ISCHEBECK TITAN

Titan System

Generic

Method Statement

Method Statement

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TITAN SYSTEM
GENERIC METHOD STATEMENT

The Titan system is a slab supporting formwork system suitable for the forming of concrete slabs.

The system has been in use for decades thus proving its reliability and ease of use. Titan as a system is also very versatile; can fit and be built around challenging situations.

This comprehensive Method Statement is provided for instruction in the safe use of the system, for typical applications.

This Generic Method Statement may be used to compliment a customers written Site Specific Method Statement, which will also include all local & specific risk assessment analysis not included here.

This Generic Method Statement should not be used as a substitute for the above.

TITAN SYSTEM

Introduction

Ischebeck Titan is renowned as one of the leading manufacturers and suppliers of equipment to the construction and civil engineering industries.

Our commitment to safety and site efficiency is evident in the design performance and quality of our products, which offer safe access and secure working platforms for an enormous variety of applications.

The enclosed method statement underlines our devotion to site safety by providing recommendations, based on tried and trusted methods, for the proper use and application of Ischebeck Titan's, Titan support system.

Please take time to read and understand the information presented, before using the products covered. If you need further advice or assistance consult a suitably qualified person within your own company or contact Ischebeck Titan.

Disclaimer

The methods presented in this document are solely for the use of Ischebeck Titan equipment and are intended for guidance only. When familiarity has been gained with the equipment preferred methods may be adopted, provided they do not contravene health and safety regulations or accepted safe working practices. The information is correct at time of publication, but Ischebeck Titan reserves the right to change, without prior notice, the specifications and methods mentioned. No responsibility whatsoever can be accepted for any errors or omissions in, or misrepresentation of, the contents. For specific information refer to Ischebeck Titan Limited.

TITAN SYSTEM

Safe working practice

The Titan formwork system provides a rapid, versatile and efficient means of casting in-situ concrete decks in a wide variety of applications.

Lightweight and easy to use, Titan can be erected and dismantled by a team of two operatives without the need for special tools, making it one of the least labor intensive systems on the market.

With all erection and dismantling undertaken from beneath the deck itself, Titan minimises requirements for working at height and makes a major contribution to site safety.

For times where working at height needs to be carried out, EPS systems can be installed. However, in some areas this may not be possible which will then require the use of a fall arrest lanyard/ safety harness.

Ischebeck Titan highlights the below regulations as an area of consideration.

- The Construction (Health, Safety and Welfare) Regulations 1996
- The Construction (Design & Management) Regulations 2015
- Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)
- The Work at Height Regulations 2005
- Manual Handling Operations Regulations 1992 (MHOR)

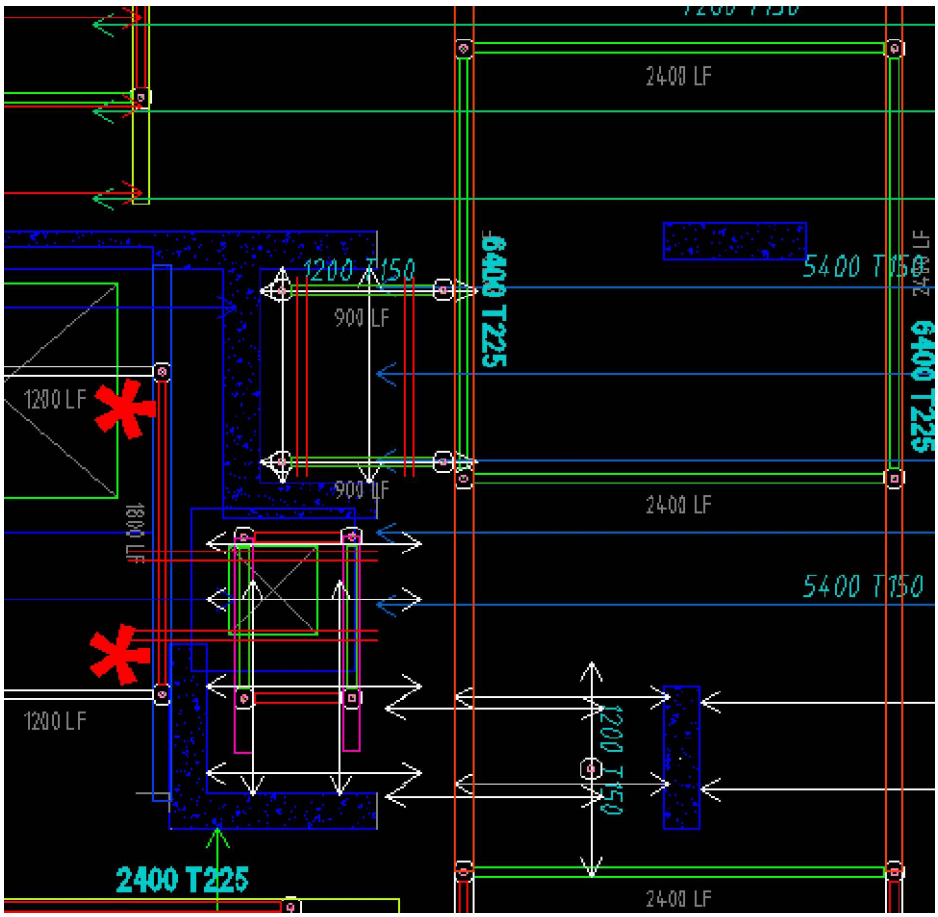
TITAN SYSTEM

Design Factors - Lateral Restraint

- The Titan System rely's on the permanent works (columns and walls) to provide lateral restraint at deck level.

- If the permanent works can not provide lateral restraint consult the ITUK Design Team to discuss alternative solutions.

- Example scheme drawing below displays a good example of the columns and walls providing lateral restraint to the system.



Description of the Titan system

1. Titan Support - Item code = See Table

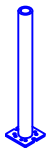
The Titan Support or 'Titan Leg' supports the Primary Beams which in turn support the Secondary Beams.

Leg	Item Code	Weight
Size 1	110101	16kg
Size 2	110201	18kg
Size 4	110401	23kg
Size 6	110601	26kg

2. Titan Jack - Item code = See Table

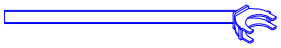
The Titan Jack is inserted into the Titan Support to give the Titan Leg Assembly. The jack can then be extended or closed by tightening the Collar on the Leg either by hand or using the spanner.

Jack	Item Code	Weight
Short Jack (0 to 0.4m)	110101	6.1kg
Long Jack (0 to 1.2m)	110201	10.4kg



4. Titan Leg Spanner - Item code = 132200

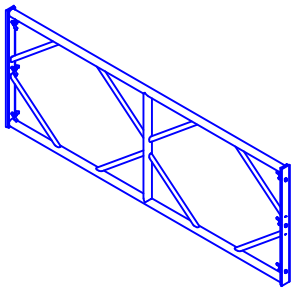
Titan Leg Spanner is used to loosen and tighten the jack collar. Loosening this would lower the leg and tightening would extend the leg.



5. Titan Ledger Frame - Item code = See Table

The Titan Ledger Frames provide lateral restraint to the system and fit between the Titan Supports to make 'towers'.

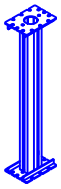
Ledger Frame	Item Code	Weight
600 LF	120600	5.6kg
900 LF	120900	7.5kg
1200 LF	121200	7.8kg
1250 LF	M.E only	?.?kg
1600 LF	121600	8.8kg
1800 LF	121800	9.7kg
2400 LF	122400	13.5kg
3000 LF	123000	15.4kg



6. Titan Leg Extension - Item code = See Table

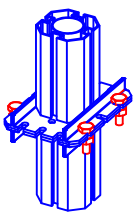
Titan Leg Extension fixes to the Titan Leg to either reduce the Jack extension or to reach higher to suit higher floor to soffit heights.

Leg	Item Code	Weight
250 Extension	130200	3.3kg
500 Extension	130500	4.3kg
1000 Extension	131000	5.7kg
5000 Extension	M.E only	?.?kg



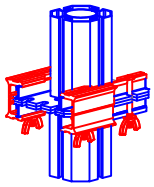
7. Titan M12x35 Nut & Bolt - Item code = 133100

Titan M12x35 Nut & Bolt are an alternative to the Leg Connecting Bracket (below). Four Bolts are required in the positions shown to give a secure connection between the Headplates.



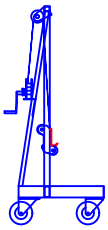
8. Leg Connecting Bracket - Item code = 137000

The Leg Connecting Bracket allows secure connection between two Titan Leg Headplates for higher floor to soffit heights or to reduce jack length for higher loads.



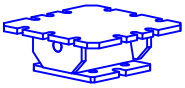
9. Titan Trolley - Item code = 132100

Titan Trolley allows parts of the system to be moved around the slab. The trolley fits under the Ledger frames when in use.



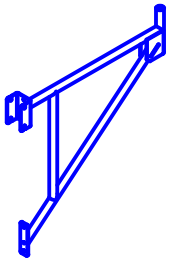
13. Titan Rocking Headplate - Item code = 133800

Titan twin web 225 beams are the primary beam in the system and sit on the Titan Supports.



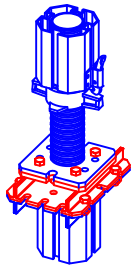
14. Titan Cantilever Bracket - Item code = 133300

Titan Cantilever Bracket provides extra support to cantilever beams. The bracket fits onto the titan leg and spans 1.2 meters where an adjustable jack supports the cantilever beam.



15. Titan Leg Adaptor Plate - Item code = 133200

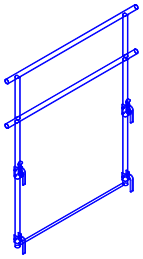
Using the Titan Leg Adaptor Plate allows the headplate and baseplate to be fixed together providing versatility when using the Titan Legs.



17. Titan Handrail Frame - Item code = See Table

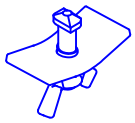
The Titan Handrail Frame fits onto the Ledger Frame and provides edge protection when working on the Intermediate Transom Boards positioned over the Legder Frame towers.

Jack	Item Code	Weight
1080 Titan Handrail	????	???kg
1680 Titan Handrail	404160	19.4kg



19. Titan Clamp - Item code = 132600

The Titan Clamp connects and clamps the Titan T150 & T225 Beams into the system and also is the main fixing component of the system providing a fixing solution to most components.



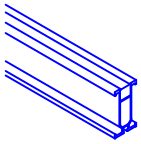
19. Titan T-bolt - Item code = 132300

The Titan T-bolt is used to connect various Titan components together, for example the Titan Cantilever Bracket.

T-Bolts must be supplied with Standard Nut and Spring Washer

20. Titan twin web 150 beam (T150) - Item code = See Table

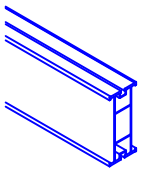
Titan twin web 150 beams are the secondary beams in the system and sit on the primary T225 beams.



T150 Beam	Item Code	Weight
T150 1.2m	211200	6.77kg
T150 1.8m	211800	10.13kg
T150 2.4m	212400	13.51kg
T150 2.7m	212700	15.20kg
T150 3.0m	213000	16.89kg
T150 3.6m	213600	20.27kg
T150 4.2m	214200	23.65kg
T150 4.8m	214800	27.02kg
T150 5.4m	215400	30.40kg
T150 6.0m	216000	33.78kg
T150 6.4m	216400	36.03kg
T150 7.2m	217200	40.54kg

21. Titan twin web 225 beam (T225) - Item code = See Table

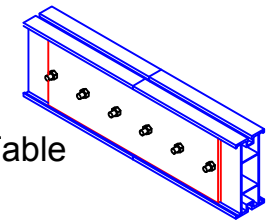
Titan twin web 225 beams are the primary beam in the system and sit on the Titan Supports.



T225 Beam	Item Code	Weight
T225 1.2m	221200	10.64kg
T225 1.8m	221800	15.97kg
T225 2.4m	222400	21.29kg
T225 2.7m	222700	23.95kg
T225 3.0m	223000	26.61kg
T225 3.6m	223600	31.93kg
T225 4.2m	224200	37.25kg
T225 4.8m	224800	42.58kg
T225 5.4m	225400	47.90kg
T225 6.0m	226000	53.22kg
T225 6.4m	226400	56.77kg
T225 7.2m	227200	63.89kg
T225 8.4m	228400	74.51kg
T225 9.0m	229000	79.83kg
T225 10.2m	221000	88.70kg

22. Titan 225 Splice Plate - Item code = See Table

The Titan 225 Splice Plate allows splicing of the T225 Beams to create bigger span if required.

