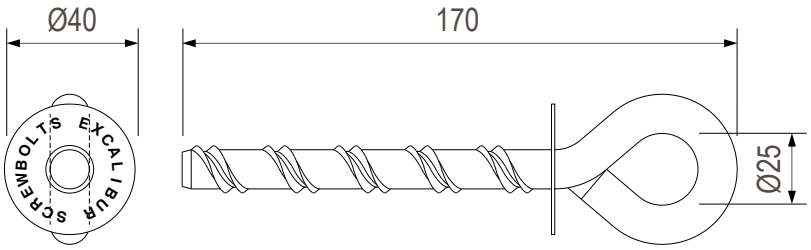
A re-useable anchor used to attach soffit falsework edge restraint / tie downs to the cured slab surface. Can be used with either chain restraints or ratchet lashings depending upon falsework application (chain restraint connection shown below).

Wetset Installation

Insert the eyebolt as far as possible into the PVC washer supplied and jiggle the assembly into freshly placed concrete as far as the underside of the washer which helps keep it upright and prevent sinking. When used as a slab edge tie-down anchor the plane of the eye must be perpendicular to the slab edge. The low friction WETSET coating enables the anchor to be simply unscrewed from the cured concrete. Undo 1/4 of a turn the day after concreting to break the bond and re-tighten to ease removal. Take care to specify the locations of falsework restraints / tie downs accurately on scheme drawings.

Post Drilled Installation

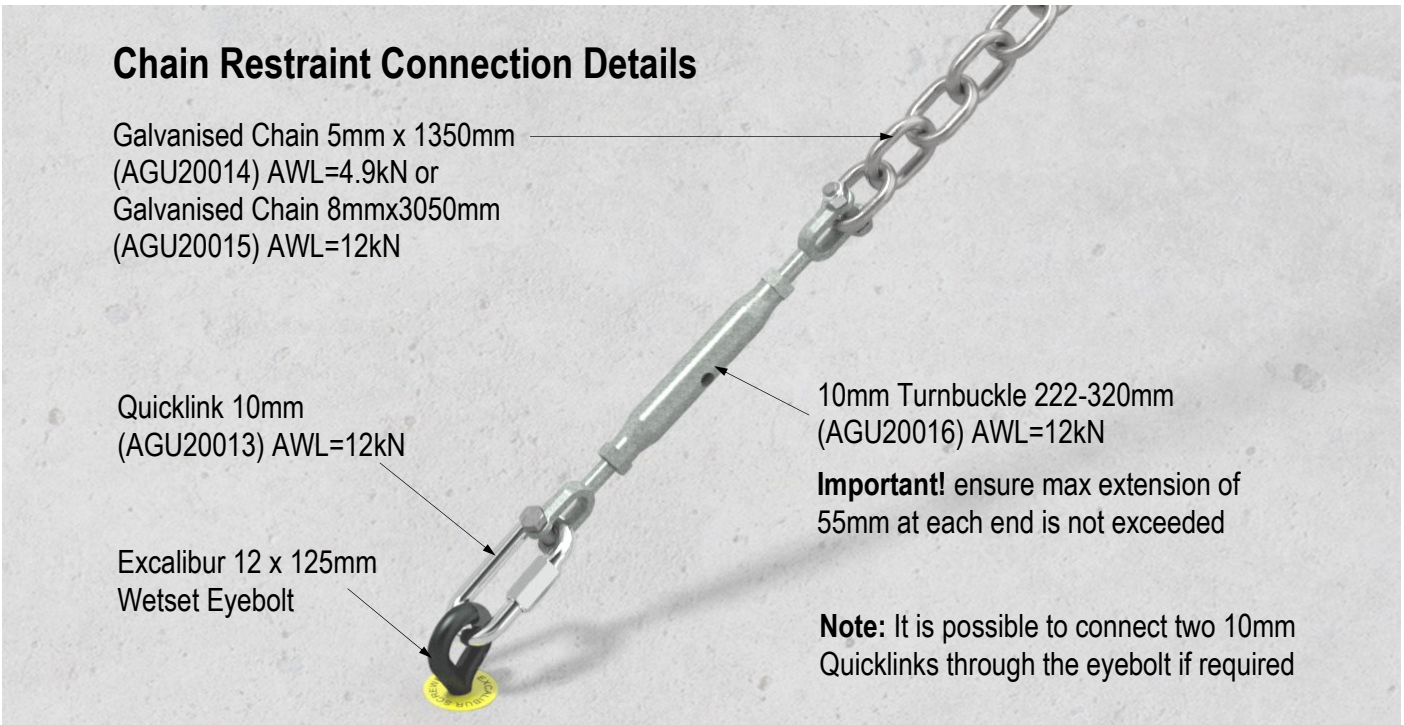
Drill a 12mm diameter hole 150mm deep and screw the bolt into the hole as far as possible leaving the plane of the eye perpendicular to the slab edge. Bolts may be re-used several times; discard bolts with excessively worn threads. Post drilled installation will remove the Wetset coating. In order to wet set bolts without a Wetset coating, coat bolts with form wax prior to wet set installation.



End View Side View

AWL = 16kN at any angle in 14N/mm² concrete (limited by the strength of the eye weld). Minimum edge distance 150mm.

Chain Restraint Connection Details



Galvanised Chain 5mm x 1350mm (AGU20014) AWL=4.9kN or Galvanised Chain 8mmx3050mm (AGU20015) AWL=12kN

Quicklink 10mm (AGU20013) AWL=12kN

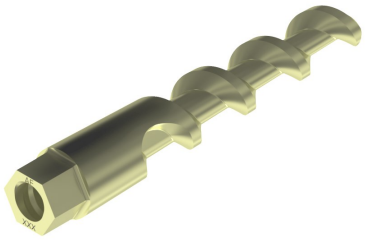
Excalibur 12 x 125mm Wetset Eyebolt

10mm Turnbuckle 222-320mm (AGU20016) AWL=12kN

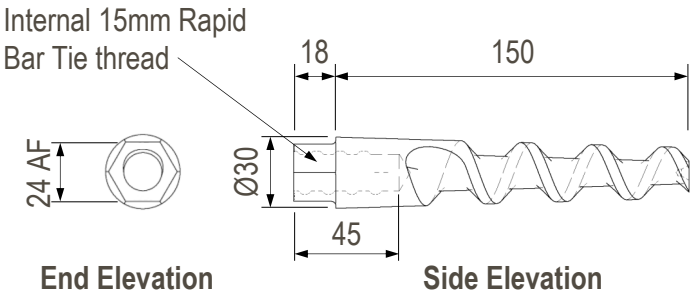
Important! ensure max extension of 55mm at each end is not exceeded

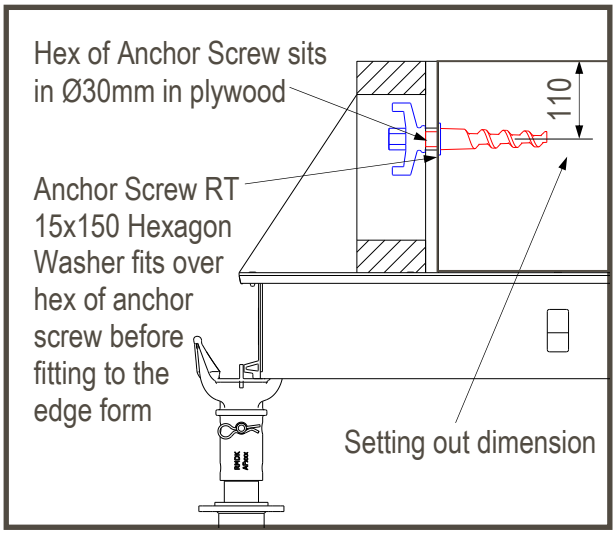
Note: It is possible to connect two 10mm Quicklinks through the eyebolt if required

Anchor Screw RT15x150 (AGX40062) weight 0.40kg



Cast into the slab edge to provide an anchorage point for the Ultraguard Slab Edge Socket (SAX10032). Secure to timber slab edge formwork using Anchor Screw RT15x150 Setting Bolt & Hexagon Washer (SAX10033 + AGX40067). **Max AWL = 19kN tension in 21N/mm² concrete**

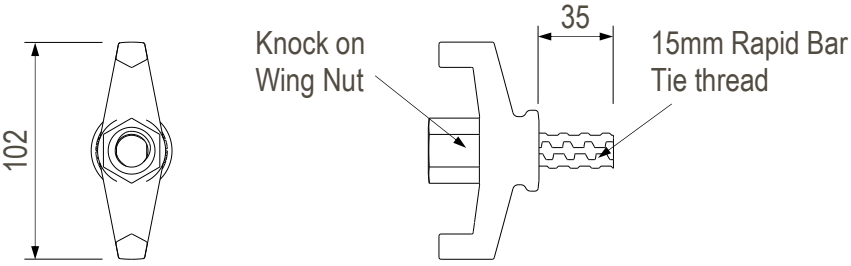




Important! Coat outer surfaces with Anchor Screw Grease (OCU10002) to facilitate removal.

Anchor Screw RT15x150 Setting Bolt (SAX10033) weight 0.46kg

Use in conjunction with Anchor Screw RT15x150 Hexagon Washer (AGX40067) to secure an Anchor Screw RT15x150 (AGX40062) to timber slab edge formwork.



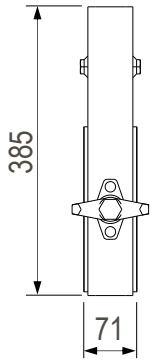
Anchor Screw RT15x150 Hexagon Washer (AGX40067) weight 0.03kg

Use in conjunction with Anchor Screw RT15x150 Setting Bolt (SAX10033) to secure an Anchor Screw RT15x150 (AGX40062) to timber slab edge formwork.

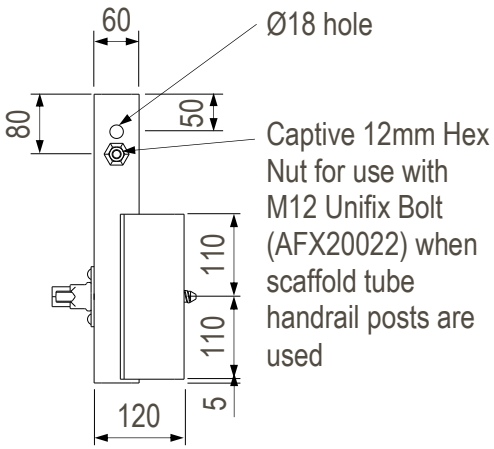
Ultraguard Slab Edge Socket (SAX10032) weight 5.74kg

Use in conjunction with Ultraguard Post 1.2m & Ultraguard Barrier to provide edge protection at the non wet-deck levels. Connects by inserting the captive Rapid Bar Tie into an Anchor Screw RT15x150 previously cast into the slab edge.

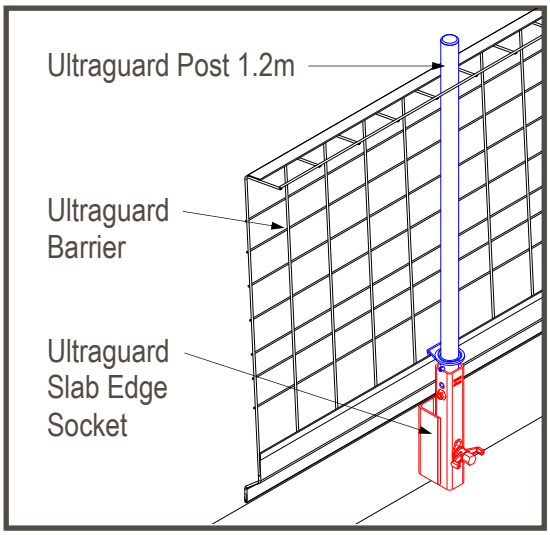
Plan



Front Elevation



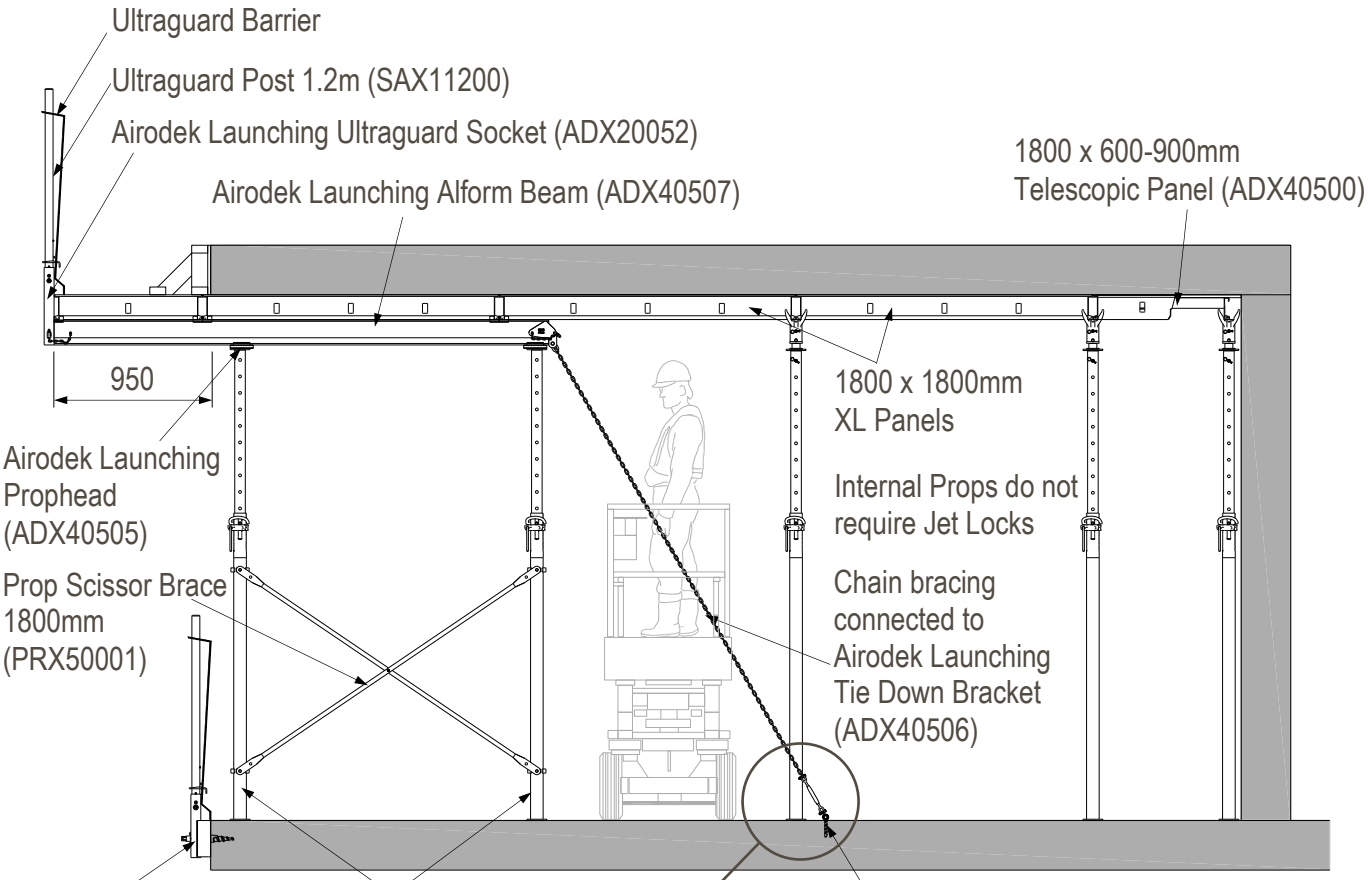
Side Elevation



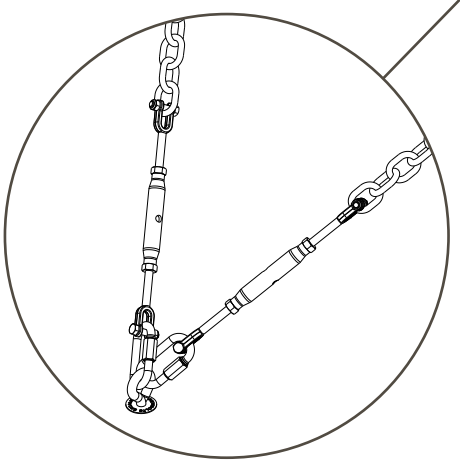
Code	Description	Weight
SAX11200	Ultraguard Post 1.2m	5.51 kg
SAX12550	Ultraguard Barrier 2550mm	17.3 kg
SAX13150	Ultraguard Barrier 3150mm	25.0 kg

Airodek Launching System - Typical Details

The example below shows the Airodek Launching System which provides an intrinsically safe method for placing Airodek Panels beyond the slab edge. This system works best when utilising the 1800mm square XL Panels which enable a MEWP to navigate the building perimeter and provide access for panel launching. If used with 1800x900mm panel, podium steps will be required.