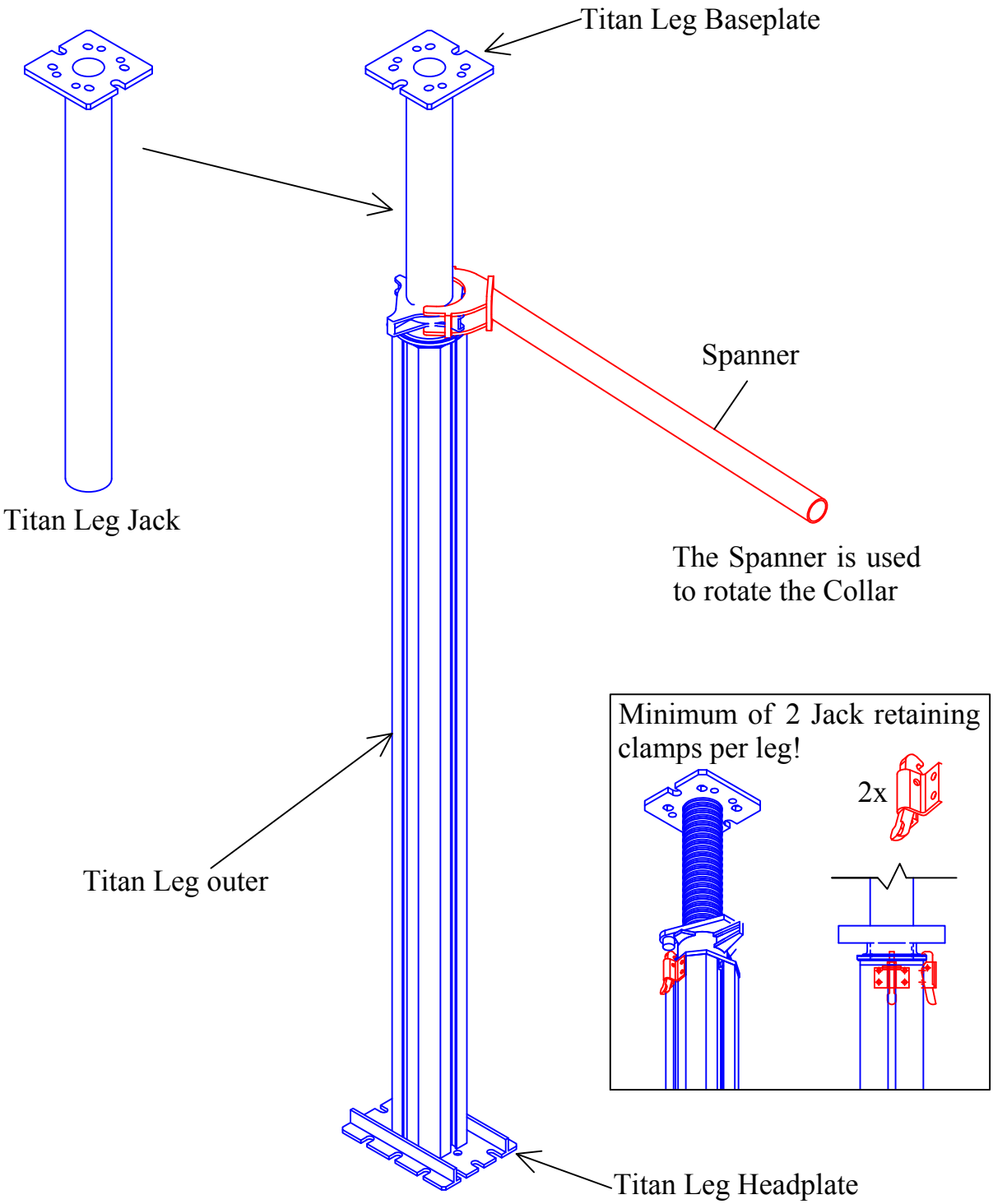


Assembly of the System

ITUK will provide a drawing/ drawings detailing how to assemble the components to build a suitable falsework/ formwork solution. The drawings should be read in conjunction with ITUK Method Statements and Data Sheets (and where appropriate tool box talks etc). Note: Each drawing also incorporates a residual risk assessment & notes which should be adhered to always.

Method Statement | Titan Support/ Leg

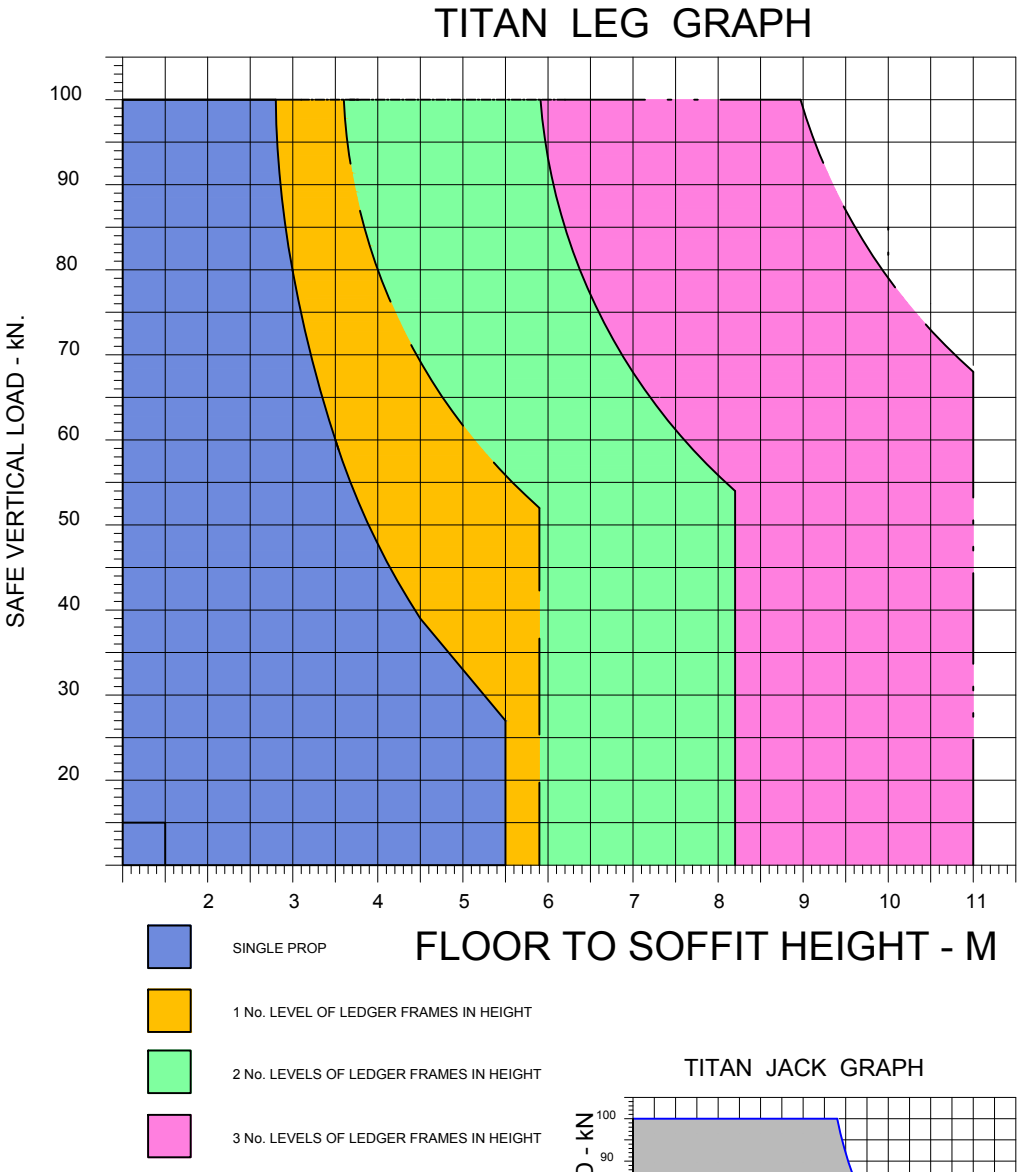
Titan Leg Jack and Spanner

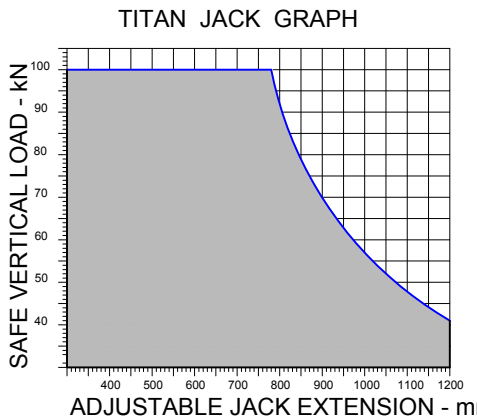


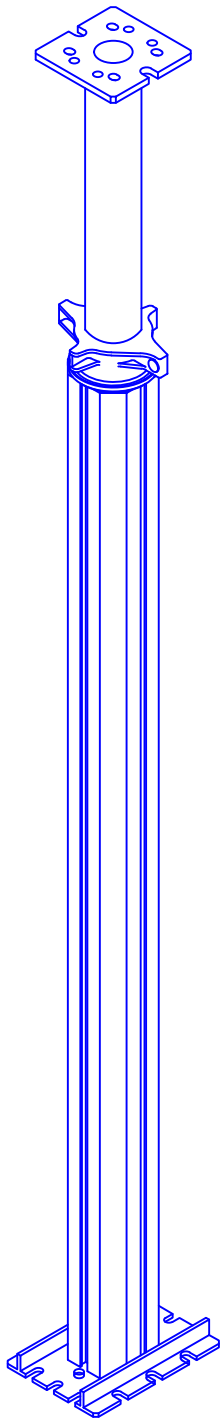
Method Statement | Titan Support Graph

Titan Leg floor to soffit heights

The allowable leg load is determined by the floor to soffit height, the number of ledger frames in height or the jack extension

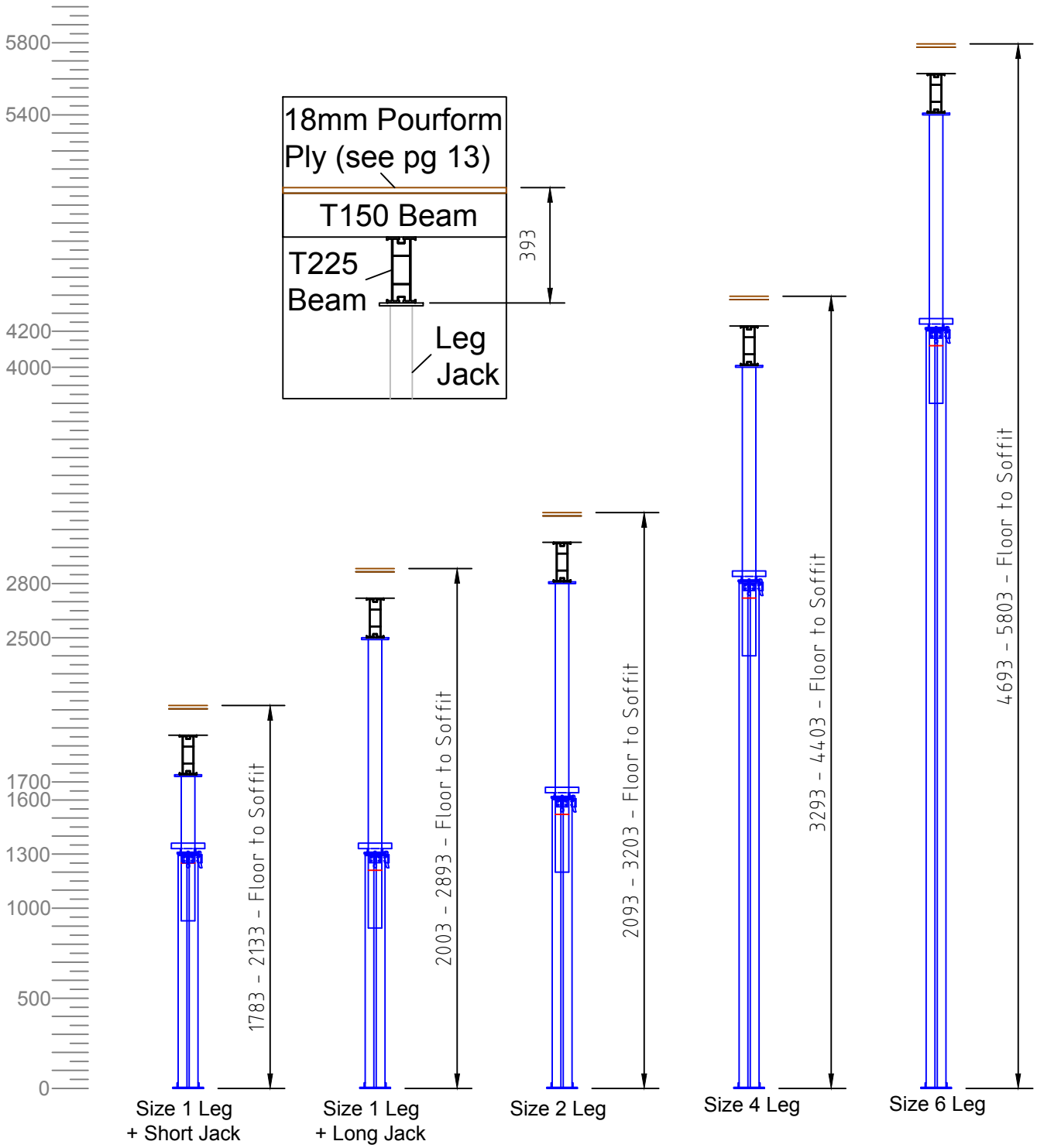






Method Statement | Titan Support Legs

Titan Leg floor to soffit heights



Considerations/ Guidance:

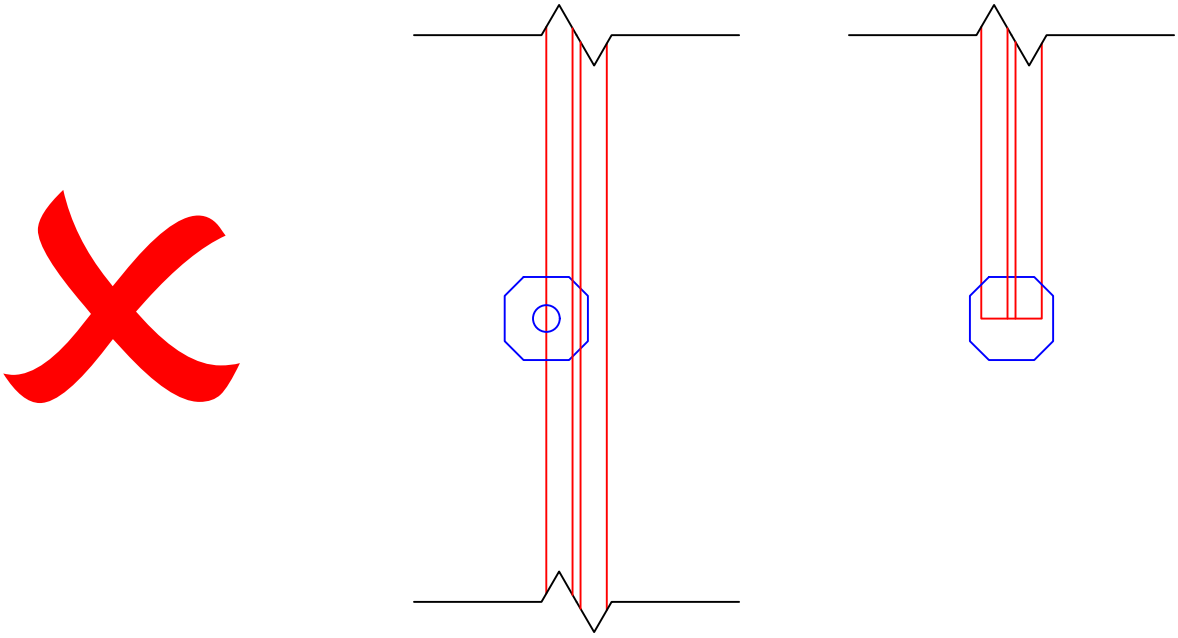
- This Method Statement is given as generic product information / guidance only.
- The Contractor must adapt his own site specific Method Statement to allow for all risk activities associated with the particular conditions on site.
- The drawings used are for illustration purposes only. Site layouts of screens may differ and the project specific drawings should be referenced.
- Our products are continually developing. Please ensure you are using the latest issue of the generic Method Statement.