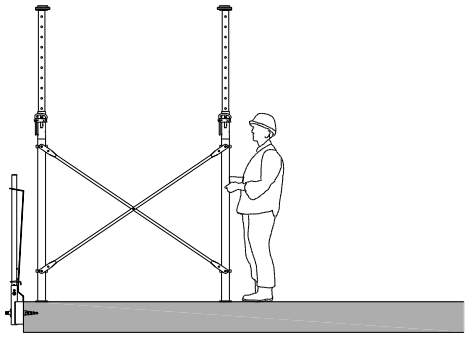
Typical Section



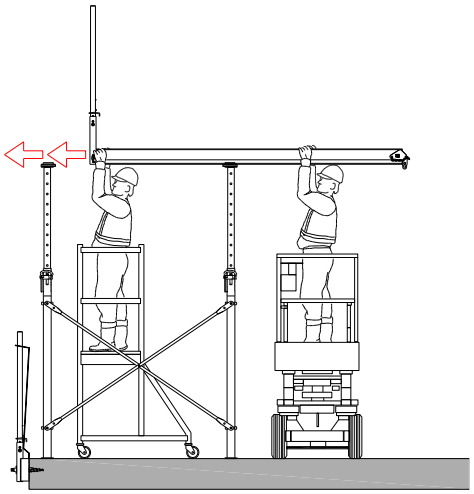
Note: Two Chain Braces
can share a single Wetset Eyebolt

Airodek Launching System - Erection Sequence

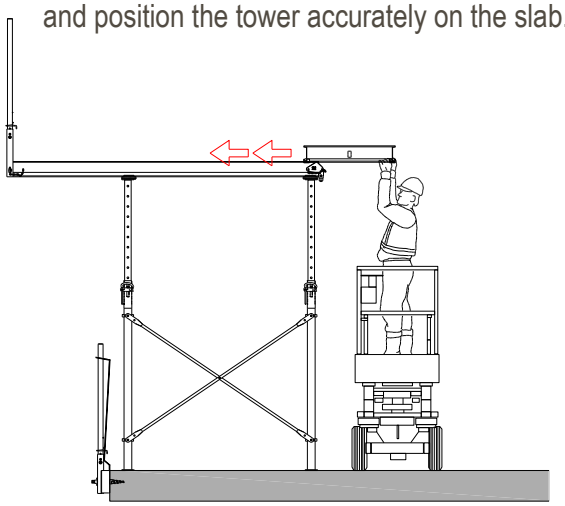
The example below shows how a Airodek can be erected safely beyond the slab edge using the Airodek Launching System.



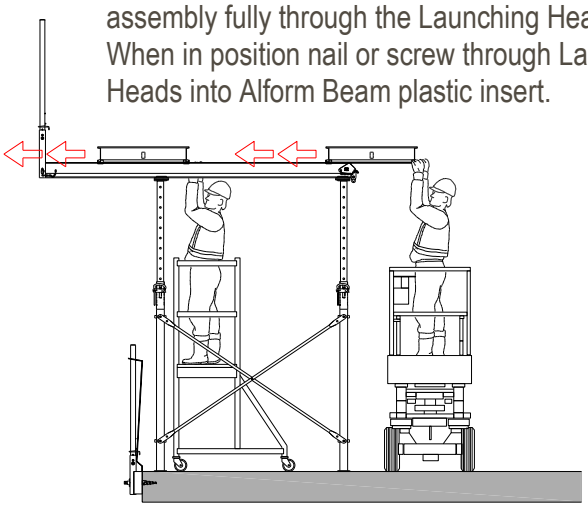
1, Fix Launching Heads to Props & assemble into a tower using Scissor Braces. Set out and position the tower accurately on the slab.



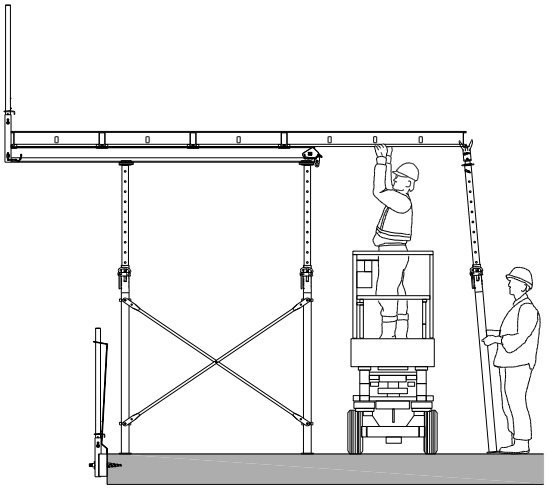
2, Fix Handrail Ultraguard Socket & Tie Down Bracket to Launching Alform Beam. Feed the assembly fully through the Launching Heads. When in position nail or screw through Launching Heads into Alform Beam plastic insert.



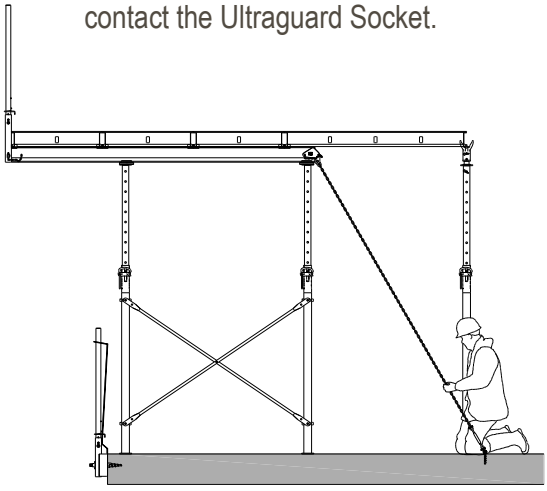
3, Snap Slider Shoes onto four corners of Panel & feed onto Launching Alform Beam.



4, Repeat with next Panels. Slide Panels onto the Alform Launching Beam until they contact the Ultraguard Socket.



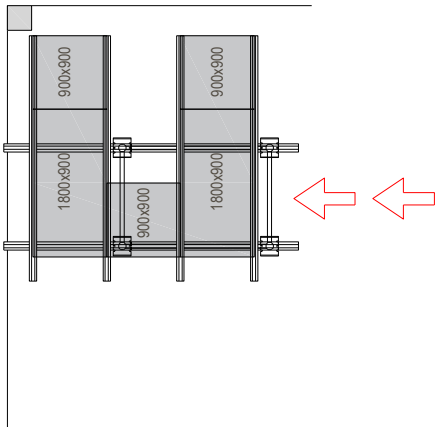
5, Snap Slider Shoes onto two corners of Panel & feed onto Launching Alform Beam. Support rear corner of Panel with Airodek Props.



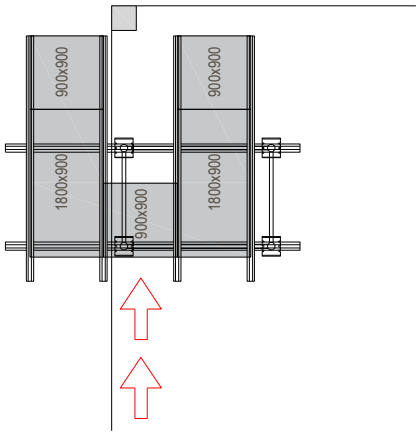
6, Tie down rear of Launching Alform Beam using Chain Braces into Wetset Excalibur Screwbolt.

Airodek Launching System - Erection Sequence at External Corners

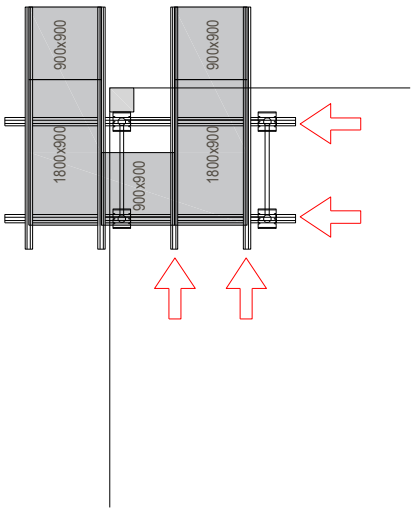
The example below shows how a Airodek can be erected safely beyond the slab edge at external corners using the Airodek Launching System.



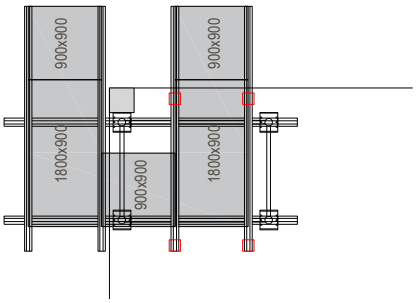
1, Build Airodek corner table inboard of slab & roll out on castors



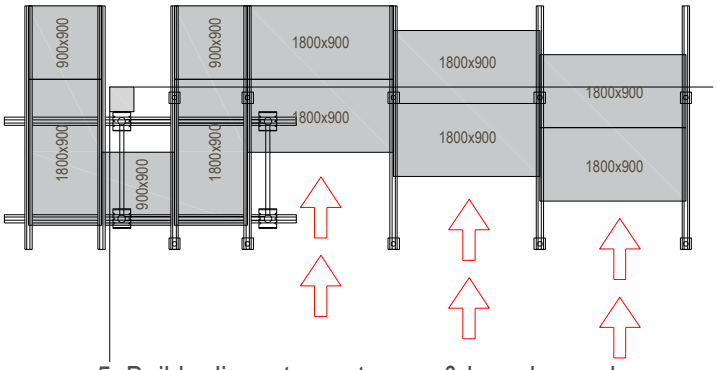
2, When past corner column roll in other direction



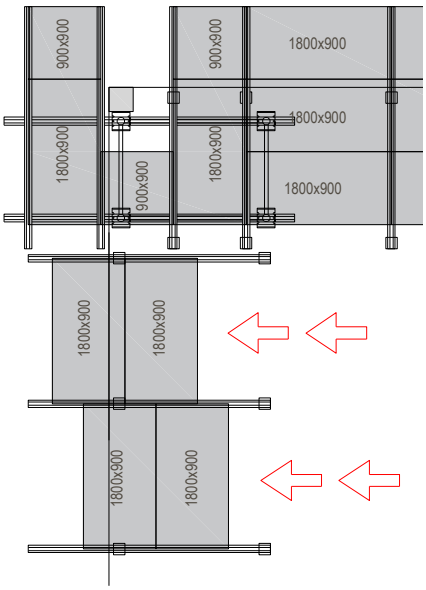
3, When in place - strap down to prevent overturning



4, Add supplementary props



5, Build adjacent prop towers & launch panels



6, Build adjacent prop towers & launch panels

7, Place external panel & timber infills

AIRODEK NEW PRODUCT

LIGHTWEIGHT SOFFIT SYSTEM

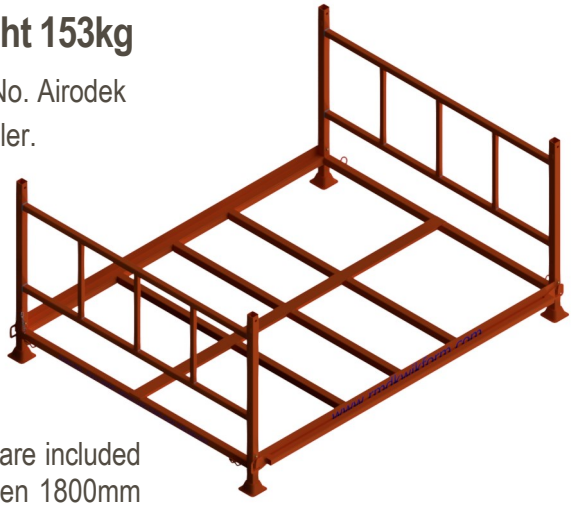
R·M·D KWIKFORM

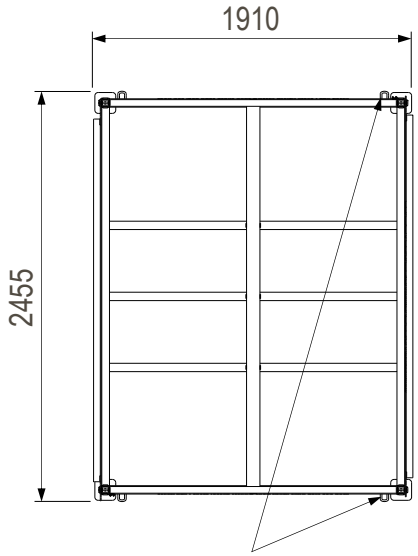
Airodek 15 Panel Stillage Assembly (PAX10018) weight 153kg

A demountable stillage used for the transport and storage of up to 15 No. Airodek Panels. A maximum of 21 Stillages can be loaded on a 13.5m long trailer.

Maximum Laden weight = 920kg

1800mm long forks are required to safely handle this unit with a Fork Truck. Lift from the short side only!

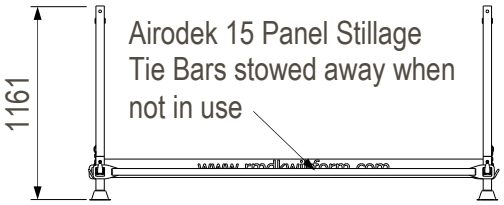




Lifting points located on base in all 4 corners

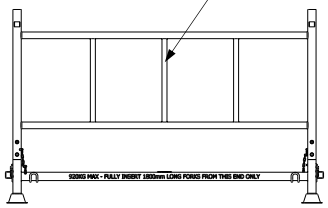
Plan

Note: End Frames & Tie Bars are included in the Stillage Assembly. When 1800mm XL Panels are used, two additional End Frames will be required.



Side Elevation

Airodek 15 Panel Stillage End Frame



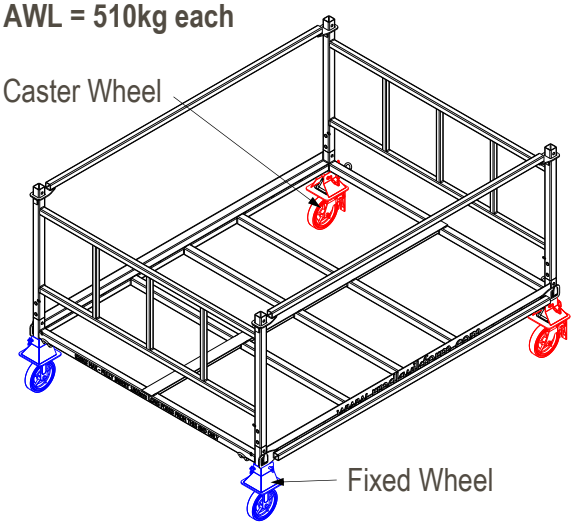
Front Elevation

Code	Description	Weight
PAX10019	Airodek 15 Panel Stillage End Frame	6.53kg

Superstacker Slip-on Wheels

Use two fixed wheels and two casters to make an Airodek 15 Panel Stillage cart, ideal for moving panels around on site.

AWL = 510kg each



Fixed Wheel (PAA10012)

Caster Wheel (PAA10011)

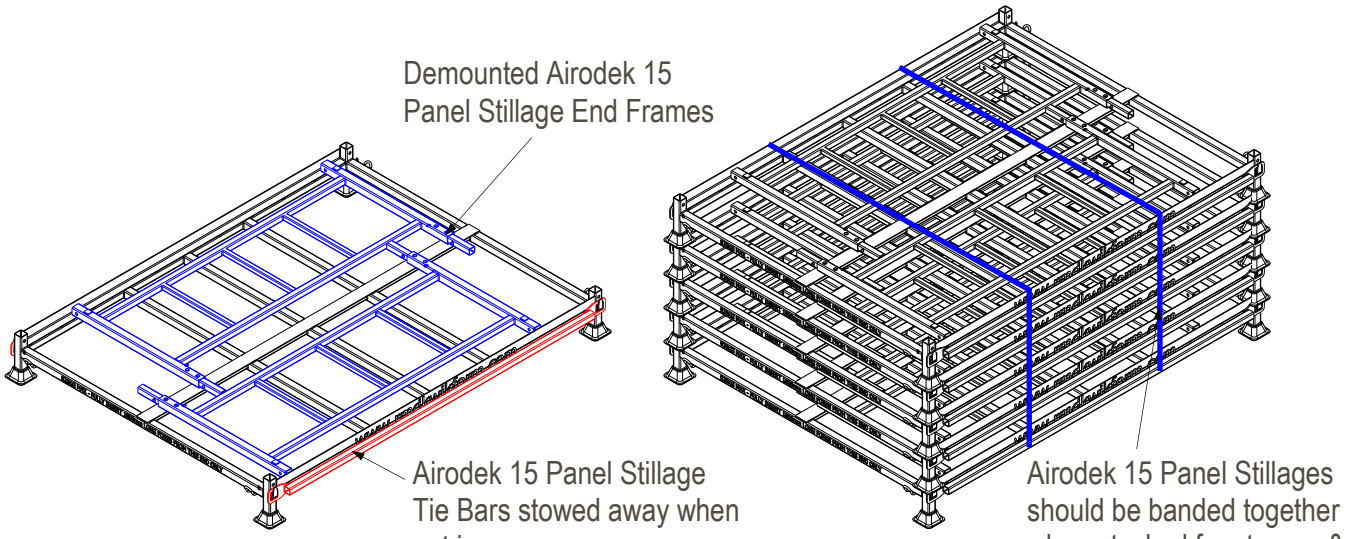
Note: Up to three fully laden Stillage Assemblies containing 900mm wide panels can be stacked and rolled using wheels (or one stillage carrying 1800mm panels plus one stillage carrying 900mm panels).

Code	Description	Weight
PAA10011	Superstacker Slip-on Caster Wheel	6.53kg
PAA10012	Superstacker Slip-on Fixed Wheel	4.76 kg

Airodek 15 Panel Stillage Assembly - Typical Details

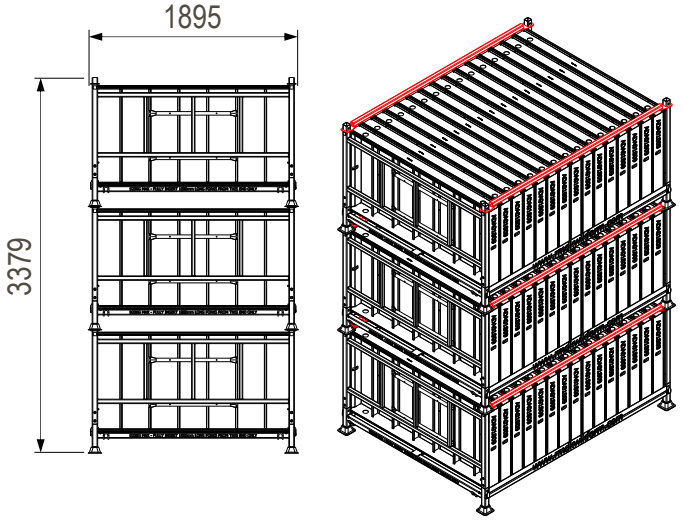
Storing stillages when not in use

Up to ten demounted Airodek 15 Panel Stillages can be stacked on one another for transport and when not in use. Airodek 15 Panel Stillage Tie Bars and End Frames can be stowed within the stillage base to reduce their volume, enabling up to 70 empty units to be transported on a 13.5m long trailer where space is a premium on site.

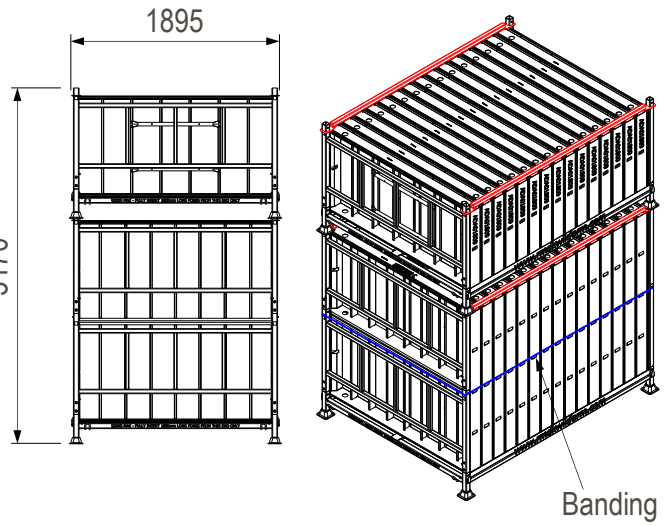


Stacking stillages when in use

The examples below show the different stacking arrangements for the Airodek 15 Panel Stillage for transport on a road trailer or mounting on Slip-on Wheels.



3 No. Stillages of 1800x900mm Airodek Panels



1 No. Stillage of 1800x1800mm and 1No. Stillage of 1800x900mm Airodek Panels

Band panels together and to one end frame if the stillage is not filled. Handle part filled stillages with a crane as usual or with a fork truck working from the heavier loaded end only!

DESIGN DATA

Loading The Soffit With Materials

Do not load materials onto the soffit until it is adequately laterally top-restrained by the placement of infill plywood between the panel edges and the permanent works walls and columns; see next section.

Ensure the weight of loaded bins or stillages placed onto the soffit does not exceed 1000kg.

Ensure that timber bites beneath bundles of reinforcement are placed on the intersection of four panels and that the maximum load transferred through these bites does not exceed 1000kg.

Lateral Top-Restraint - Introduction

British Standard BS5975:2019 Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework states in paragraph 19.2.9.1:

'A basic requirement for all falsework systems is that they should be designed to be able to resist, at each stage of construction, the applied vertical loads W together with a horizontal disturbing force F_H which is the greater of:

2.5% of the applied vertical loads (i.e. 2.5%W) considered as acting at the points of contact between the vertical loads and the supporting falsework; or

The forces that can result from erection tolerances, normally taken as 1% of the vertical load (i.e.1%W) plus the sum of other imposed loads, including wind, out of vertical by design, concrete pressures, water and waves, dynamic and impact forces and any forces generated by the permanent works.'

Where the falsework is designed using a fully braced system, (e.g. Rapidshor, Megashor etc.) F_H is carried by the internal system of bracing from the point of load application to the falsework foundation.

Where the selected falsework system is not fully braced, (e.g. **Airodek**, Alshor Plus, Tableform, Standard Props etc.) F_H is usually transferred between the point of load application and the permanent works which then provides lateral top -restraint.

During the design of these popular, incompletely braced, top-restrained arrangements, frequently used for in-situ casting of concrete slabs in buildings, the required transfer of load F_H between temporary and permanent works is usually provided by the soffit system being cut closely around previously cast columns and walls which then transfer the loads to the permanent works foundations.

The guidance in the following pages has been established for use by RMDK falsework designers/engineers by the combination of available reference material and engineering judgement to produce 'rules of thumb'. Many of these have already been used with great success in RMD Kwikform for an extended period.

To keep example calculations simple and enable this guidance to be used internationally, the vertical load applied due to access and soffit self weight has been taken as 2.0kN/m^2.

In example calculations the density of reinforced concrete has been taken as 24.5kN/m^3 and of plain concrete 23.5kN/m^3

Stability During Assembly Stage

All such systems need to be provided with sufficient lateral stability during the assembly phase to enable the equipment to be safely put together and for the minimum number of operatives to access the deck to install ply infill between the system soffit and the permanent works walls and columns.

With Airodek, spacing gates or scissor braces are used to provide this interim stability, with Alshor Plus, a minimum number of brace frames are used, with prop-based systems tripods may also be used.

Lateral Restraint Considerations

For most normal lift-height building applications the 2.5%W value for F_H will govern and for successful falsework design a number of important criteria must be met:

1, Permanent Works Competence

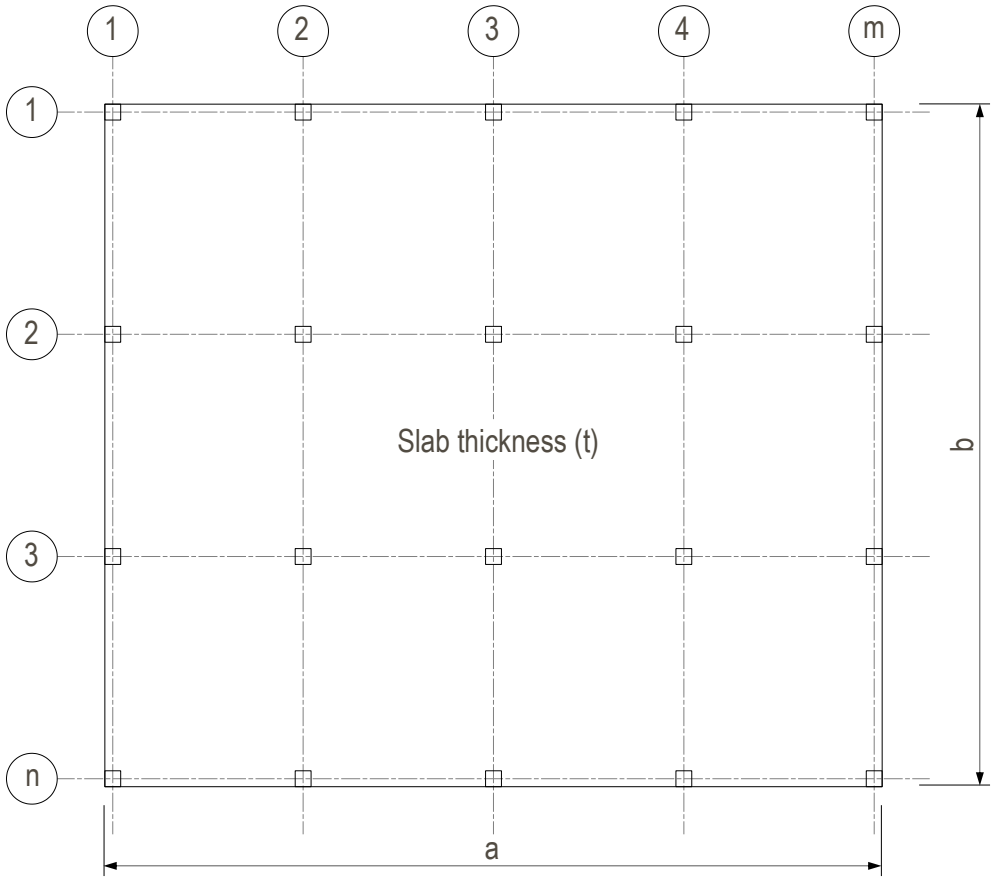
The previously cast walls and columns must be capable of resisting the top-restraint loads F_H. The customer is responsible for checking that the permanent works can carry these loads and, in order that these checks can be made, the top-restraint loads should be indicated on the RMDK scheme drawing.

For falsework to the full building area having x column gridlines in one direction and y column gridlines in the other and relatively constant slab thickness, the design top-restraint load for each column, $f_H = F_H/[x(y-1)]$ in the direction parallel to the x grid lines and $F_H/[y(x-1)]$ in the direction parallel to the y grid, see figure 1. The number of gridlines is reduced by one in each case because transfer of horizontal loads between the soffit and permanent works is usually be compression only, one grid of columns in each direction is hence inoperative.

In practice it is sufficient to calculate the higher of these values and state that it is the customer's responsibility to verify that each column can safely resist the higher top-restraint load in both directions.

Great care should be taken when the columns below the wet deck slab are poured with that slab or where precast columns are used particularly if, as is commonly the case, they are not grouted and cured to their supporting slab when the slab they support is cast. In such circumstances, diagonal props or a braced falsework tower can be designed and supplied to laterally restrain the top of each column/column form for a restraint load of f_H. In such cases 50% of the self weight of the columns also needs to be included in W. Alternatively the whole falsework should be internally braced such that it can resist horizontal load F_H.

Figure 1 - Lateral Top Restraint



Vertical load due to concrete: **abtρ**. Where ρ is the density of the concrete, usually taken as 24.5 kN/m^3.
Vertical load due to live load and self weight of equipment = 2.0kN/m^2.
Total vertical load: **W = ab(tρ+2.0kN/m^2)**

For example:
Where a = 24m, b = 21m & t = 200mm

W = 24m x 21m x (0.2m x 24.5kN/m^3+2.0kN/m^2) = 3480kN

Then **F_H = 2½%W = 0.025 x 3480kN = 87kN**

If x=5 & y=4 (number of column gridlines),
Then f_H is the greater of : **F_H/[x(y-1)] = 87kN/[5x3] = 5.8kN**
F_H/[y(x-1)] = 87kN/[4x4] = 5.4kN

Therefore use **f_H = 5.8kN**

2, Temporary Works Competence

The soffit formwork system has to have sufficient in-plane strength and stiffness to be able to transfer top-restraint loads from all loaded areas into the previously cast walls and columns. For flat soffit construction, the presence of what can be considered as a continuous plate of face contact material in areas enclosed on all sides by columns and walls will nearly always provide sufficient in-plane stiffness and edge bearing strength to transfer all lateral top-restraint loads.

Where drop beams are present on the column grid lines, lateral top-restraint loads have to find their way from the flat soffit areas, through the drop beam edge formwork, into the drop beam soffit formwork and away into the columns or walls. Drop beam edge formwork is nearly always designed and supplied by the customer and care is needed with workmanship on site to ensure that drop beam edge forms are braced such that adequate load transfer takes place. The deeper the drop beams relative to their width, the more care is needed to ensure that the drop beams can not lozenge during concrete pouring.