Method Statement | Titan Support Legs

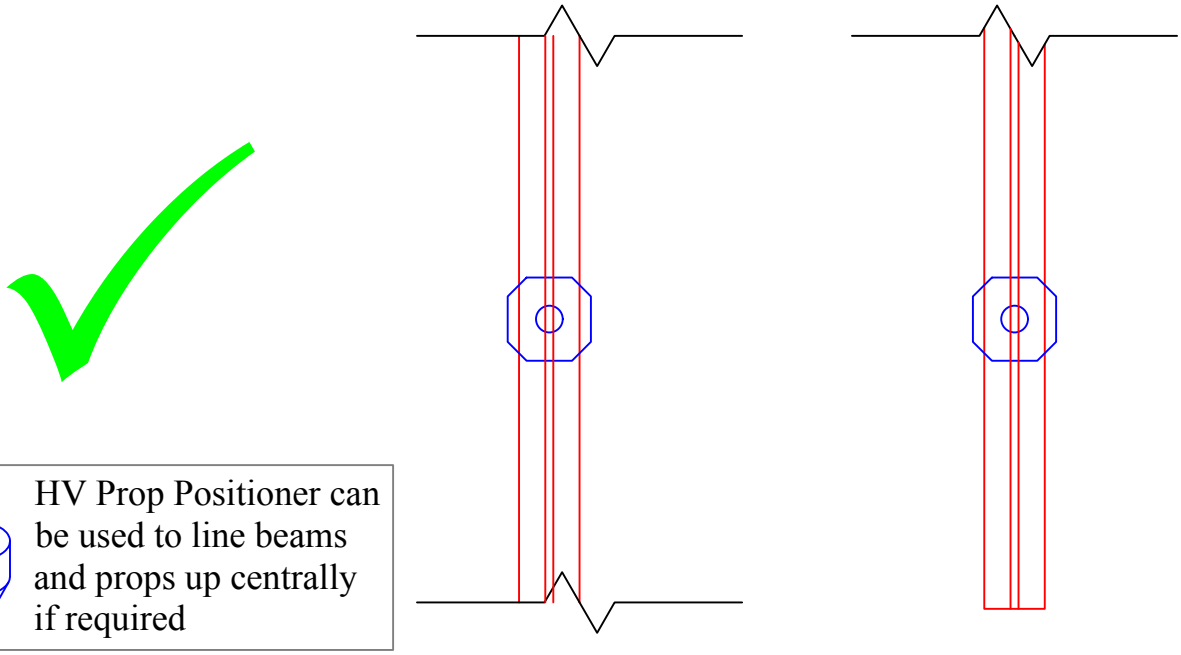
Eccentrically loaded legs

Eccentrically loaded legs should not occur and care needs to be taken to avoid this regardless.

- Incorrect load distribution over Titan Leg.



- Correct load distribution over Titan Leg.



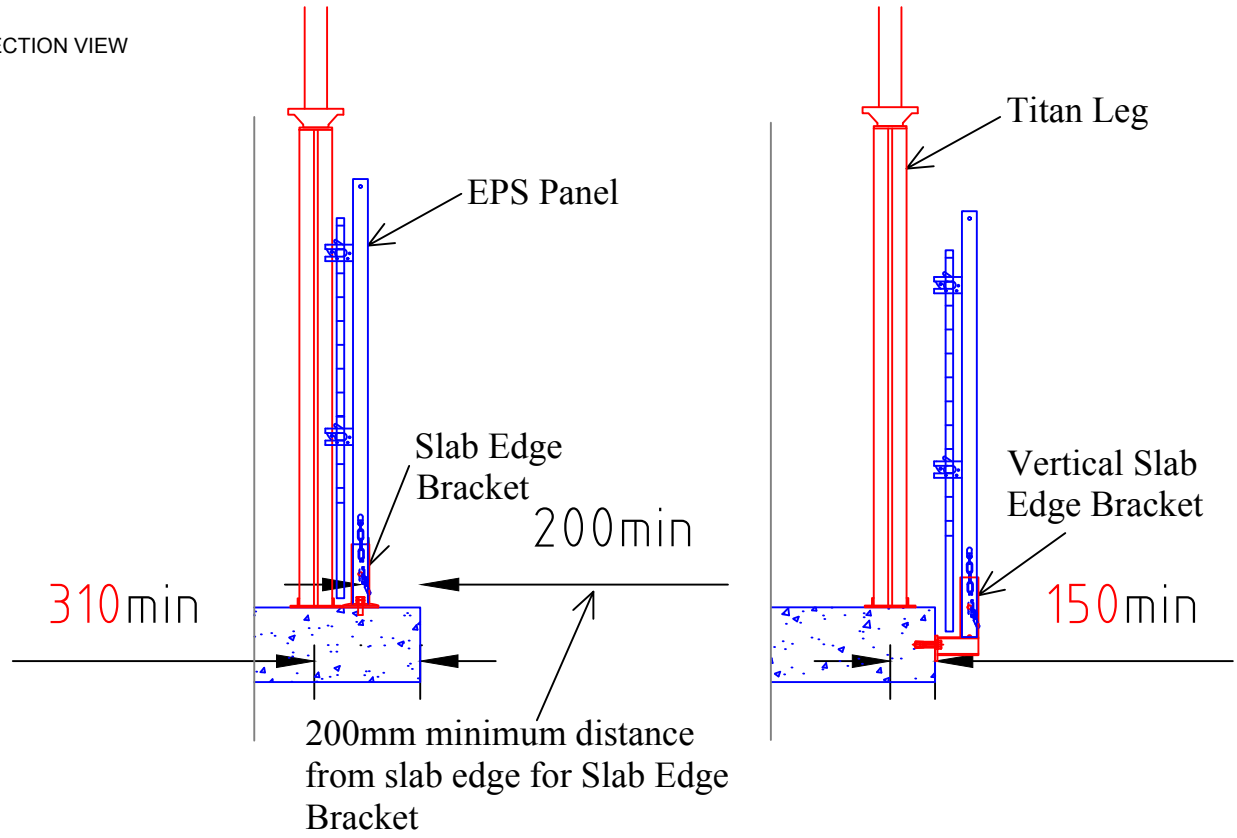
HV Prop Positioner can be used to line beams and props up centrally if required

Method Statement | Titan Support Legs

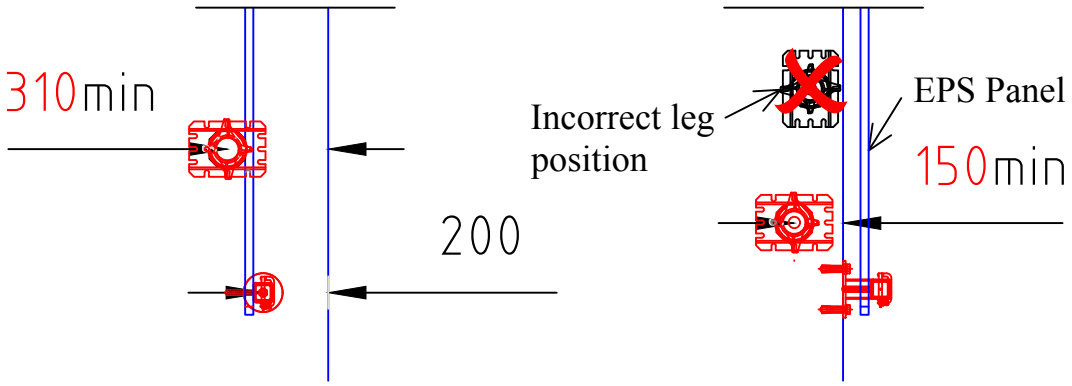
Leg distances from slab edge

Titan Legs should be positioned 400mm from the slab edge if possible, 310mm as a minimum when using the Slab Edge Bracket and 150mm minimum when using the Vertical Slab Edge Bracket.

SECTION VIEW



PLAN VIEW

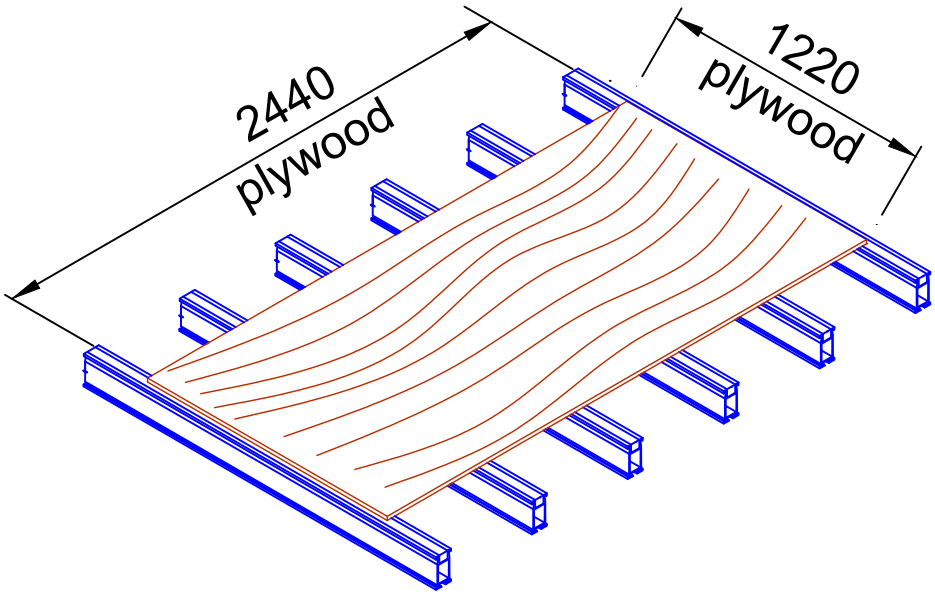


Method Statement | Plywood Deck

Plywood direction and cantilevers

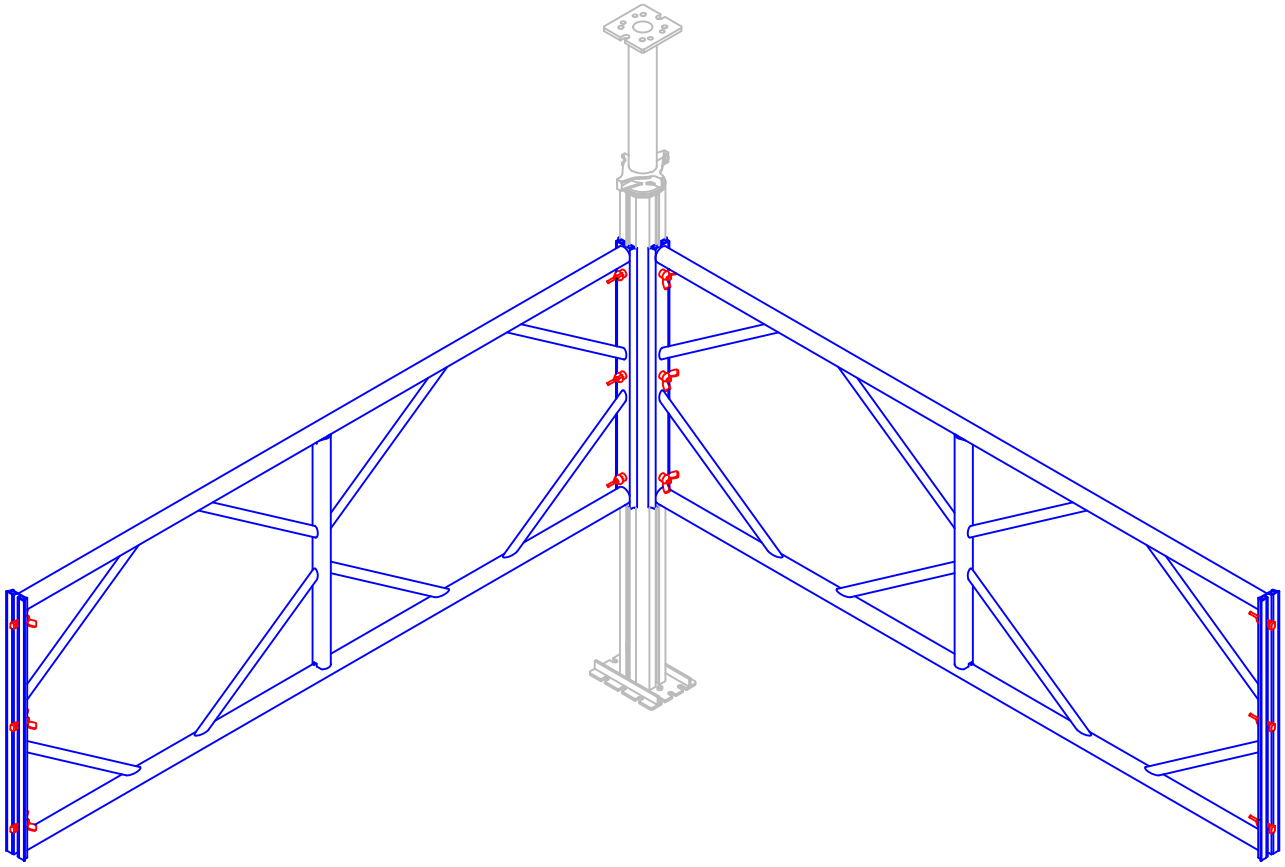
ITUK assume the use of Cofi Form 18mm ply with the face grain parallel to the direction of span (i.e. perpendicular to supports).