When the soffit is not enclosed by columns or walls on all sides the situation becomes more complicated and additional local top-restraint may be required; vulnerable areas include:

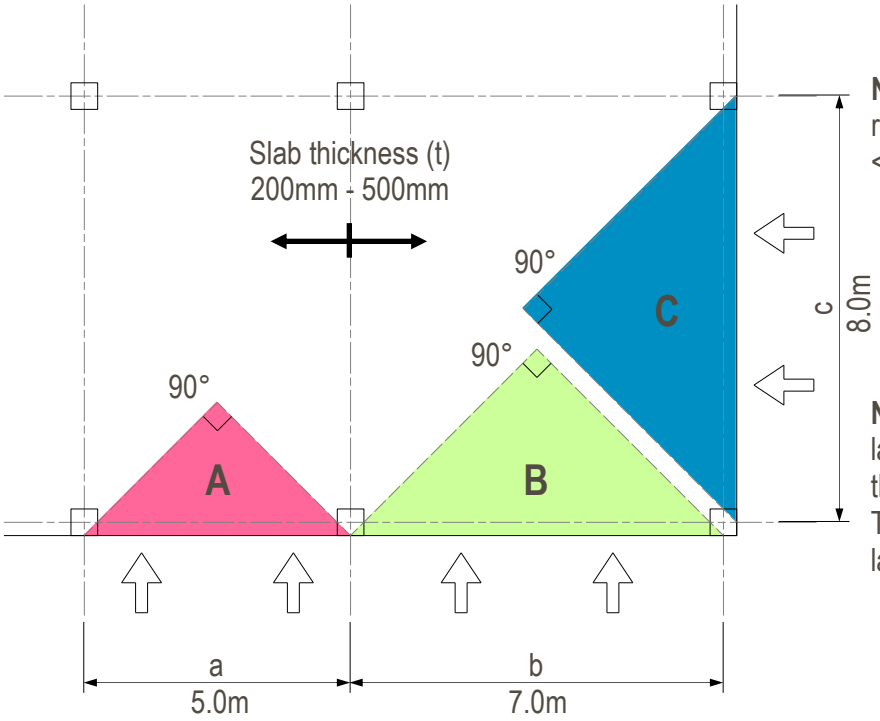
Perimeter Edges Between Columns

At the perimeter edge of a slab being cast, particularly where the column spacing is wide, the section of soffit formwork mid-way between the columns may move perpendicular to the edge of the slab due to both concrete pressure acting on the edge formwork and other applied lateral loads. A minor effect may be a finished slab edge that bulges between columns and a little grout loss from the soffit; more seriously, a local section of falsework remote from the columns could become unstable and collapse, although there are no published cases of failure of this nature.

Systems and schemes vulnerable to this effect should be designed with additional lateral top-restraint in the form of diagonal bracing or ratchet lashings placed in the middle third between the column grid. Different soffit systems have different in-plane strength and stiffness and hence should be treated differently; examples are included for the Airodek system from sheets 68 onwards.

These local braces/restraints should be designed to carry the top-restraint force associated with a triangular area of slab as shown in figure 2 on the next sheet, plus the concrete pressure associated with full fluid concrete pressure acting over an edge form length of $^1/_2$ of the dimension between column centres.

Figure 2 - Provision of Local Lateral Restraint of Perimeter Edges



Note: bracing/lashing not required for column centres of <6.0m

Note: Provide bracing/ratchet lashings in the middle third of the area between columns. This could be a single bracing/ lashing placed centrally

Area A: a ≤ 6.0m and t ≤ 300mm hence no additional restraints are required

Area B = 7.0m x 7.0m / 4	=	12.25m²
Concrete load B = 12.25m² x 24.5kN/m³ x 0.5m	=	150kN
Live load & Self weight B = 12.25m² x 2.0kN/m²	=	24.5kN
Total Load Area B = 150kN + 24.5kN	=	**174.5kN**
Top restraint load area B = 174.5kN x 0.025	=	**4.36kN**
Concrete Pressure Area B = 50% x 7.0m(23.5kN/m³ x 0.5m/2 x0.5m)	=	**10.3kN**
Design restraint load Area B = 4.36kN + 10.3kN =	=	**14.7kN**
Total load in bracing/ratchet lashings at 45° = 14.7kN x √2	=	**20.8kN**

Area C = 8.0m x 8.0m / 4 =	16.0m²	
Concrete load C = 16.0m² x 24.5kN/m³ x 0.5m	=	196kN
Live load & Self weight C = 16.0m² x 2.0kN/m²	=	32.0kN
Total Load Area C = 196kN + 32.0kN	=	**228kN**
Top restraint load area C = 228kN x 0.025	=	**5.7kN**
Concrete Pressure Area C = 50% x 8.0m(23.5kN/m³ x 0.5m/2 x0.5m)	=	**11.8kN**
Design restraint load Area C = 5.7kN + 11.8kN	=	**17.5kN**
Total load in bracing/ratchet lashings at 45° = 17.5kN x √2	=	**24.7kN**

Note how the required restraint loads increase rapidly with increasing column spacing and slab thickness!

Leading Edge Soffit Formwork

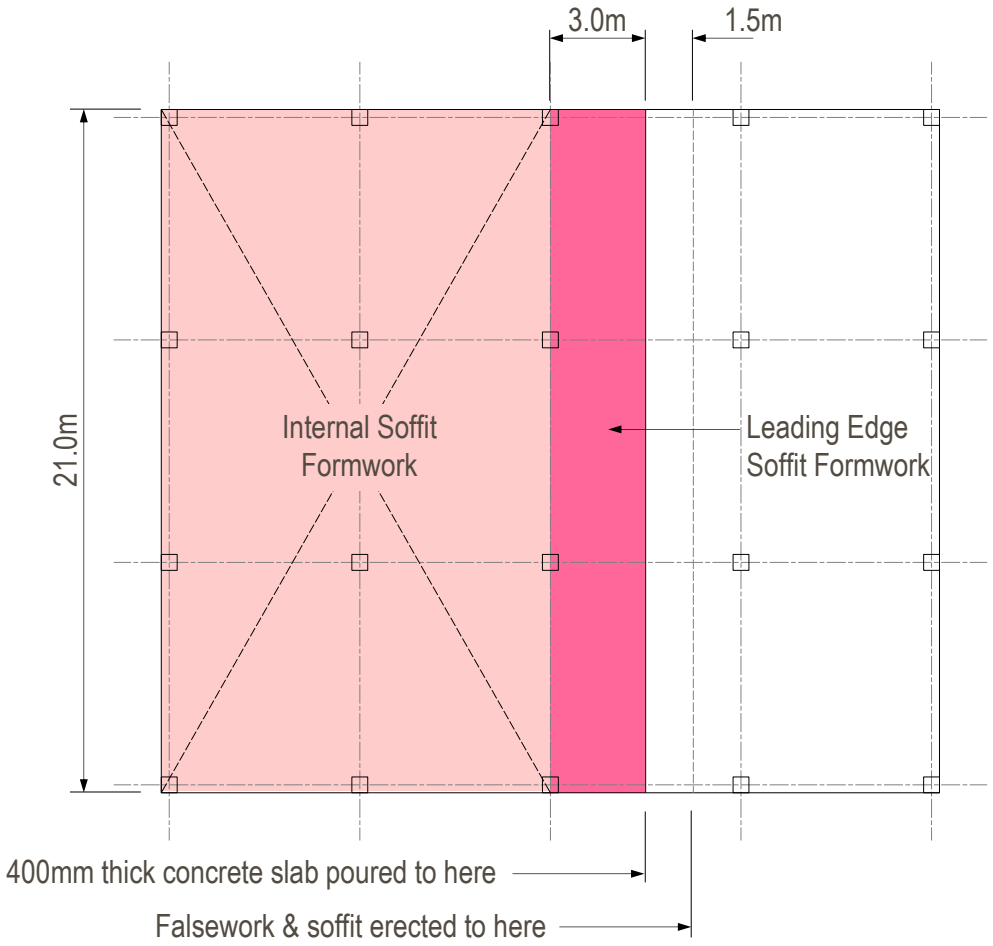
Areas of falsework erected beyond the last line or area of columns/walls capable of providing lateral top-restraint are termed 'leading edge soffit formwork'. The requirement to design and provide additional top-restraint in these areas depends on the ability of the soffit formwork to collect the top-restraint loads and concrete pressure associated with the leading edge area and transfer these back into the internal soffit area and away into the walls/columns.

Where the soffit system is not able to transfer loads in this way, additional bracing or inclined ties shall be designed and provided to carry the top-restraint load associated with the leading edge area plus the full fluid concrete pressure acting on 50% of the length of the line dividing the leading edge soffit area from the internal soffit area, see figure 3 on sheet 66.

Note that if the falsework and soffit are erected beyond the front of the leading edge of the slab and infills with columns/ walls are placed around the next line of columns/walls, then this area of soffit formwork is no longer considered to be leading edge, see figure 4 on sheet 67. As such no additional top-restraint measures are required.

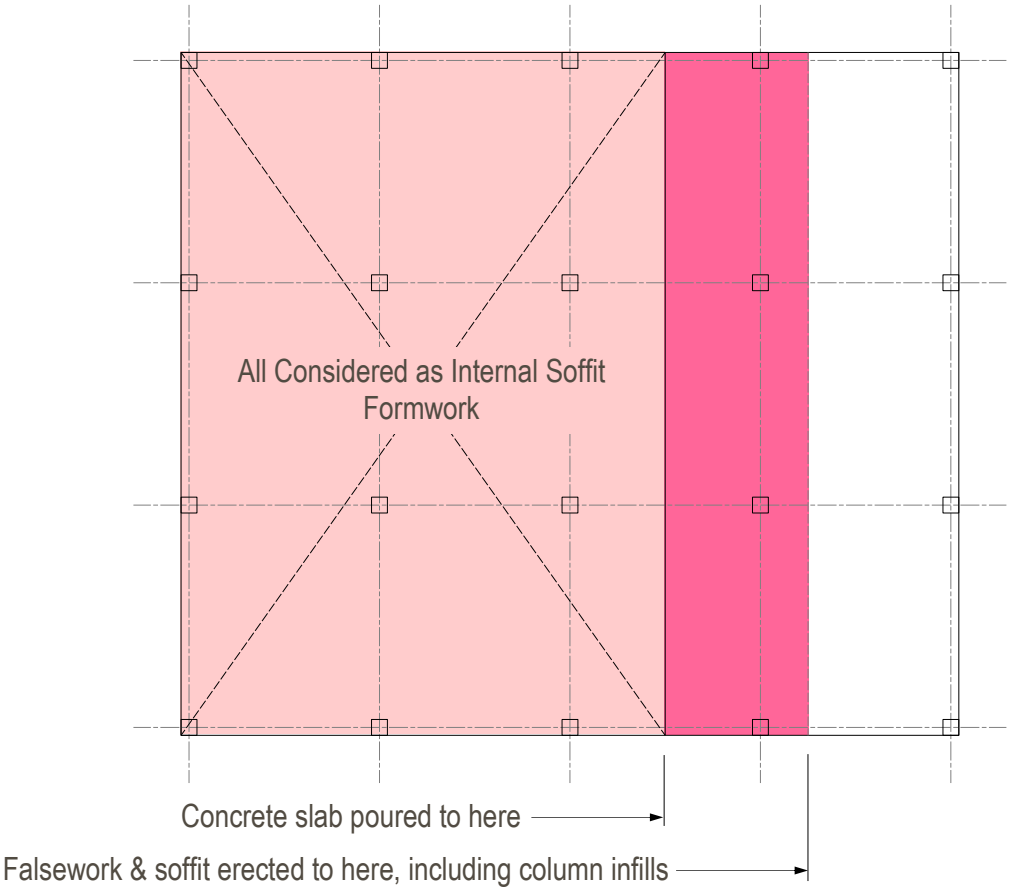
Experience gained over many years has shown that, provided the column centres are equal to or less than 6m and slabs are equal to or less than 300mm thick, additional leading edge restraint is not required for any RMDK system falsework other than on cantilevered beams to prevent overturning.

Figure 3 - Unrestrained Leading Edge Soffit Formwork



Leading edge concrete load = 3.0m x 21.0m x 0.4m x 24.5kN/m^3	=	617kN
Leading edge live load & self weight = 4.5m x 21.0m x 2.0kN/m^2	=	189kN
Total leading edge vertical load Area = 617kN + 189kN	=	**806kN**
Top restraint load area = 806kN x 0.025	=	**20.2kN**
Concrete pressure load = 50% x 21.0m x (23.5kN/m^3 x 0.4m/2 x0.4m)	=	**19.7kN**
Design top restraint load for leading edge soffit formwork = 20.2kN + 19.7kN	=	**39.9kN**
Total load in bracing/ratchet lashings at 45° = 39.9kN x √2	=	**56.4kN**

Figure 4 - Non-Leading Edge Soffit Formwork



3, Competence of the Interface

The interface is the point where temporary works and permanent works meet and top-restraint load is transferred between them. Most usually this will be via a section of plywood infill supplied by the customer and positioned by joiners on site. Materials and fixings will almost never be explicitly shown on RMDK drawings and hence responsibility must lie with the customer for correct design and installation.

A particular risk in this area is the case where a number of columns or walls on a building lift are accidentally constructed with the top level cast below the soffit level. Impromptu plywood makeup to extend the height of these short columns may not have the structural competence to transfer top-restrained loads.

Rules for Various Configurations of Airodek Equipment

Airodek Prop and Panel System

Four Airodek Panels are supported at the point where they meet on an Airodek Crown. The locating lugs and claws on the crown provide a good connection and load transfer between the panel frames which forces the soffit structure to act as a continuous stiff plate.

Provided the soffit is flat, no additional top-restraint is required either midway between columns at slab perimeters or in the leading edge soffit area. Care needs to be taken when steps in soffit level force panel level changes that result in loss of continuity of the soffit plate.