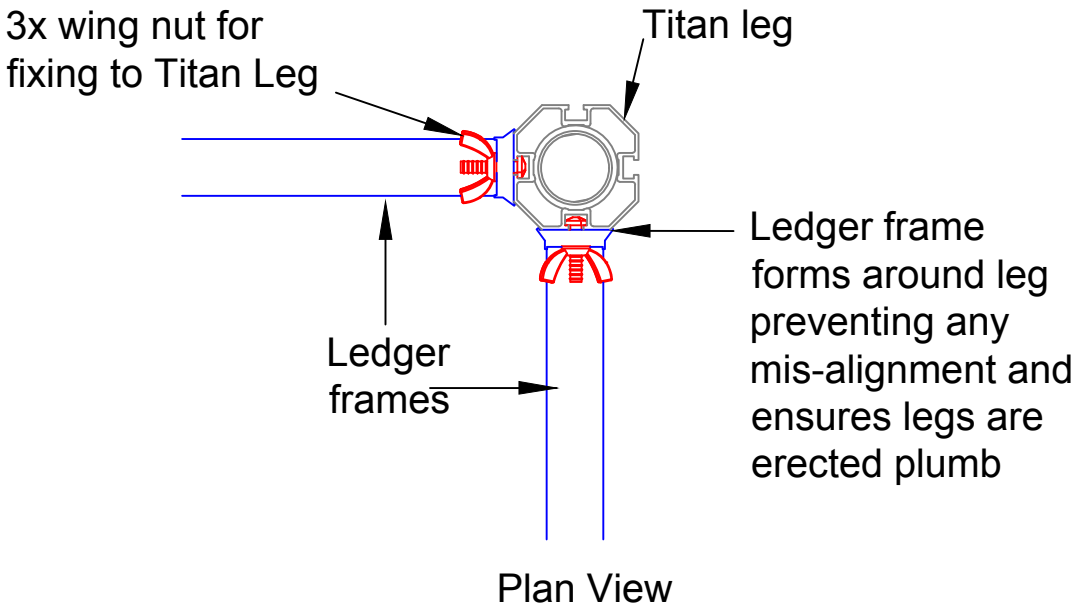
Please notify the Design Team if any other ply is used and always ensure ply is used in strong direction.



Method Statement | Titan Ledger Frame

Ledger Frame fixing to Titan Leg

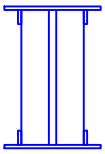




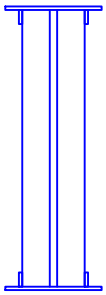
Plan View

Method Statement | Titan Leg Extension

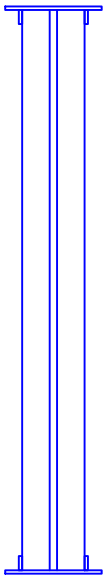
Leg Extensions and various connection details to Titan Leg



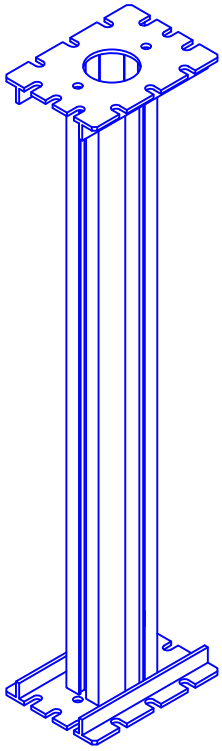
250mm Extension



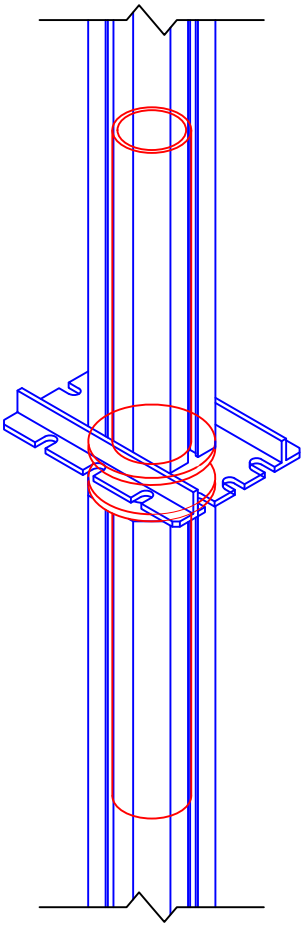
500mm Extension



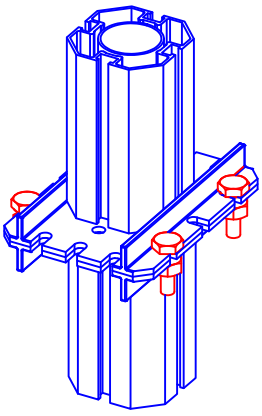
1000mm Extension



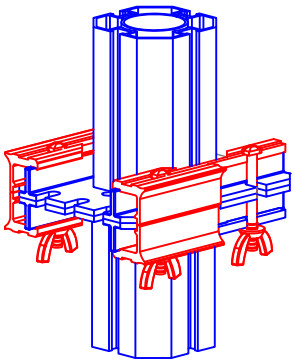
Isometric View



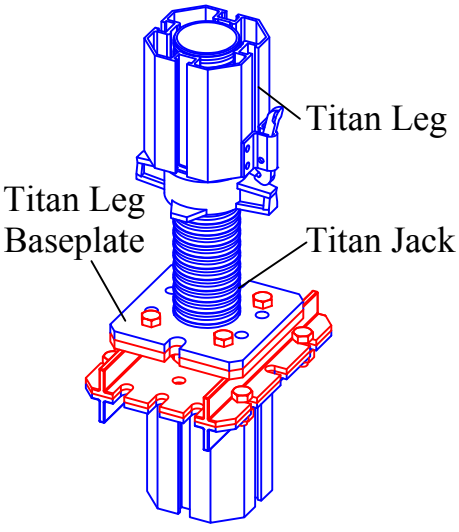
Option 1
Titan Spigot-
(German Item Only,
not UK or ME)



Option 2
4x Titan M12x35
Nut & Bolt



Option 3
Leg Connecting
Bracket



Option 4
Titan Leg Adaptor
Plate

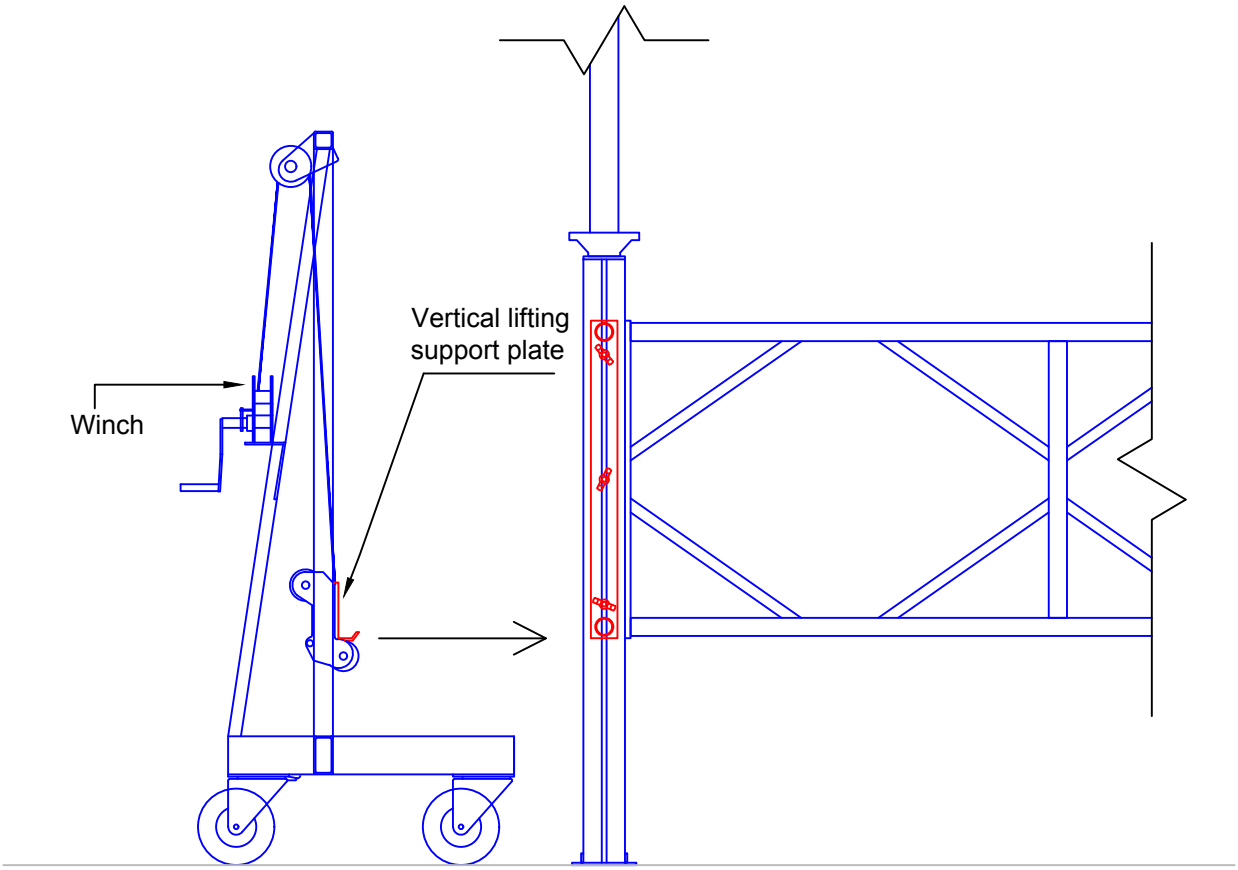
Method Statement | Titan Trolley

Titan Trolley positioning

Titan Trolley is operated by using the winch to lower and raise the Vertical Lifting Support Plate.
The Lifting Plate is positioned under the Ledger Frame and winched, in turn lifting part of the tower.

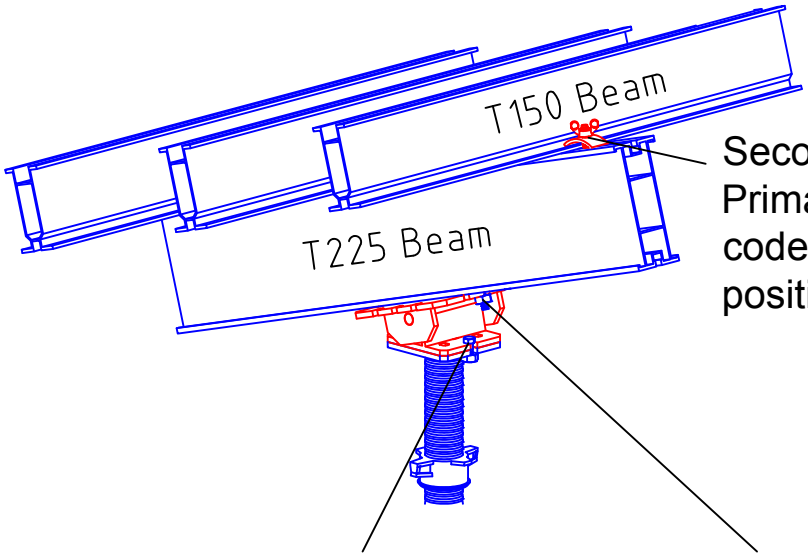
-A minimum of 4 No. Titan trolleys to be used on Titan tables with 6 legs or more. Trolley capacity of 10kN must not be exceeded.

See page 58 for more information on the Titan Trolley



Method Statement | Titan Rocking Headplate

Secure fixing of the Titan Rocking Headplate

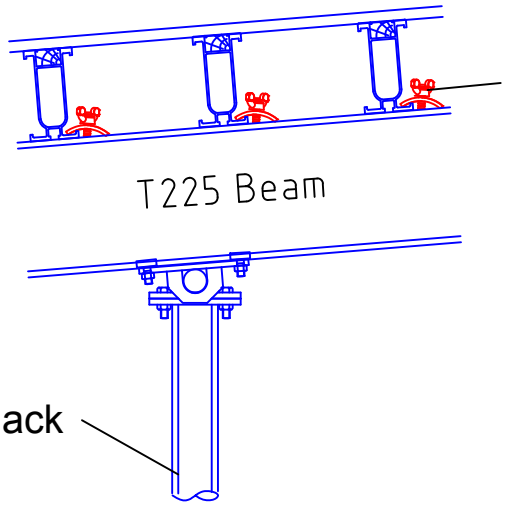


Secondary beams fixed to Primarys with Titan Clamp - code No 132 600 at every position.

Rocking headplate fixed to titan headplate using 4 M12x35 bolts and nuts Code No 133 100

Titan T-Bolt connects the T225 Beam to the Titan Rocking Headplate.

T-Bolts must be supplied with Standard Nut and Spring Washer



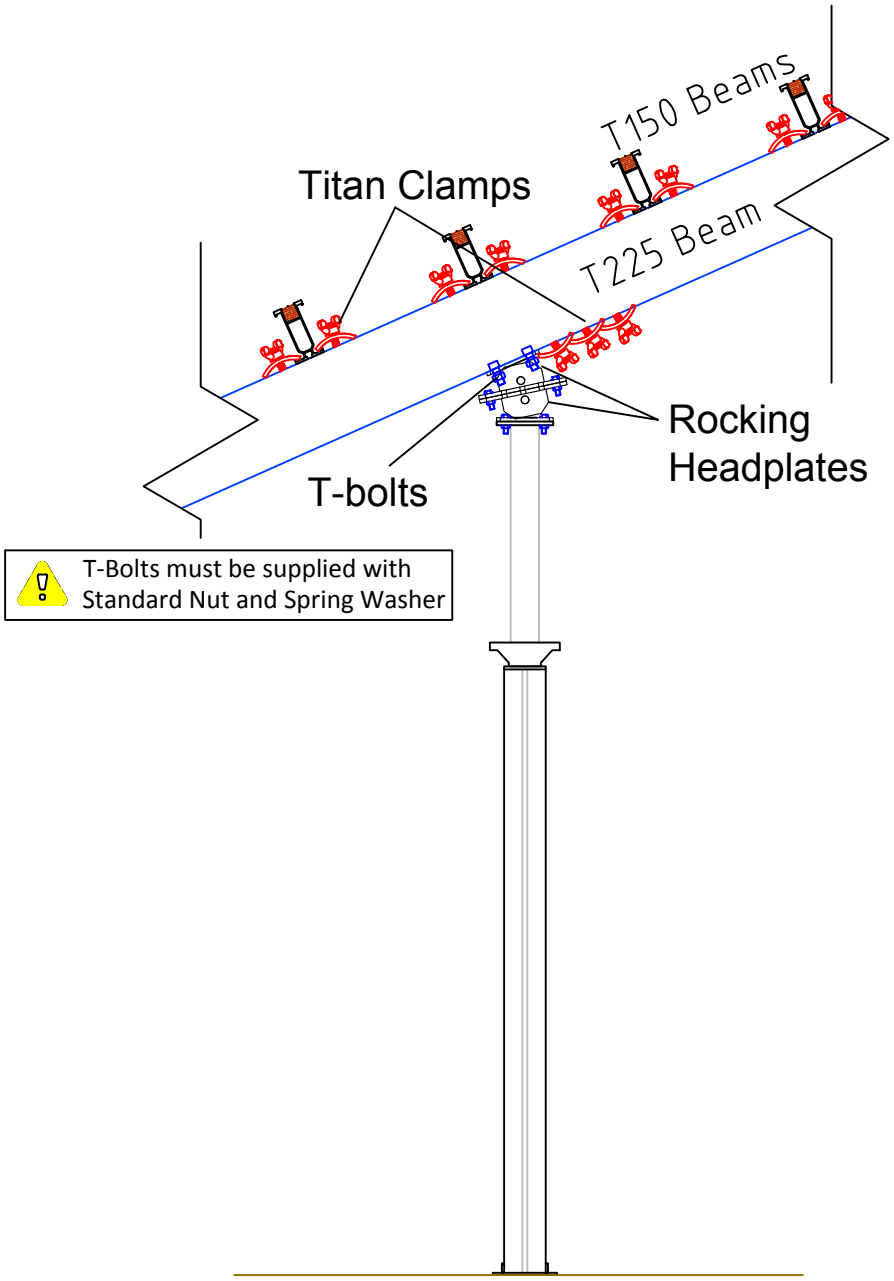
Titan Clamps in optimal position to hold the T150's when deck is angled.

Method Statement | Titan Rocking Headplate

Secure fixing of the Titan Rocking Headplate

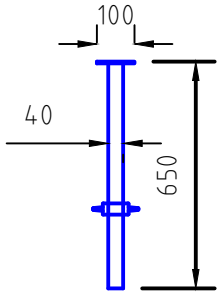
On steeper slopes, two Rocking Head Plates may be used together. Careful concideration must be given to preventing slip between components and preventing rotation of beams when load is applied. Secondary beams must be clamped on both sides and clamps added at Rocking Head Plate to prevent slip.

Always consult the ITUK design team for design considerations of this nature.

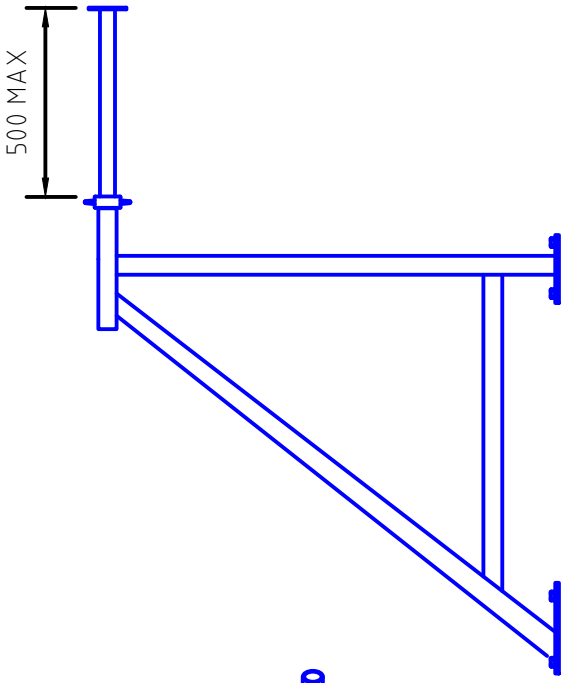


Method Statement

Titan Cantilever Bracket



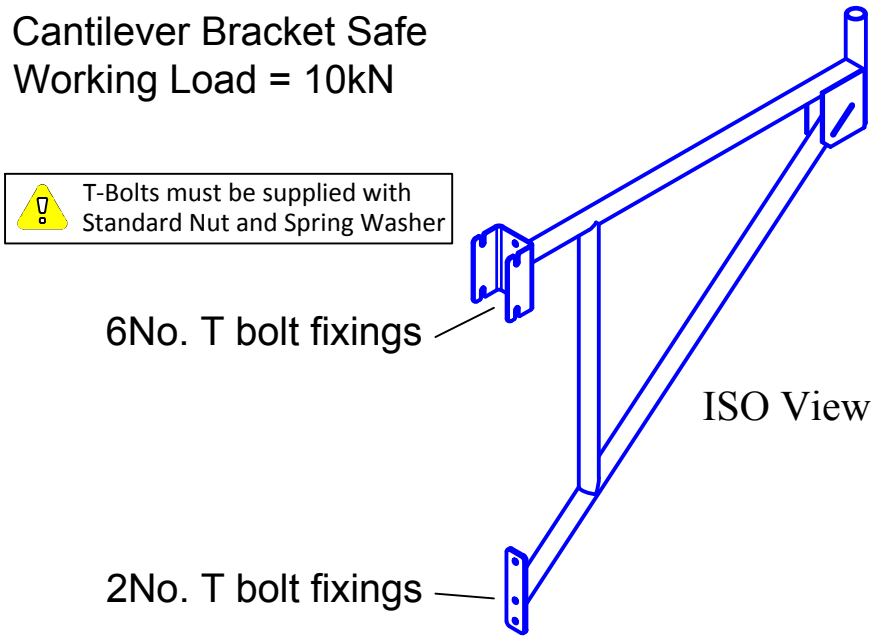
Universal jack

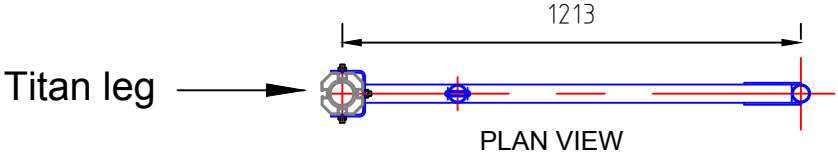


Cantilever Bracket fixes to the Tatan Leg using 8No. T bolt fixings.

Cantilever Bracket Safe Working Load = 10kN

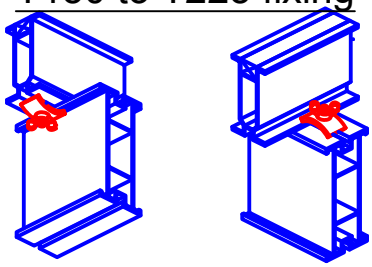
T-Bolts must be supplied with Standard Nut and Spring Washer





Method Statement | Titan T150 & T225 Beams

T150 to T225 fixing



Option 1 Option 2

1 No. Titan Clamp required per intersection for standard fixing between T150 and T225

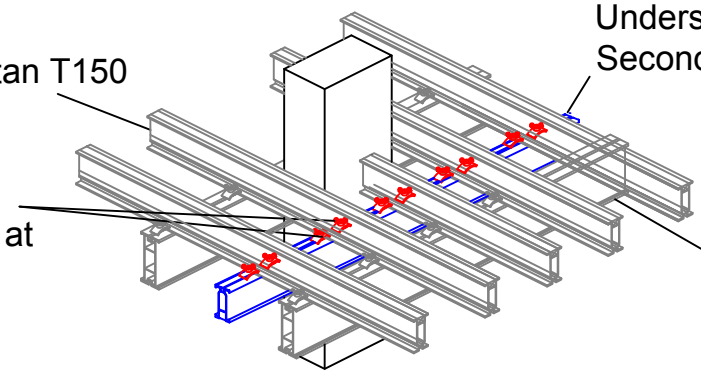
T225/T150 Connection to Titan Leg

T225 to Titan Jack
2No Titan Clamps

T225 to Headplate
2No Titan Clamps

Underslung Beam fixing Detail

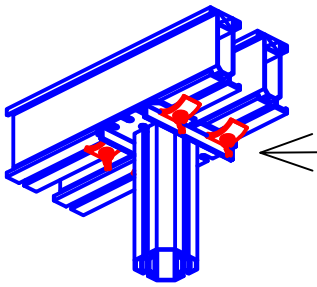
Underslung Beam fixing Detail



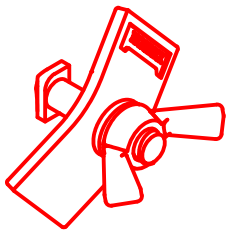
2 No. Titan Clamps to be used on underslung beam at every intersection.

Method Statement | Titan T150 & T225 Beams

Twin T150 Primary



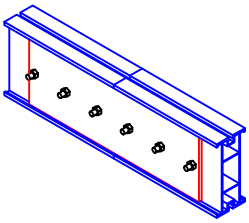
Twin T150 to Titan
Outer Headplate using
4No Titan Clamps



Titan Clamp
Item Code - 132600

Splice Plates - T225 Beams - Special Item (Sale Only)

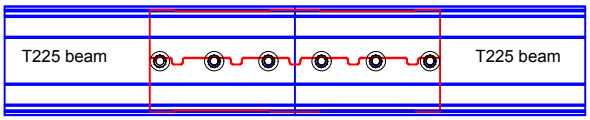
Option 1



Titan Splice Plate
Used in pairs to splice T225 beams together. Fixed using 6No. M16 x 100 bolt and nut

SWL = 23kNm

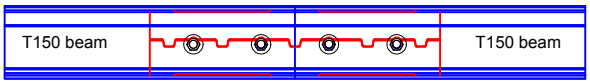
Option 2



T225 aligator splice plate
Used in pairs to splice T225 beams together.
Requires holes to be drilled in T225's
Fixed using 6No. M16 x 100 bolt and nut with 12No. M16 washer (2No per bolt).

SWL = 23kNm

Splice Plates - T150 Beams - Special Item (Sale Only)

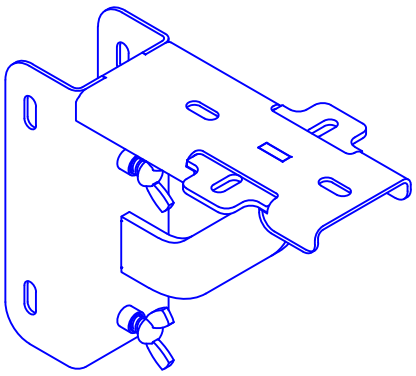


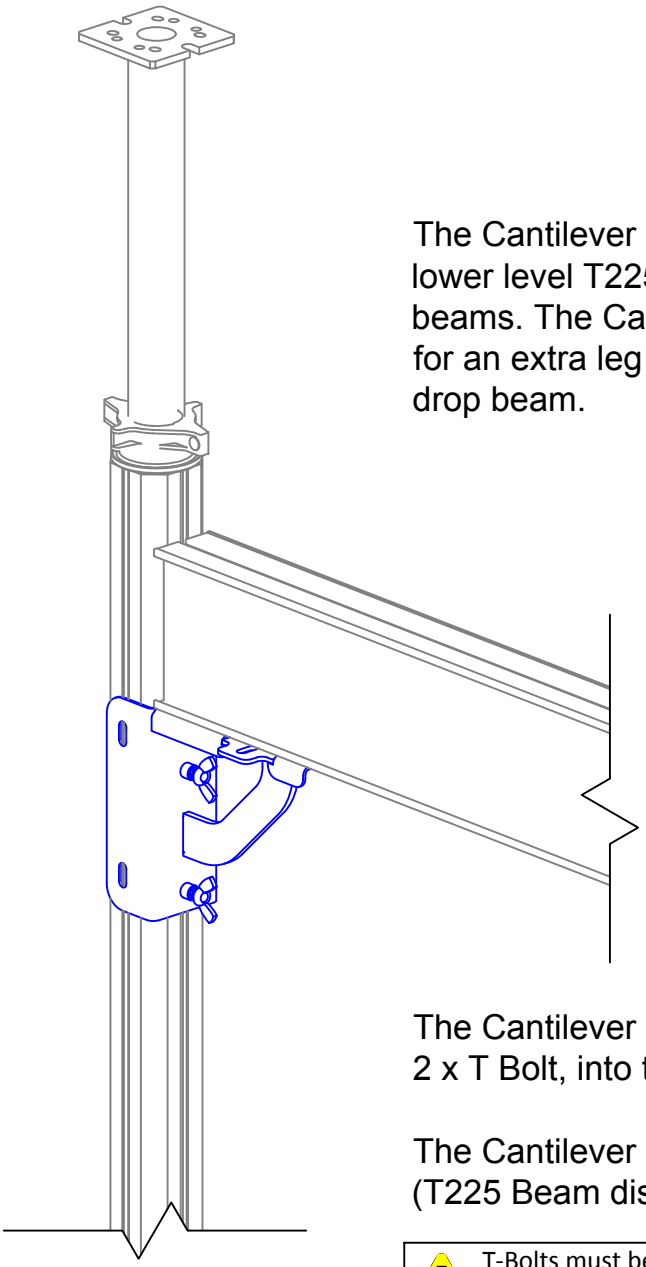
T150 aligator splice plate
Used in pairs to splice T150 beams together. Requires holes to be drilled in T150's
Fixed using 4No. M16 x 90 bolt and nut with 8No. M16 washer (2No per bolt).