Airodek Decking

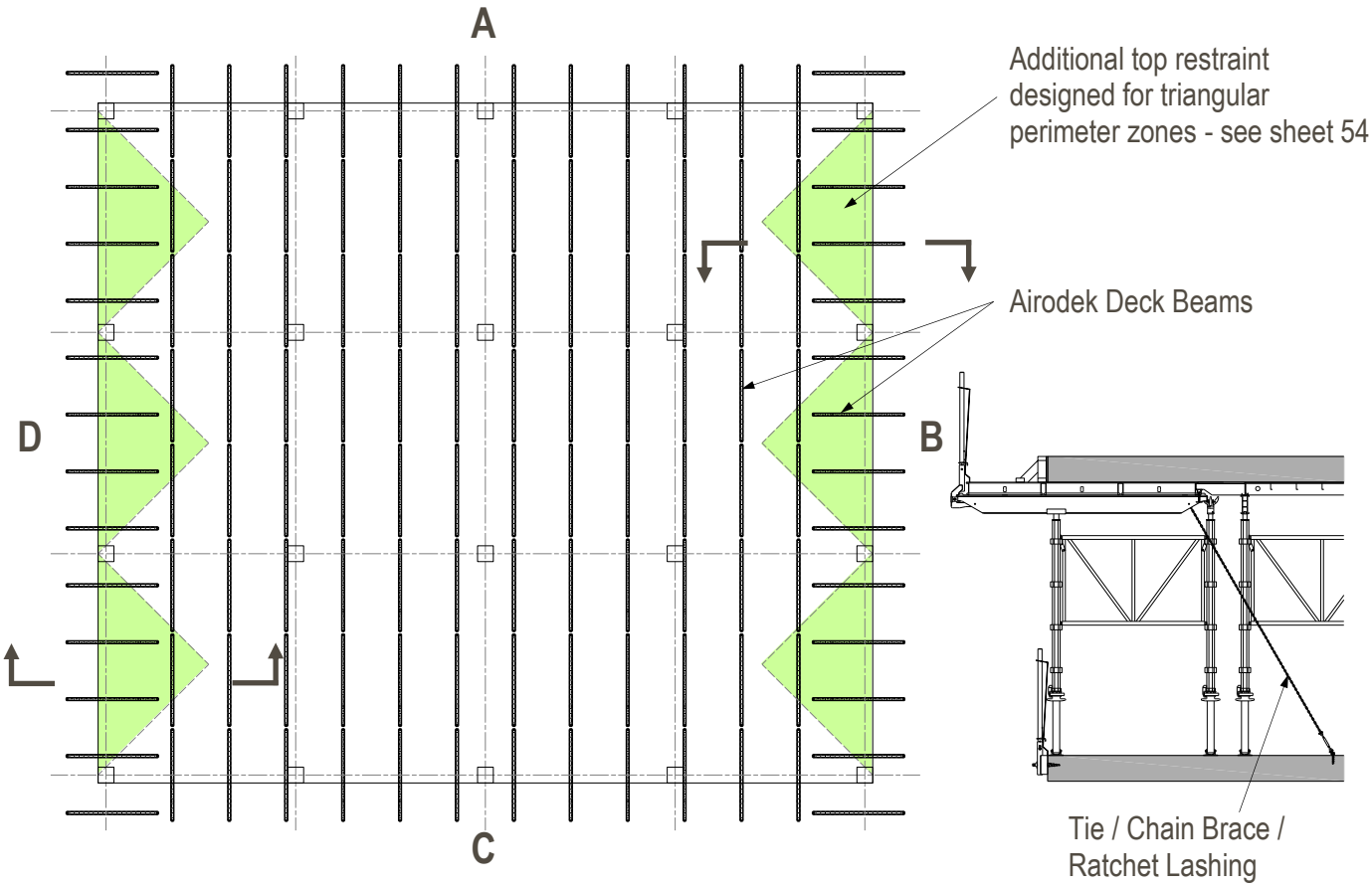
Airodek Panels meet at and are supported by Airodek Deck Beams. The panels locate into the castellated plastic comb incorporated into the top of the Decking Beams. The comb provides a less positive and lower strength connection between the panel edge members which means that additional measures are required to ensure top lateral restraint as shown in pages 61 and onwards.

Deck Beams engage over the claws of Airodek Crowns or Airodek/Alshor Drop Heads which provide a good load bearing connection between these beams capable of transferring top-restraint loads through the soffit system along the line of the Deck Beams.

Perimeter Edges

At the building perimeter, Airodek Deck Beams, shown in figure 5 below, are orientated so that they run perpendicular to the slab edge and cantilever beyond the edge of the building to provide space for access and placement of the edge slab formwork. In these areas, the end of each Deck Beam remote from the slab edge is tied down to the slab using inclined ties/braces/ratchet lashings.

Figure 5 - Airodek Decking Perimeter



Plan Showing Airodek Deck Beam Layout

Section Through Deck Edge

Building edges A & C have continuous runs of Deck Beams transferring edge top restraint loads into the internal soffit area. Design ties/braces/ratchet lashings only to prevent edge Deck Beams from tipping over.

Building edges B & D have single Deck Beams & there is less competent top restraint load transfer with the internal soffit area. Design ties/braces/ratchet lashings to carry top restraint loads & concrete pressure loads described on sheet 63.

Where the Deck Beam at the edge of the building is connected through a Drop Head or Crown to another Deck Beam further under the slab, diagonal ties/bracing/ratchet lashings should be designed only to prevent the cantilevering Deck Beams tipping up as a result of application of the access load on the cantilever. This loading condition should be considered in the least favourable loading condition when the soffit is unloaded i.e. before fixing of rebar or placing of concrete.

Where the Deck Beam at the edge of the building is not connected via a Drop Head or Crown to another Deck Beam further under the slab, the inclined braces/ties/lashings should be designed to carry the greater of:

Either;

The load to prevent the edge Deck Beam tipping up due to application of the access load to the cantilever when the soffit is empty i.e. before fixing of rebar or placement of concrete.

Or;

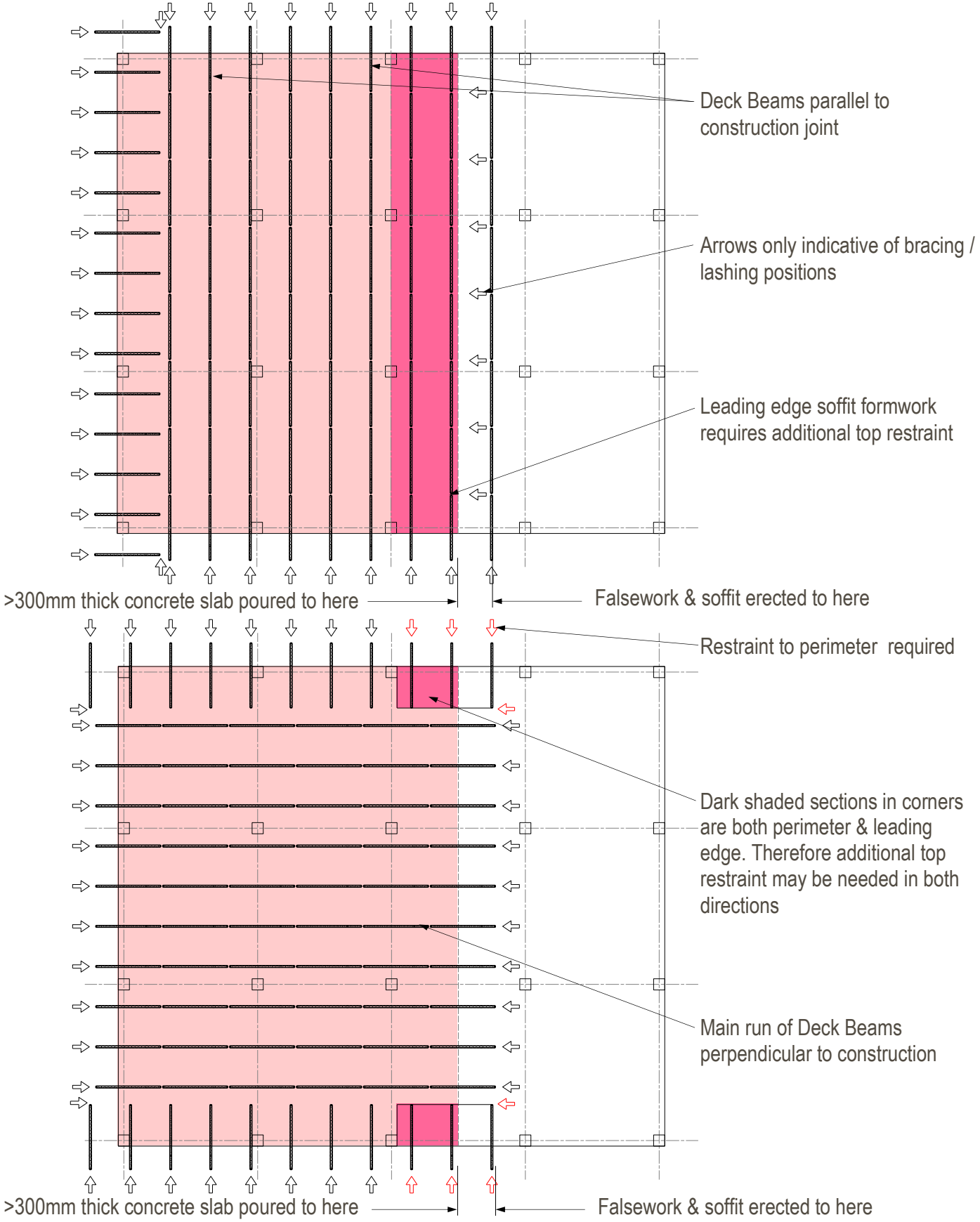
The top-restraint and concrete pressure loads described on sheet 63.

Leading Edge Soffit Areas

If the leading edge soffit area is tied back into the internal soffit area by continuous runs of Deck Beams linked by Crowns or Dropheads, no additional top-restraint provision is required (see figure 6).

If the leading edge soffit area is tied back into the internal soffit area by the Airodek Panel frame interlock with the Deck Beam plastic combs only, design and provide lateral restraints in accordance with the paragraph on Leading Edge Soffit Formwork - see sheet 65.

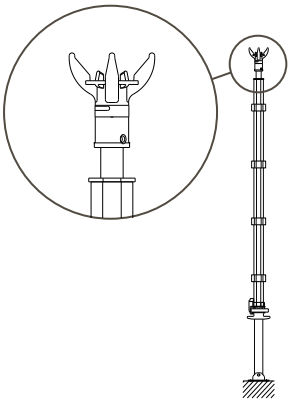
Figure 6 - Airodek Decking Leading Edge

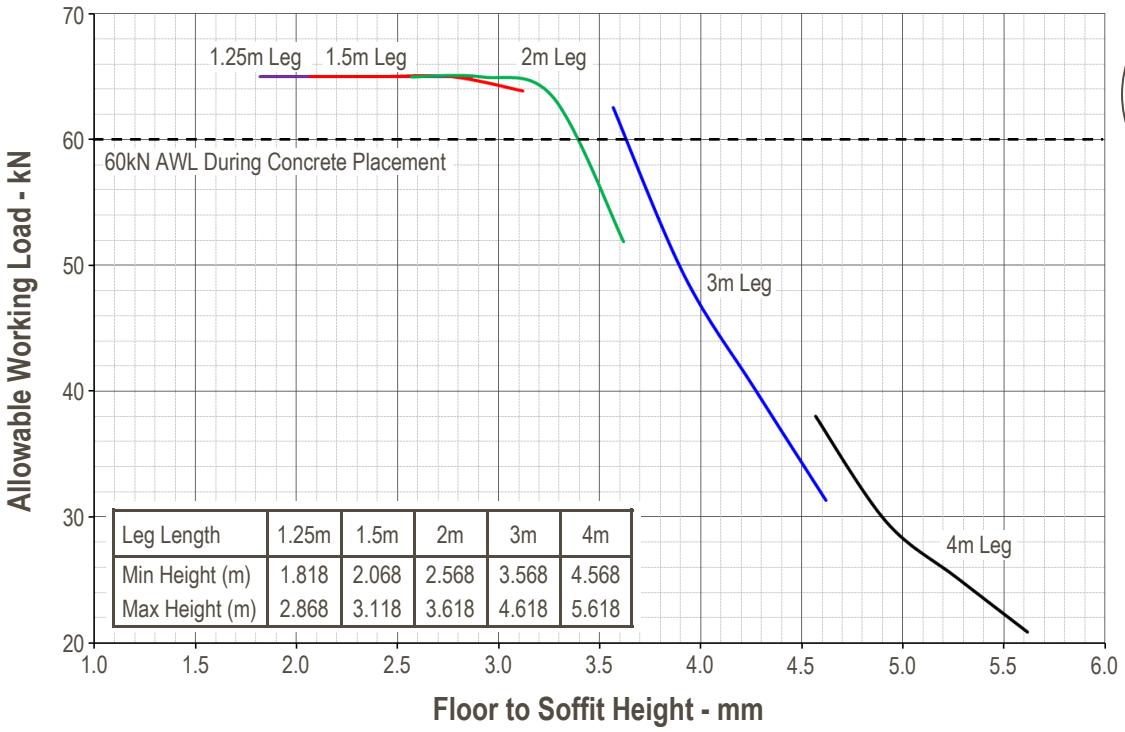


Allowable Working Load in Alshor Plus Props with Airodek Crown Plus Adapter. Base Fixed Against Rotation

Chart A1

No Frames



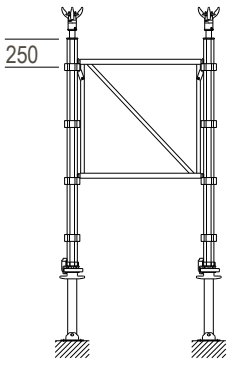


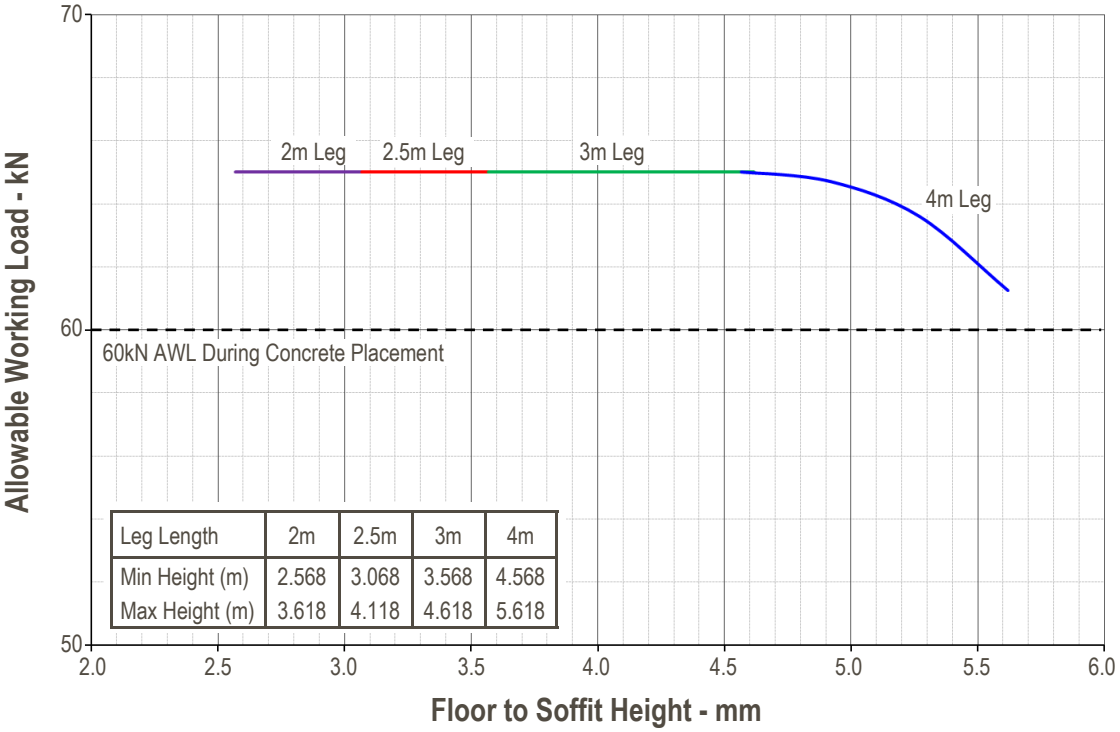
Leg Length	1.25m	1.5m	2m	3m	4m
Min Height (m)	1.818	2.068	2.568	3.568	4.568
Max Height (m)	2.868	3.118	3.618	4.618	5.618