SWL = 11.9kNm

Method Statement | Cantilever Bracket

Twin T150 Primary





The Cantilever Bracket is used to provide support to lower level T225 & T150 beams supporting drop beams. The Cantilever Bracket removes the need for an extra leg layout to independently support the drop beam.

The Cantilever Bracket fixes onto the Titan Leg via 2 x T Bolt, into the leg channel.

The Cantilever Bracket then supports the Beam (T225 Beam displayed) and is fixed in place.

T-Bolts must be supplied with Standard Nut and Spring Washer

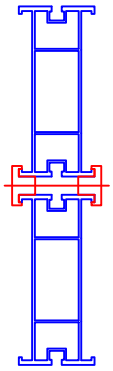
Method Statement | T225 Friction Clamp

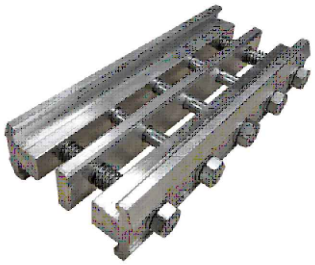
Titan Friction Clamp

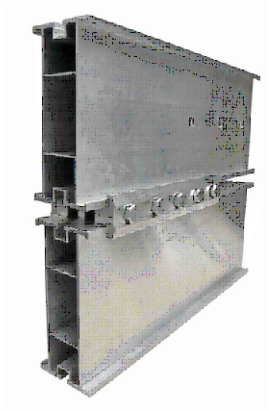
Coupler for Titan 225 beams

Two types of T225 Friction Clamp, one with center plate and one without.

SECTION VIEW

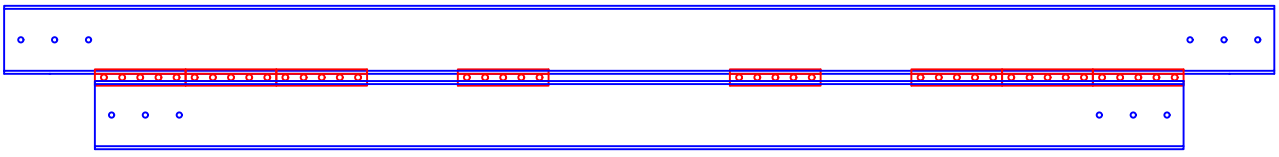






PLAN VIEW

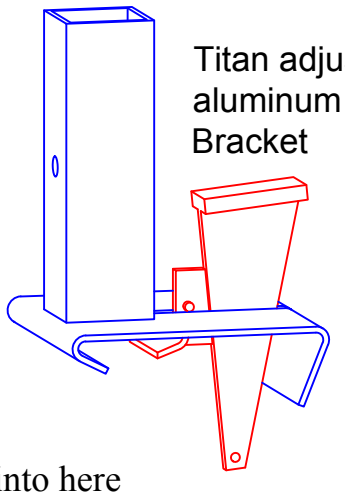
ELEVATION VIEW



Method Statement | Edge Protection System

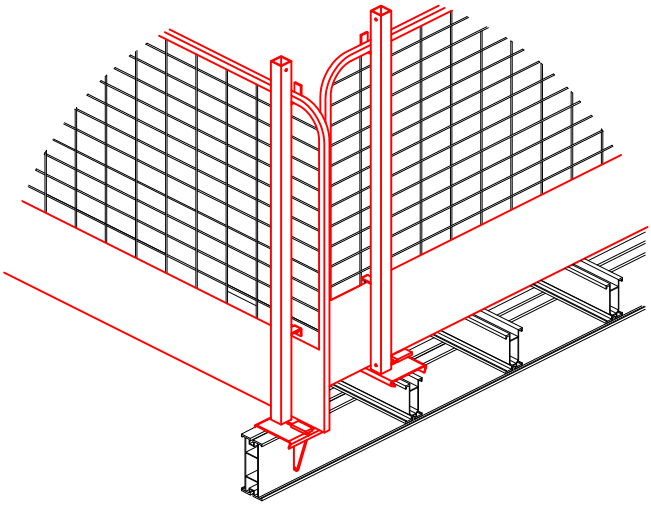
EPS fixing onto Titan T150/ T225 beams

Fixing of the Titan adjustable aluminum beam bracket onto the Titan Beams. When fixed in place this bracket then provides a location to fix the EPS Post which will in-turn hold the EPS Panel providing a complete Edge Protection Barrier around the perimeter of the formwork deck.



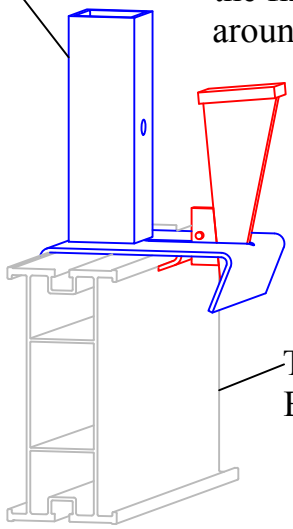
Titan adjustable aluminum Beam Bracket

Loading Direction:
Do not position the Beam Bracket such that any applied load from the EPS/ Handrail post is applied in the aluminum beams weak bending direction (i.e. beam running perpendicular to the direction of force). To ensure this happens, it may be necessary to position beam brackets on both the primary and secondary beams.



Post inserts into here and locking pin locked through holes securing the post in position.

Push large wedge down to tighten the fixing plate around the beam.



T150/ T225 Beam

Fix Beam Bracket to Beams at 2.4m max c/c.

The Titan adjustable aluminum Beam Bracket fixes onto both the T150 & T225 beams. Fixed to either depending on the location and which is perpendicular to the slab edge. The Bracket is fixed into position on the beam by pushing down the large wedge which in-turn tightens the bracket around the beam flange.

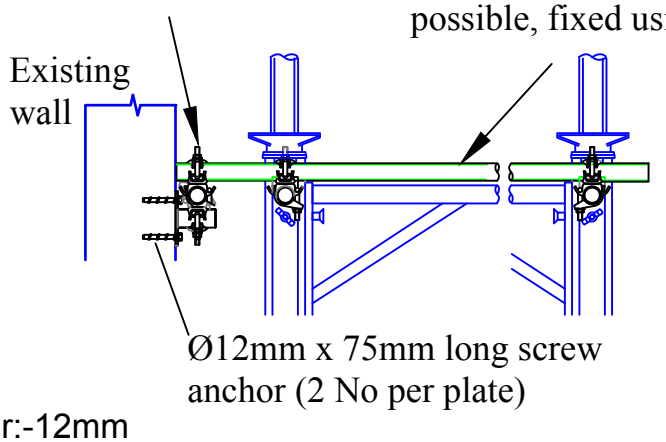
EPS will also be required on open slab edges etc. Further information on this bracket and others including the Slab Bracket can be found in the EPS Tech Data/ Method Statement.

Method Statement | Lateral restraint from wall

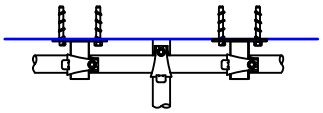
Wall Tie fixings - Option 1

Tube lace along wall fixed using double couplers

Tube transom fixed to both inside and outside Titan frames, as close to the Titan Legs as possible, fixed using double couplers.



Head/ Base plate (2 No per brace)



Plan

Characteristics

Drill bit diameter:-12mm
Minimum depth of embedment:-60mm
Hole depth:-70mm
Maximum torque:-80Nm
Strengh of concrete:-30N/mm²

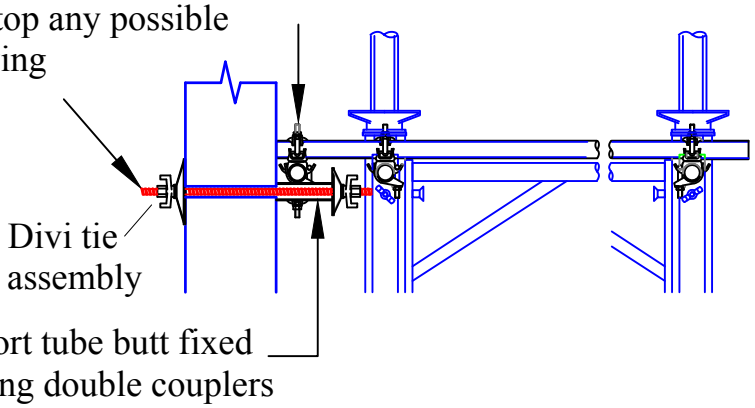
SWL
Max tensile load @ 0° 9.7kN
Max shear load @ 90° 14.9kN

Wall Tie fixings - Option 2

Tie nut needs to be wired to washer plate at both ends to stop any possible un-screwing

Tube lace along wall fixed using double couplers

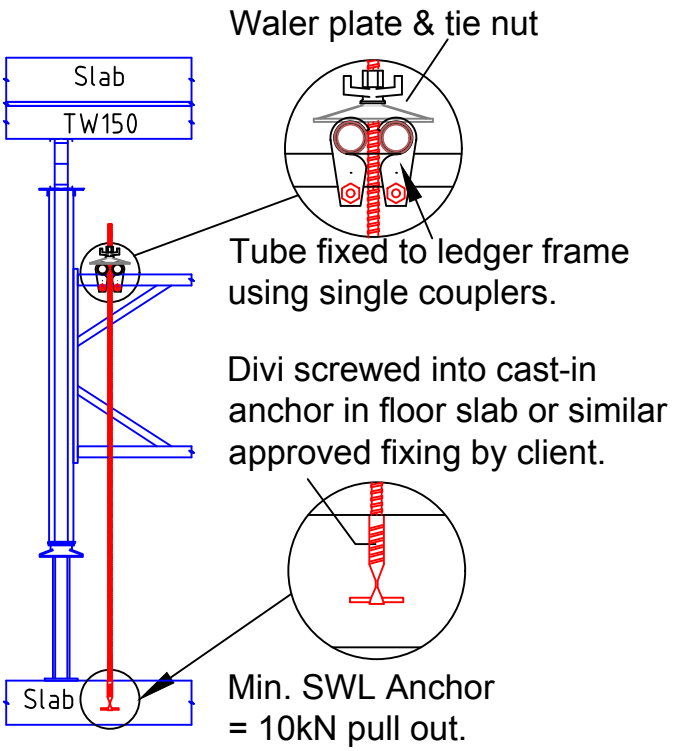
Tube transom fixed to both inside and outside Titan Frames and as close to the titan legs as possible. Fixed using double couplers.



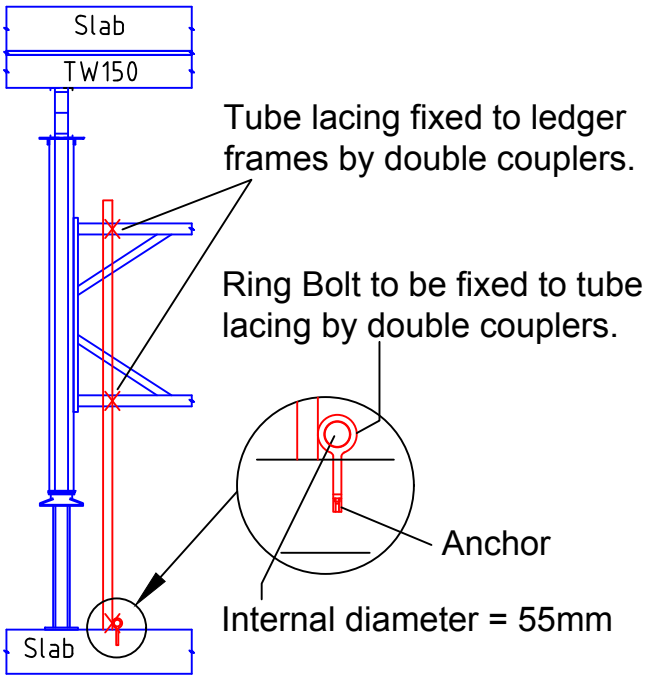
SWL = 6.25kN

Method Statement | Bolting down methods

Bolt down detail

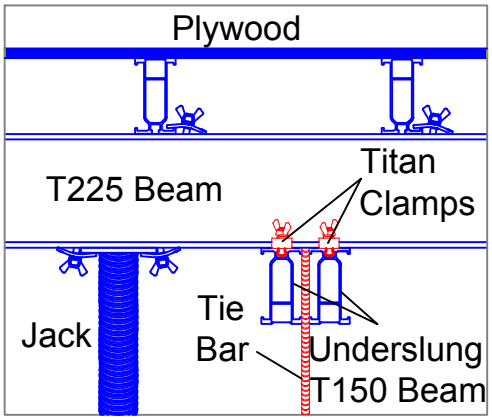


Alternative Bolt down detail

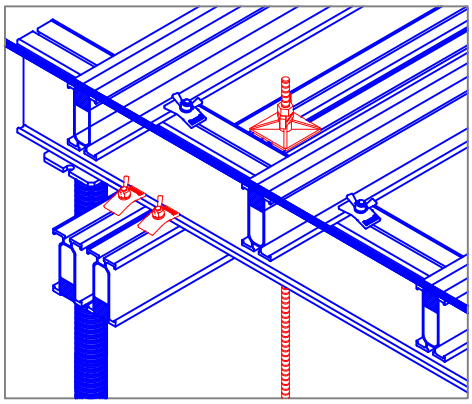


Position bolt down as close to leg as possible

T150 Underslung Beams boltdown fixing detail



Side View

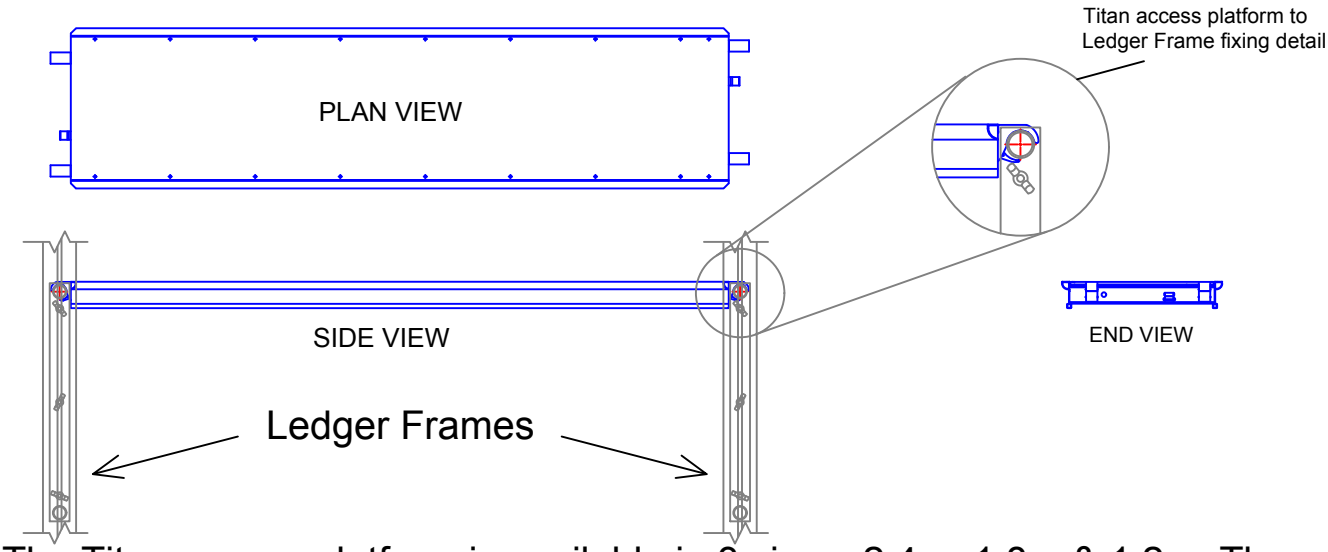


Isometric View

T150 Underslung Beams to be fixed at every intersection with 4 No. Titan Clamps to T225 Beam. Max pull out load up to 13kN

Method Statement | Access Platforms

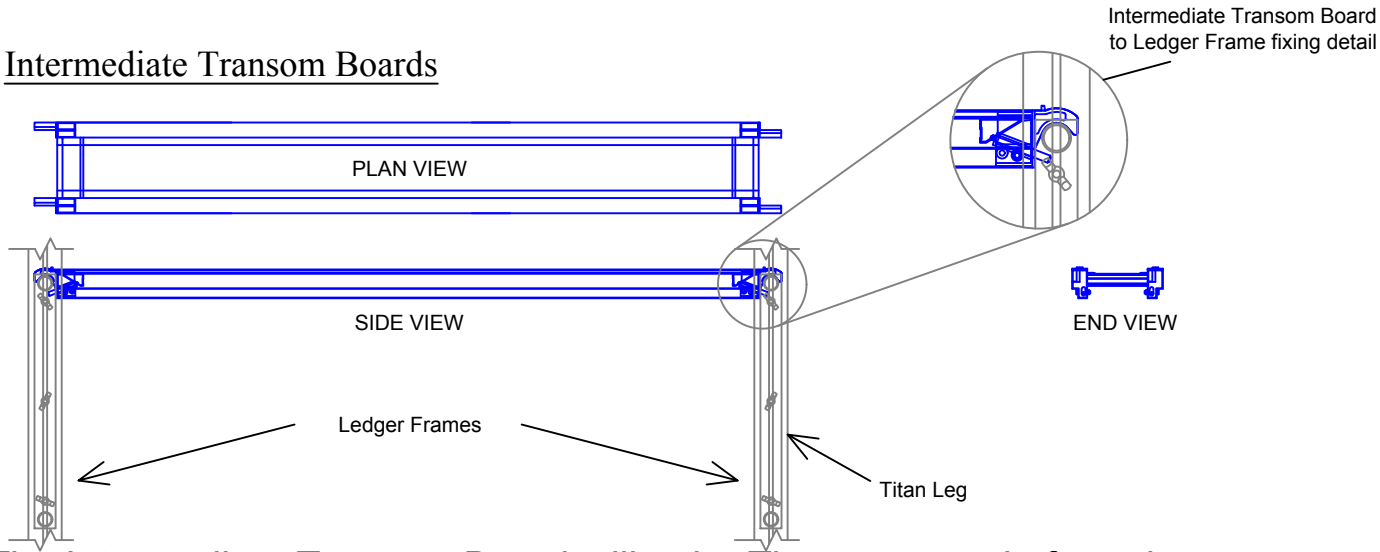
Titan access platform



The Titan access platform is available in 3 sizes, 2.4m, 1.8m & 1.2m. The Titan access platform fits onto the Titan Ledger frames spanning the gap providing access for fixing high components together and placing beams on top of legs.

The Titan access platforms when used butted together along with Handrail Frames (Next Page) create a full working deck.

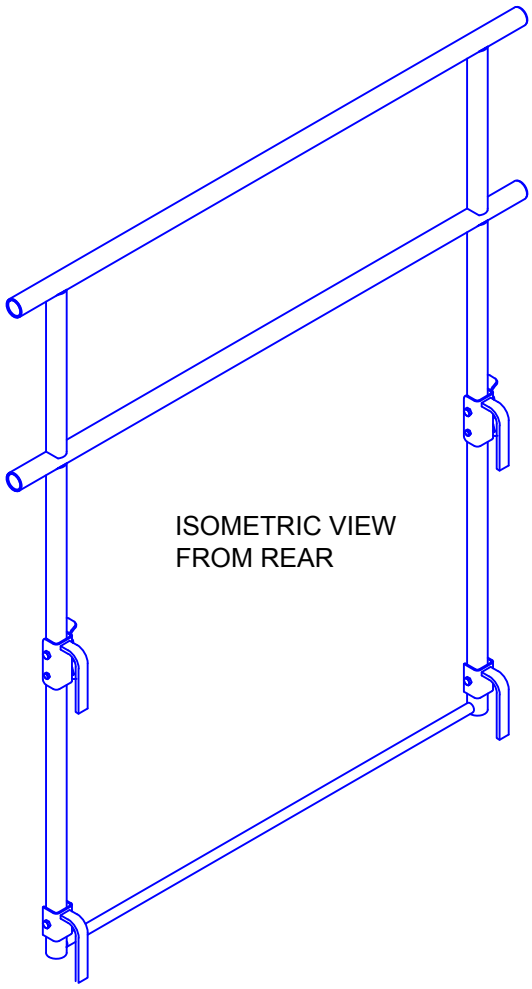
Intermediate Transom Boards

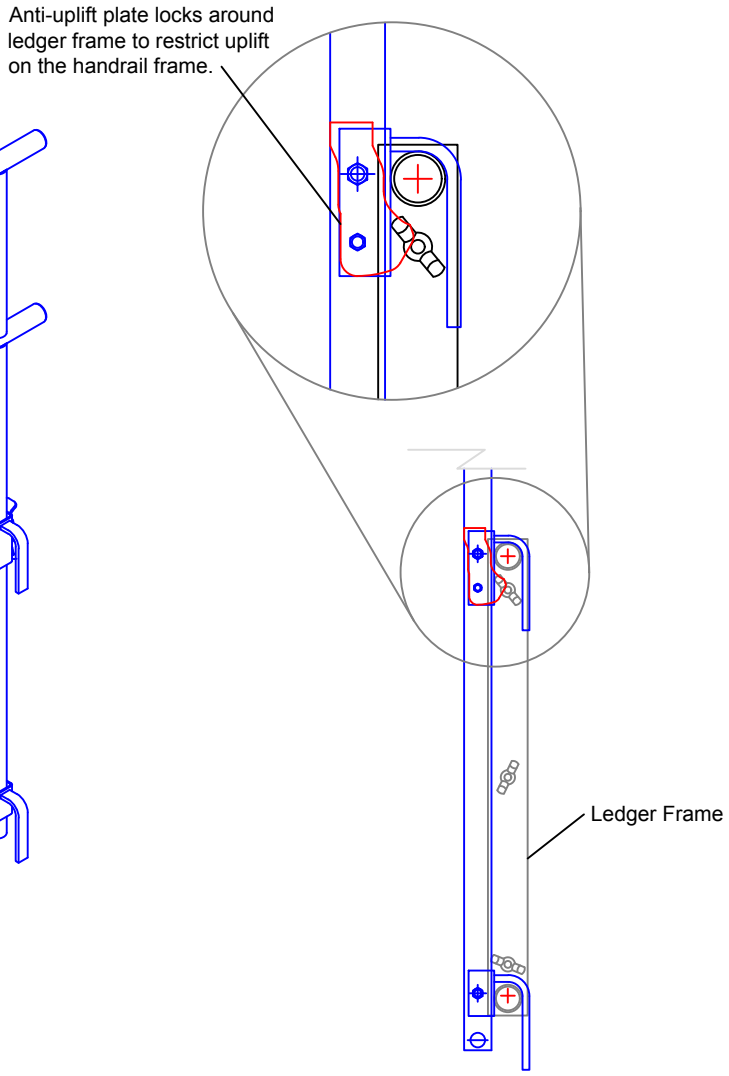


The Intermediate Transom Boards; like the Titan access platform they span between ledger frames. However, the Intermediate Transom Boards support the Scaffold Boards which then create the working deck. Available in sizes 2.4m, 1.8m & 1.2m.

Method Statement

Titan Handrail Frame





SECTION VIEW

The Titan Handrail Frame fits onto Ledger Frames and provides edge protection when using the Access Platforms for erecting/ dismantling the titan system.

-On a 1200mm bay use 1x 1080mm Handrail Frame
-On a 1800mm bay use 1x 1680mm Handrail Frame
-On a 2400mm bay use 2x 1080mm Handrail Frame
-On a 3000mm bay use 1x 1080mm and a 1x 1680mm Handrail Frame