Allowable Working Load in Alshor Plus Tower Legs with Airodek Crowns Plus Adapters. Base Fixed Against Rotation

Chart A2

1 Frame

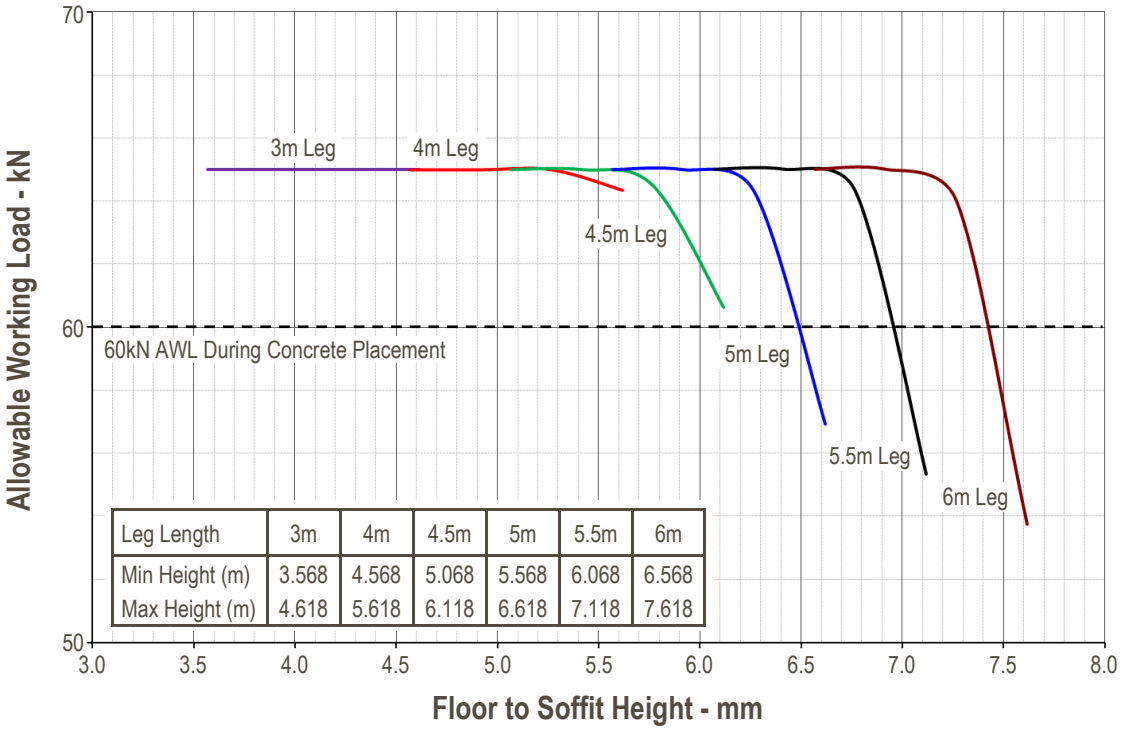




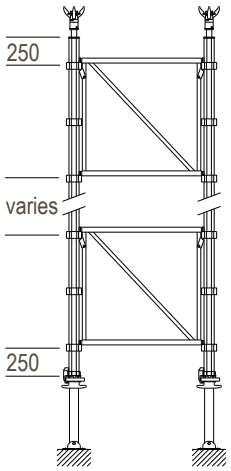
Leg Length	2m	2.5m	3m	4m
Min Height (m)	2.568	3.068	3.568	4.568
Max Height (m)	3.618	4.118	4.618	5.618

Allowable Working Load in Alshor Plus Tower Legs with Airodek Crown Plus Adapter. Base Fixed Against Rotation

Chart A3
2 Frames

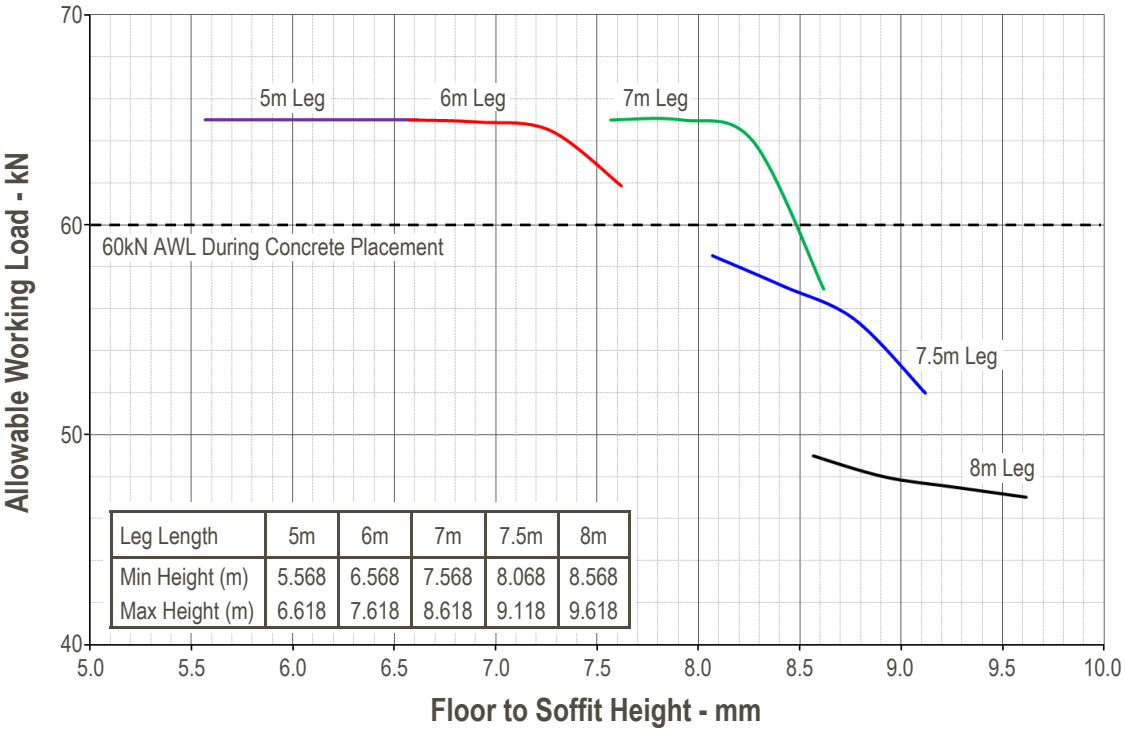


Leg Length	3m	4m	4.5m	5m	5.5m	6m
Min Height (m)	3.568	4.568	5.068	5.568	6.068	6.568
Max Height (m)	4.618	5.618	6.118	6.618	7.118	7.618

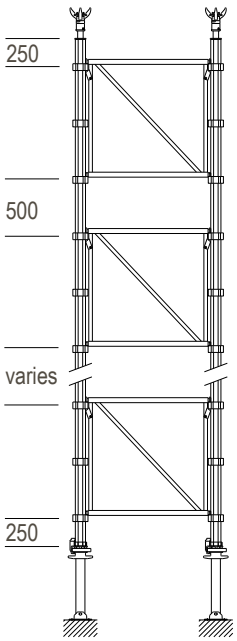


Allowable Working Load in Alshor Plus Tower Legs with Airodek Crown Plus Adapter. Base Fixed Against Rotation

Chart A4
3 Frames

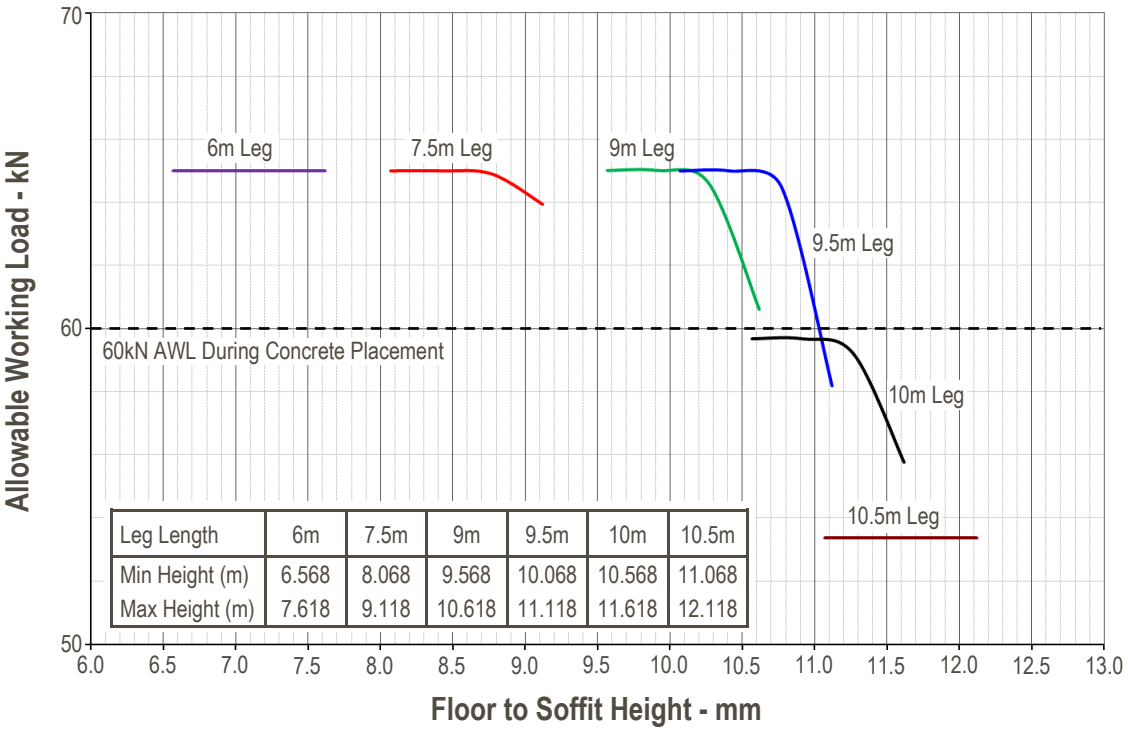


Leg Length	5m	6m	7m	7.5m	8m
Min Height (m)	5.568	6.568	7.568	8.068	8.568
Max Height (m)	6.618	7.618	8.618	9.118	9.618

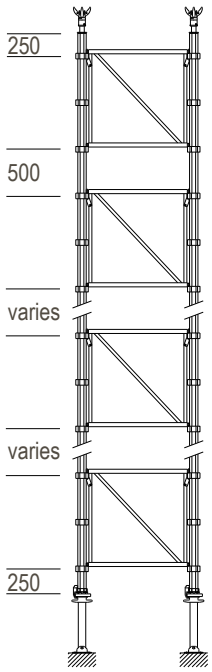


Allowable Working Load in Alshor Plus Tower Legs with Airodek Crown Plus Adapter. Base Fixed Against Rotation

Chart A5
4 Frames



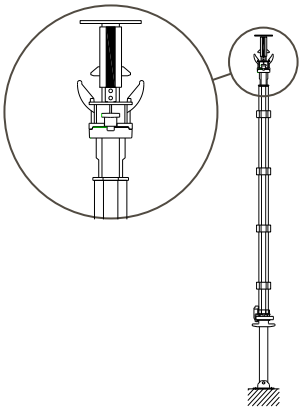
Leg Length	6m	7.5m	9m	9.5m	10m	10.5m
Min Height (m)	6.568	8.068	9.568	10.068	10.568	11.068
Max Height (m)	7.618	9.118	10.618	11.118	11.618	12.118

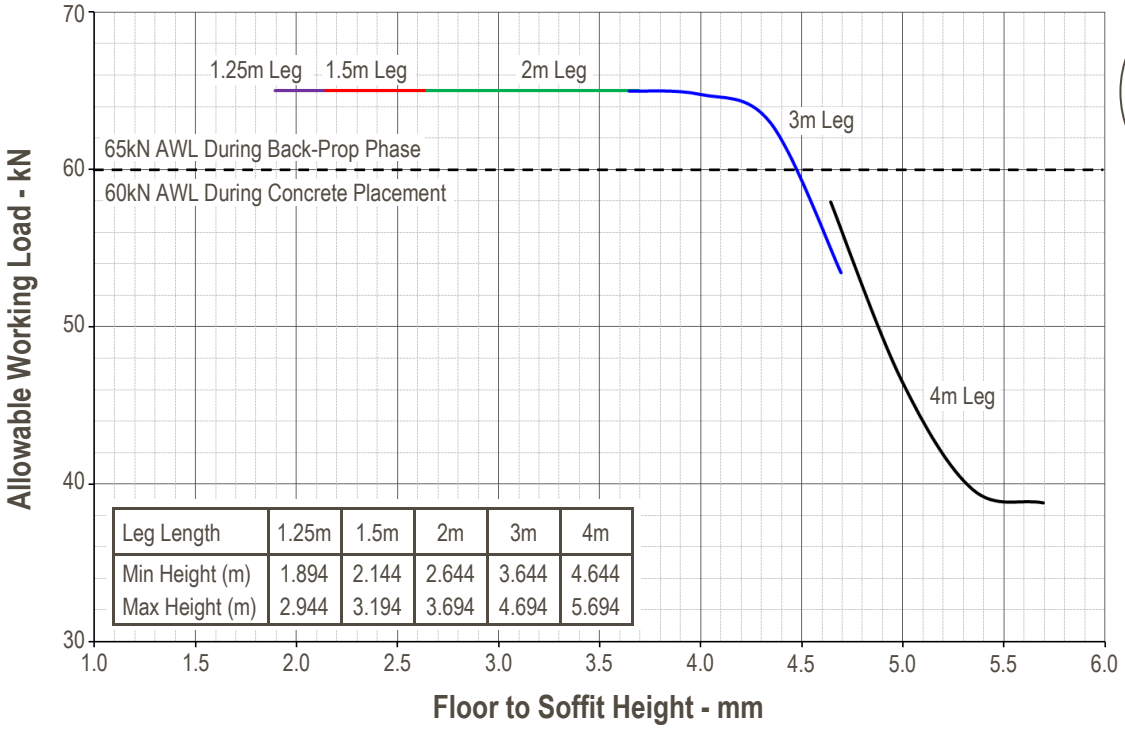


Allowable Working Load in Alshor Plus Props with Alshor Plus Drophead. Base Fixed Against Rotation

Chart B1

No Frames



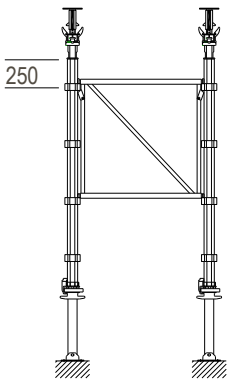


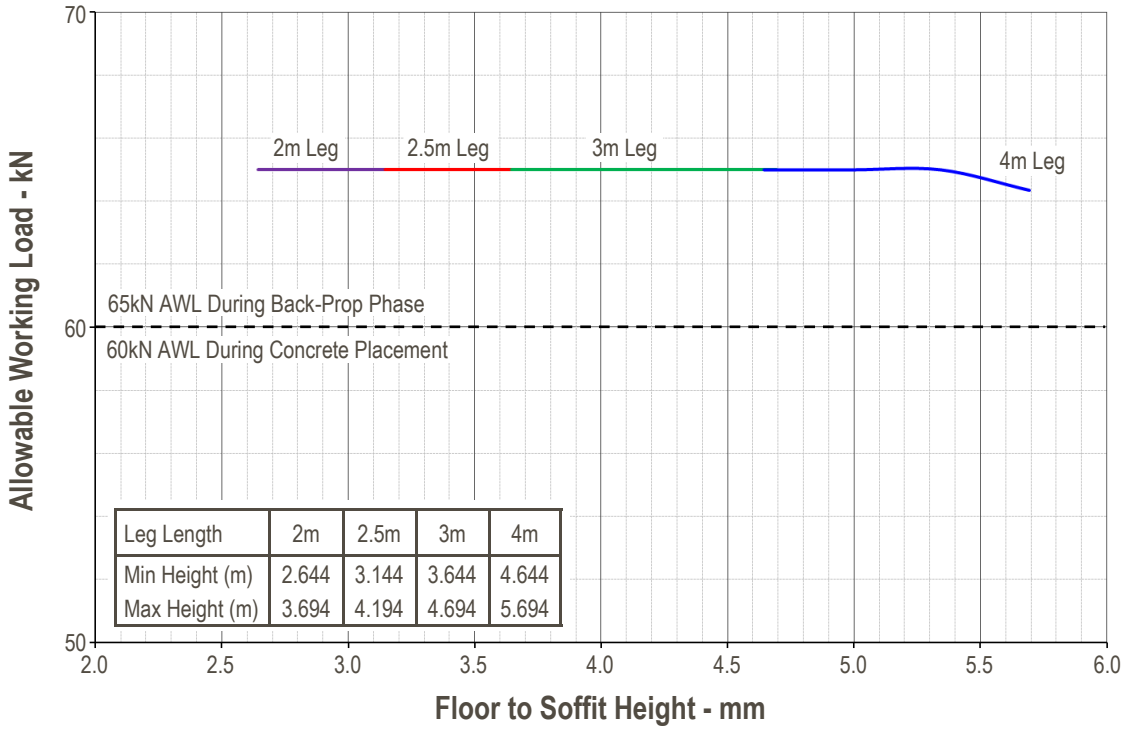
Leg Length	1.25m	1.5m	2m	3m	4m
Min Height (m)	1.894	2.144	2.644	3.644	4.644
Max Height (m)	2.944	3.194	3.694	4.694	5.694

Allowable Working Load in Alshor Plus Tower Legs with Alshor Plus Drophead. Base Fixed Against Rotation

Chart B2

1 Frame

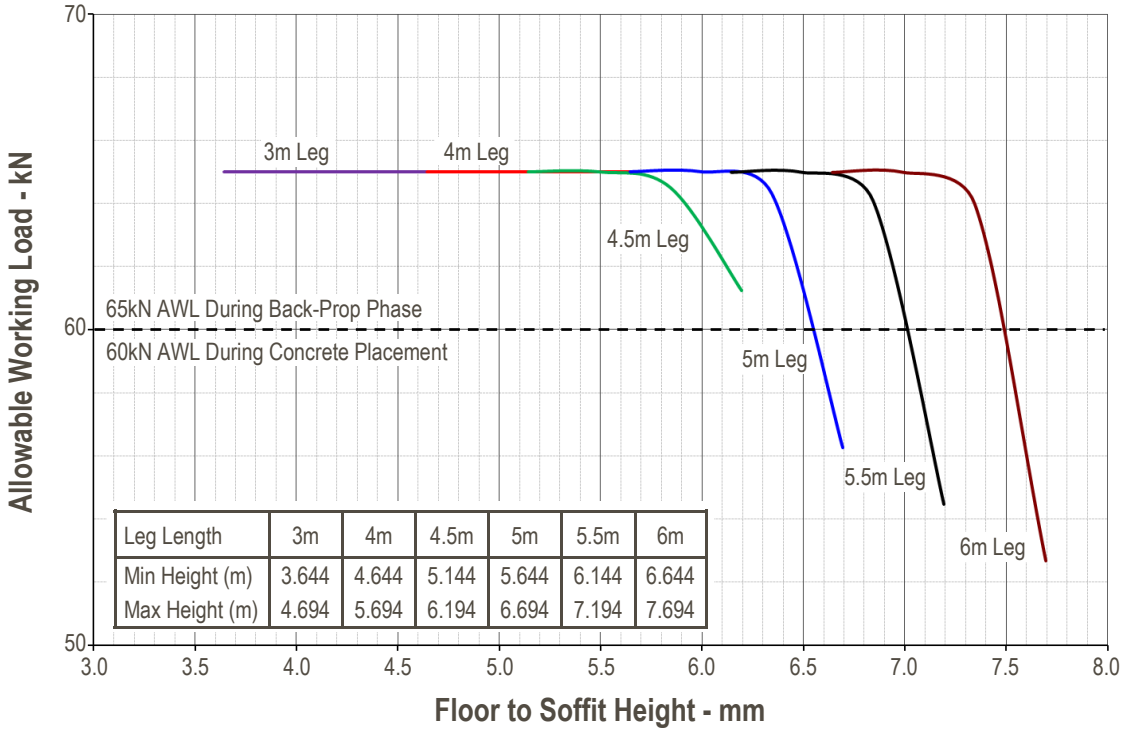




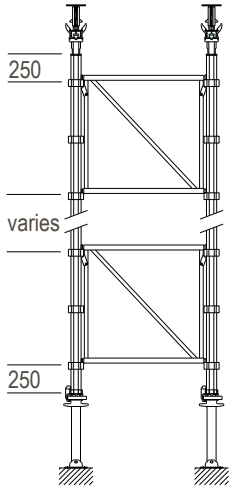
Leg Length	2m	2.5m	3m	4m
Min Height (m)	2.644	3.144	3.644	4.644
Max Height (m)	3.694	4.194	4.694	5.694

Allowable Working Load in Alshor Plus Tower Legs with Alshor Plus Drophead. Base Fixed Against Rotation

Chart B3
2 Frames

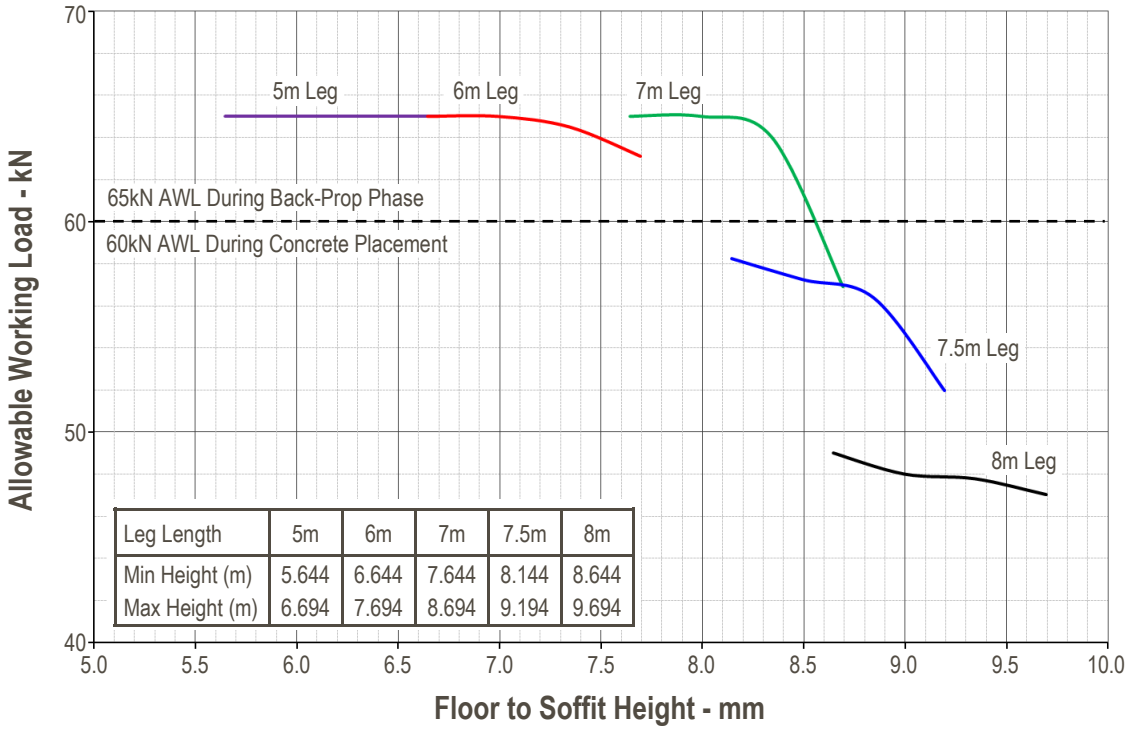


Leg Length	3m	4m	4.5m	5m	5.5m	6m
Min Height (m)	3.644	4.644	5.144	5.644	6.144	6.644
Max Height (m)	4.694	5.694	6.194	6.694	7.194	7.694

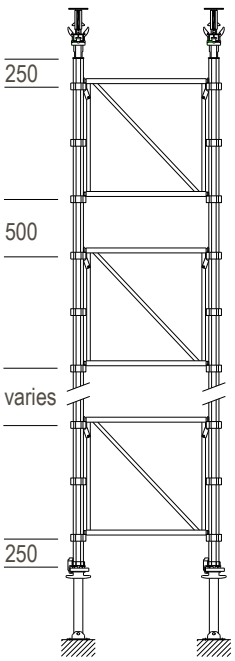


Allowable Working Load in Alshor Plus Tower Legs with Alshor Plus Drophead. Base Fixed Against Rotation

Chart B4
3 Frames

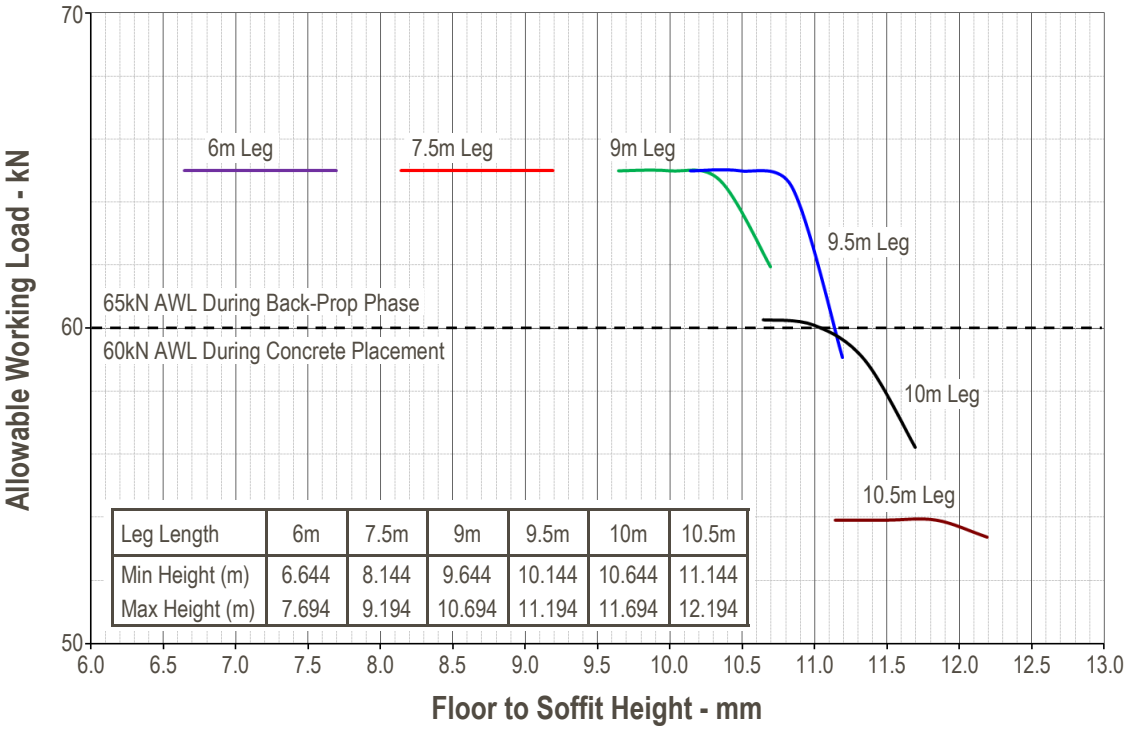


Leg Length	5m	6m	7m	7.5m	8m
Min Height (m)	5.644	6.644	7.644	8.144	8.644
Max Height (m)	6.694	7.694	8.694	9.194	9.694

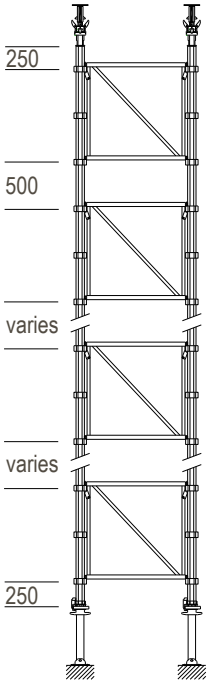


Allowable Working Load in Alshor Plus Tower Legs with Alshor Plus Drophead. Base Fixed Against Rotation

Chart B5
4 Frames

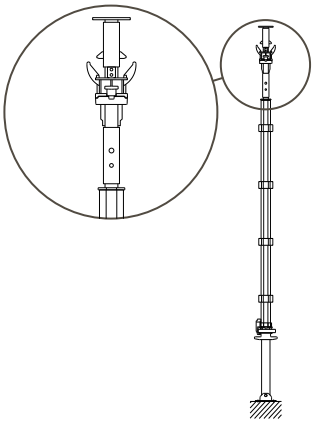


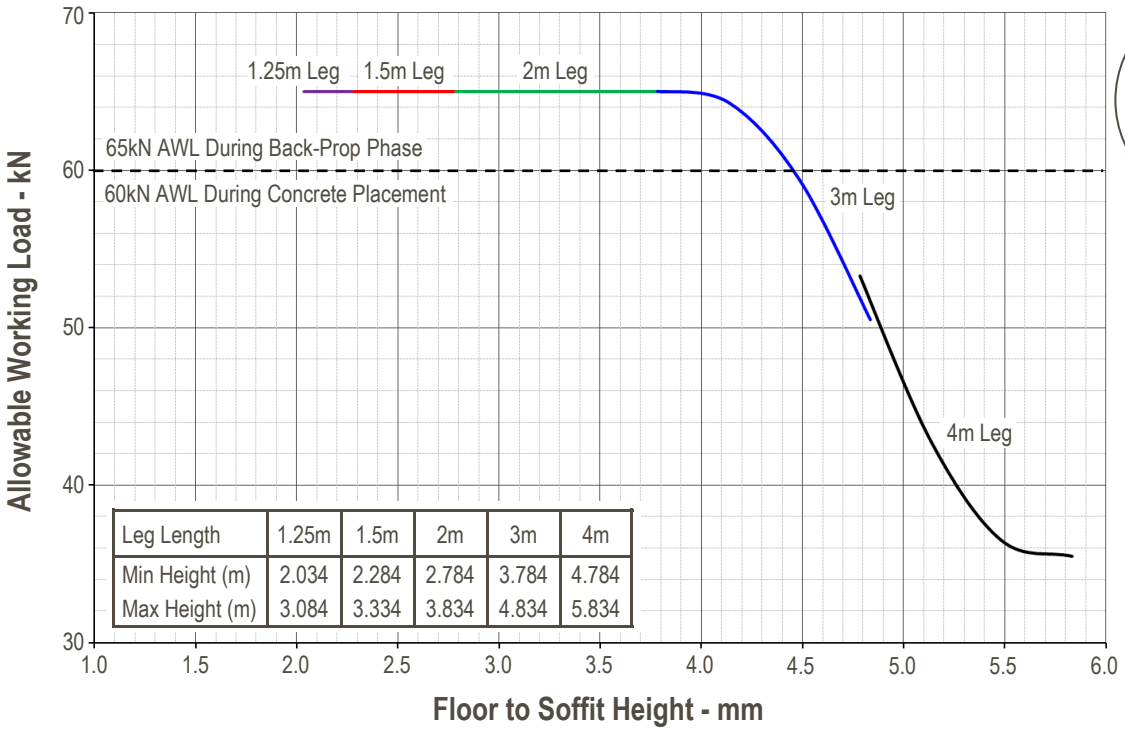
Leg Length	6m	7.5m	9m	9.5m	10m	10.5m
Min Height (m)	6.644	8.144	9.644	10.144	10.644	11.144
Max Height (m)	7.694	9.194	10.694	11.194	11.694	12.194



Allowable Working Load in Individual Alshor Plus Props with Airodek Drophead Plus Adapter. Base Fixed Against Rotation

Chart C1
No Frames

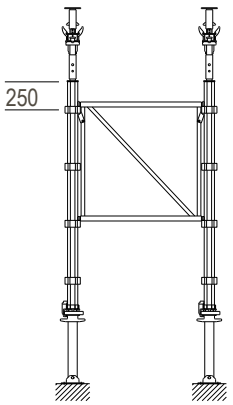


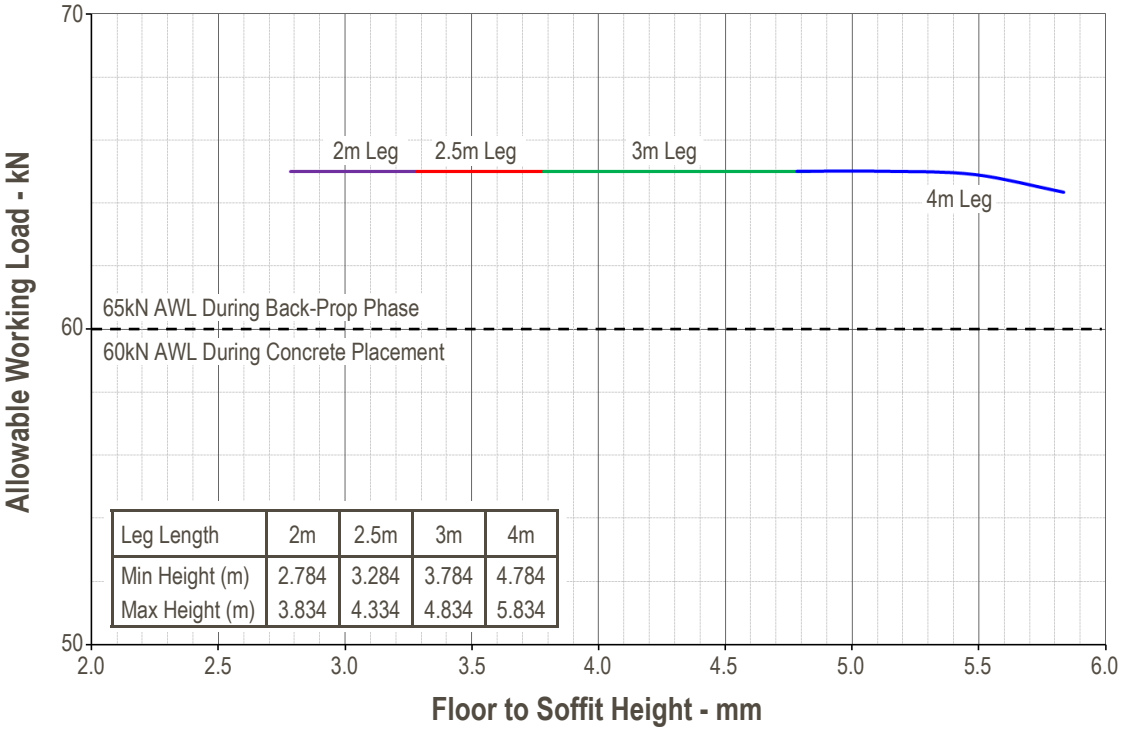


Leg Length	1.25m	1.5m	2m	3m	4m
Min Height (m)	2.034	2.284	2.784	3.784	4.784
Max Height (m)	3.084	3.334	3.834	4.834	5.834

Allowable Working Load in Alshor Plus Tower Legs with Airodek Drophead Plus Adapter. Base Fixed Against Rotation

Chart C2
1 Frame

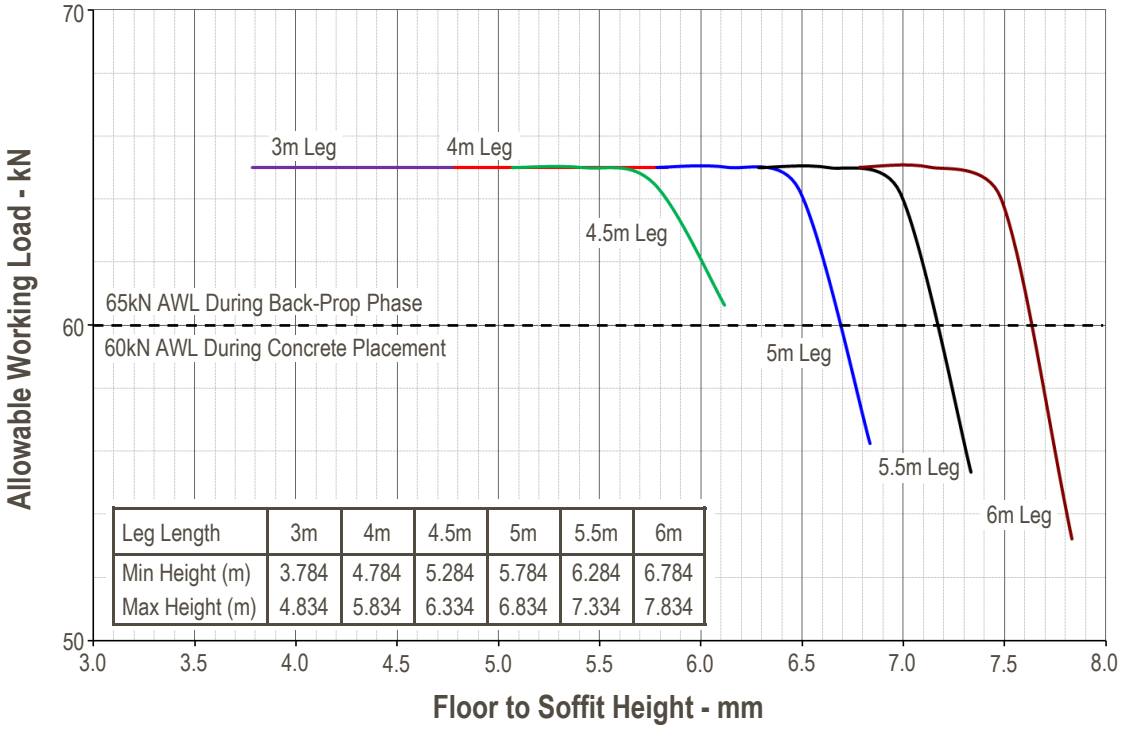




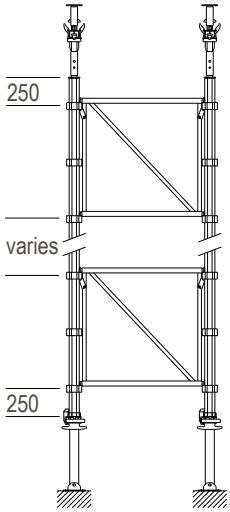
Leg Length	2m	2.5m	3m	4m
Min Height (m)	2.784	3.284	3.784	4.784
Max Height (m)	3.834	4.334	4.834	5.834

Allowable Working Load in Alshor Plus Tower Legs with Airodek Drophead Plus Adapter. Base Fixed Against Rotation

Chart C3
2 Frames

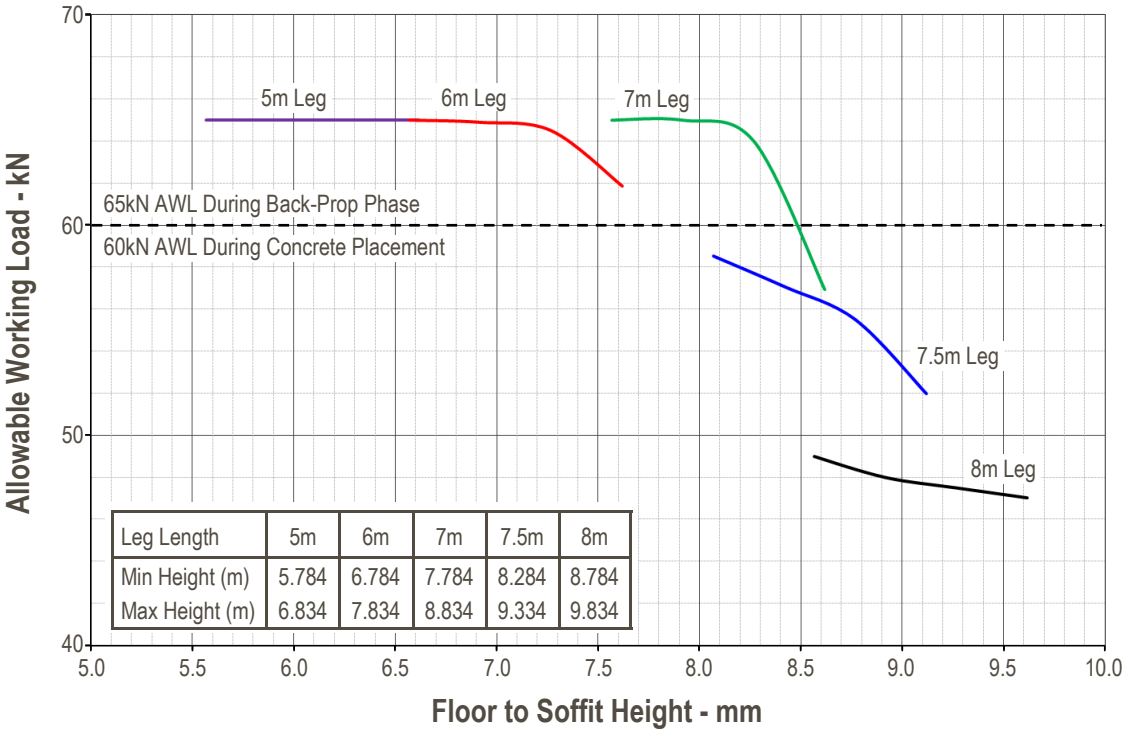


Leg Length	3m	4m	4.5m	5m	5.5m	6m
Min Height (m)	3.784	4.784	5.284	5.784	6.284	6.784
Max Height (m)	4.834	5.834	6.334	6.834	7.334	7.834

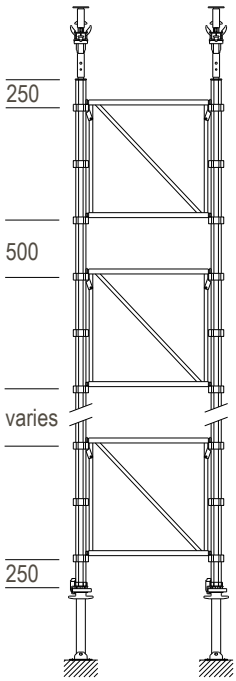


Allowable Working Load in Alshor Plus Tower Legs with Airodek Drophead Plus Adapter. Base Fixed Against Rotation

Chart C4
3 Frames

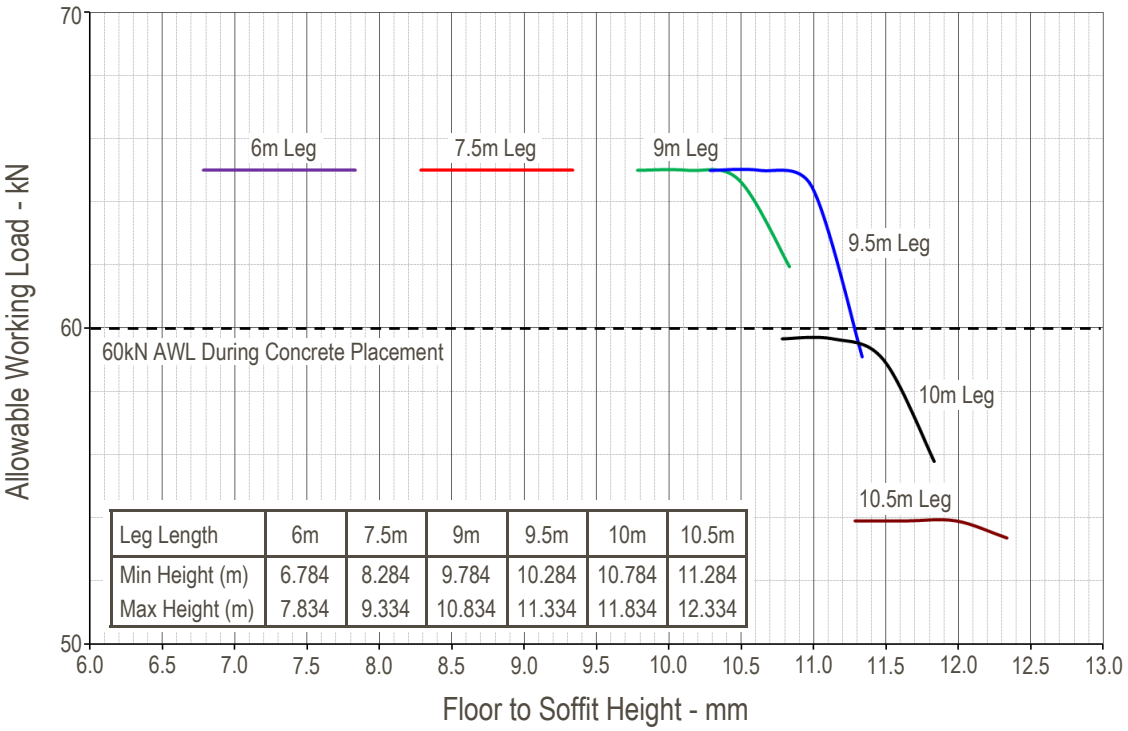


Leg Length	5m	6m	7m	7.5m	8m
Min Height (m)	5.784	6.784	7.784	8.284	8.784
Max Height (m)	6.834	7.834	8.834	9.334	9.834



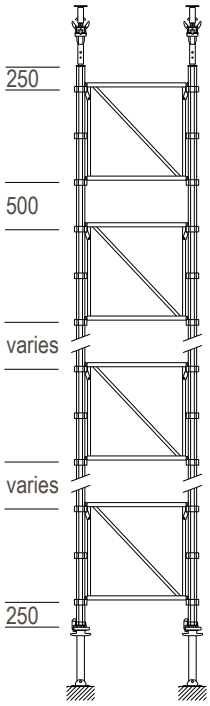
Allowable Working Load in Alshor Plus Tower Legs with Airodek Drophead Plus Adapter. Base Fixed Against Rotation

Chart C5



Leg Length	6m	7.5m	9m	9.5m	10m	10.5m
Min Height (m)	6.784	8.284	9.784	10.284	10.784	11.284
Max Height (m)	7.834	9.334	10.834	11.334	11.834	12.334

4 Frames



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