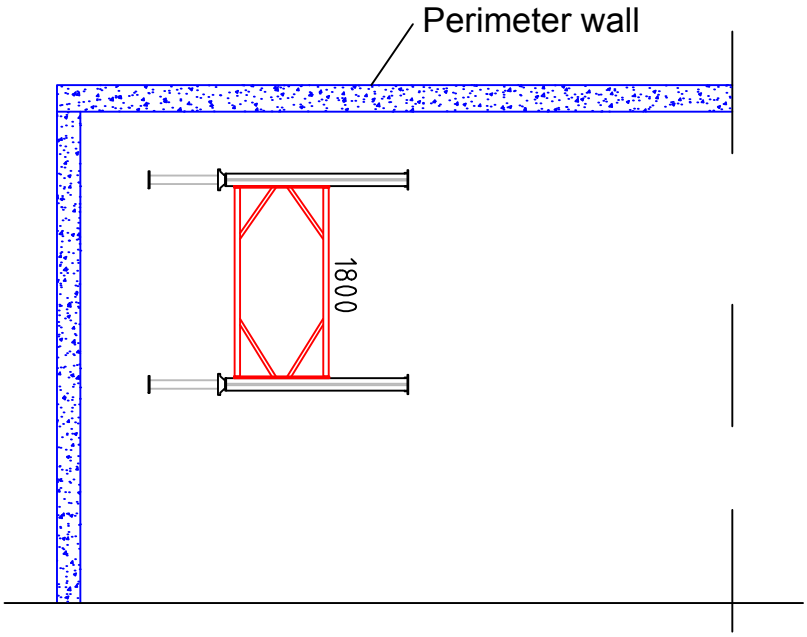
Method Statement

Blank Page

Method Statement

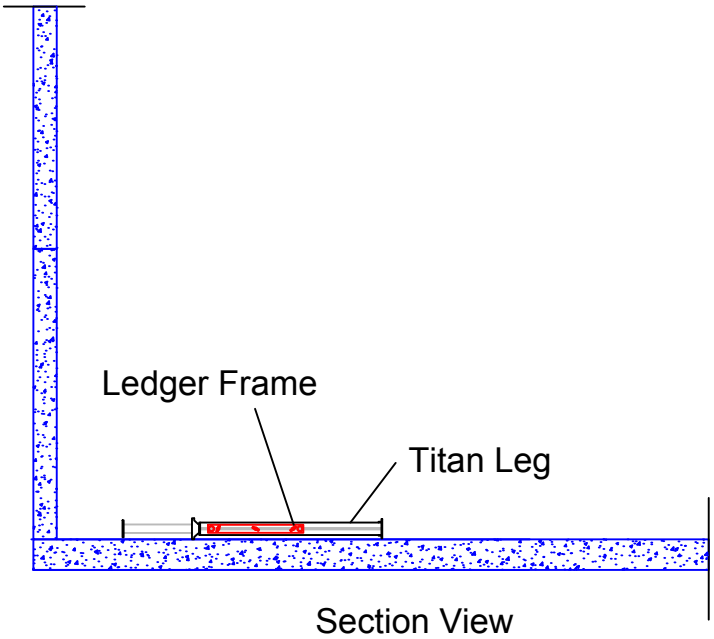
Blank Page

Method Statement | Titan Erection Procedure



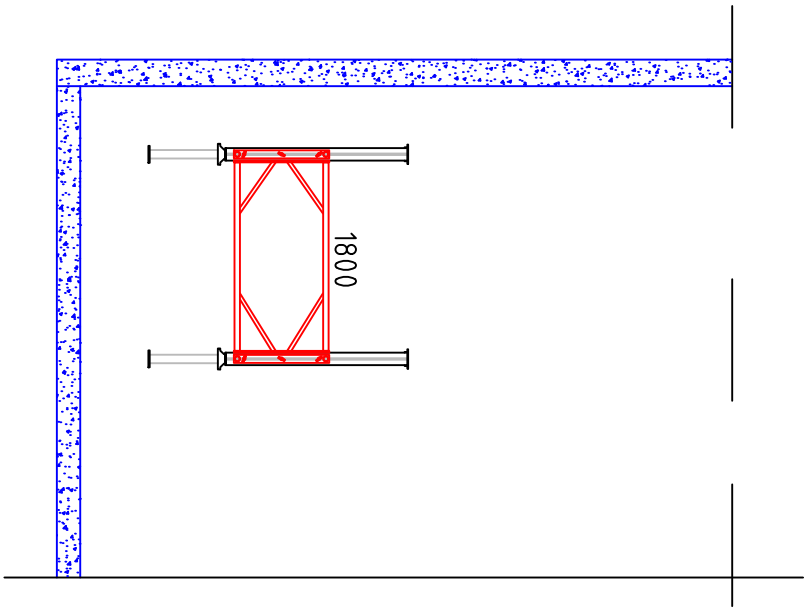
Plan View

A. Begin by connecting the two legs together with a ledger frame whilst the system is flat on the ground. Ensure Ledger Frame is in the correct position.



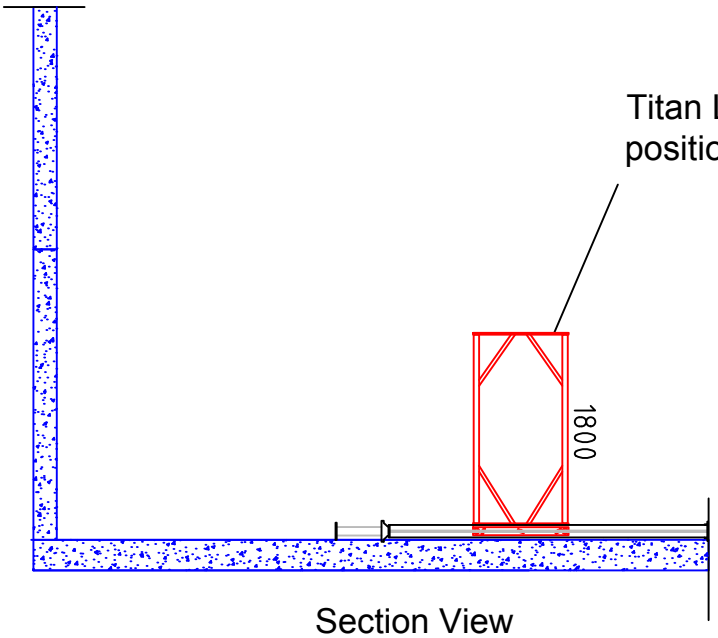
Section View

Method Statement | Titan Erection Procedure



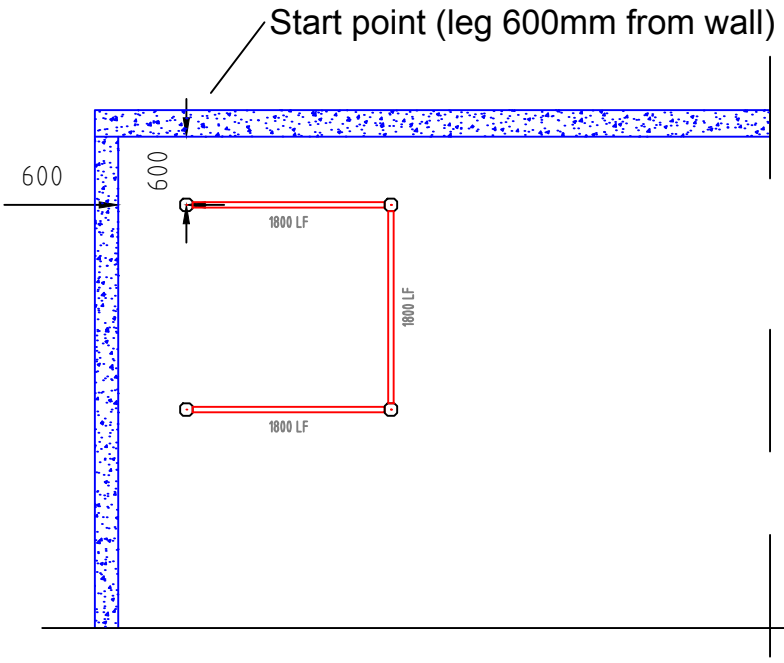
Plan View

B. Now the two Titan Legs are connected via one Ledger Frame the Vertical Ledger Frames can be added.



Section View

Method Statement | Titan Erection Procedure



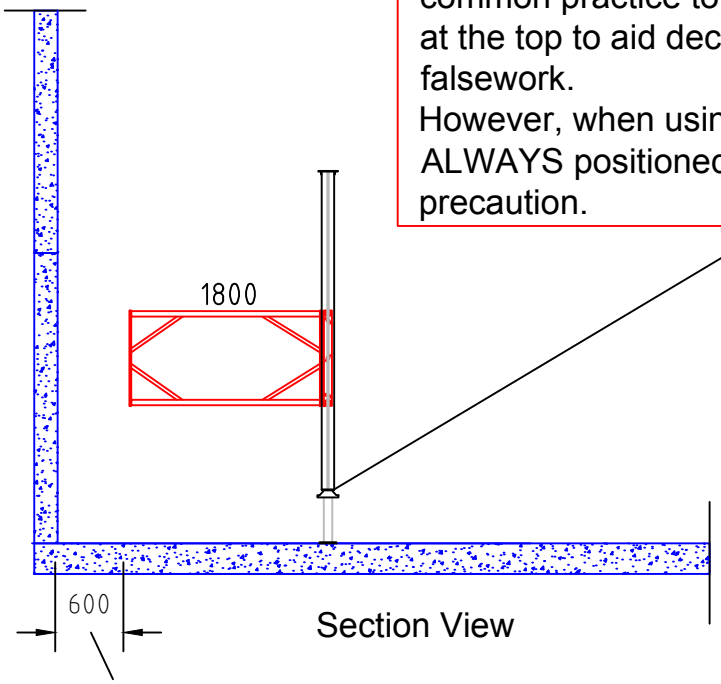
Plan View

C. Next, the Legs can be stood up. Position the legs and ledger frames at the start point as per the scheme drawing.

Start point could be a wall with a specific setting-out dimension to the leg.

With the Legs and Ledger frames in the correct vertical position the Last two legs can be added.

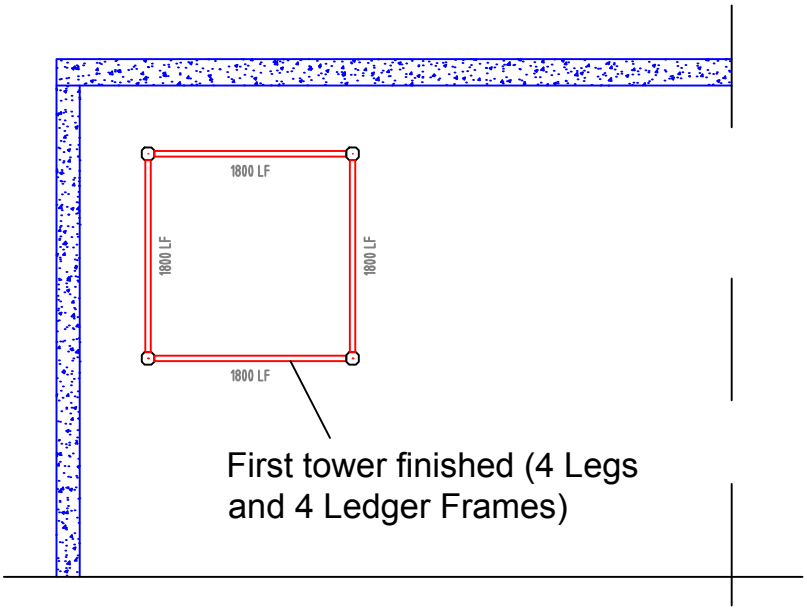
Legs can be used either way round on Titan, it is common practice to use legs with jack positioned at the top to aid deck leveling etc for fix & strike falsework.
However, when using Titan Tables the jacks are ALWAYS positioned at the bottom as a safety precaution.



Section View

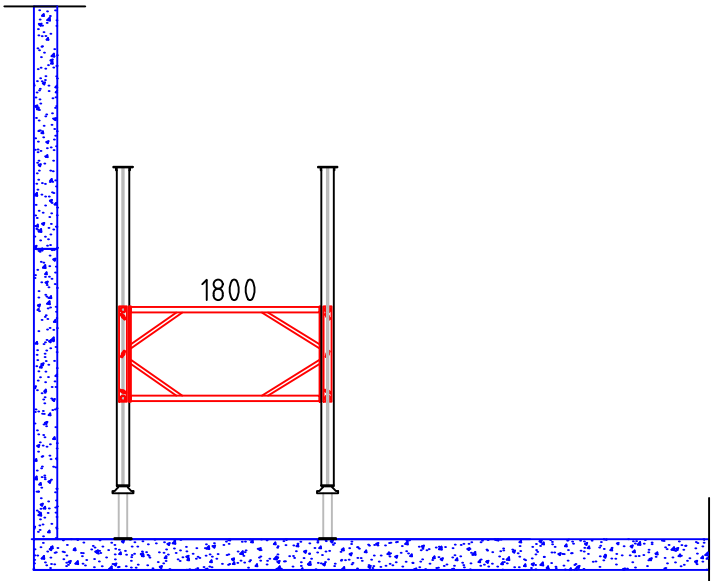
Start point (leg 600mm from wall)

Method Statement | Titan Erection Procedure



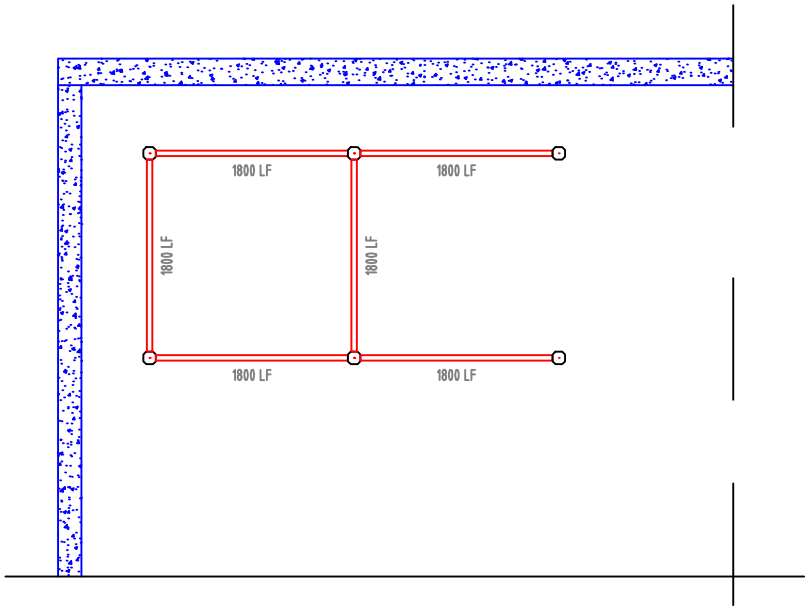
Plan View

D. To finish the first 'Tower' off, add in the fourth Ledger Frame.



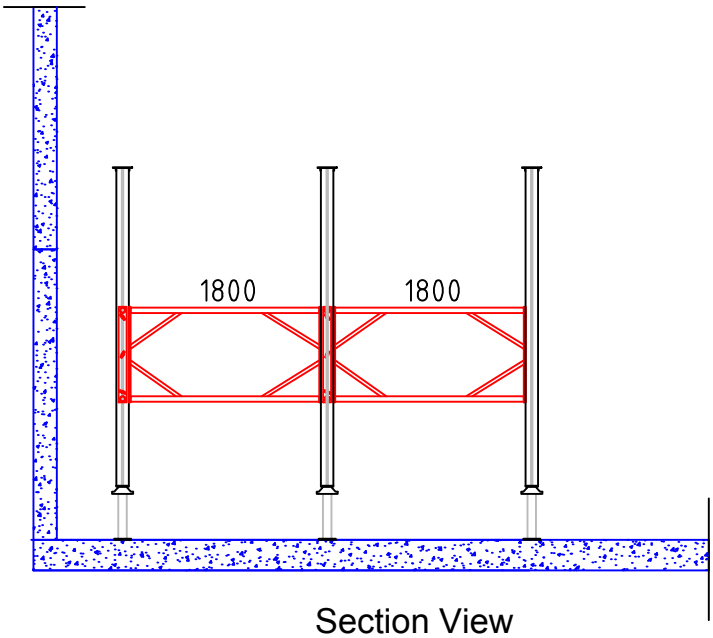
Section View

Method Statement | Titan Erection Procedure



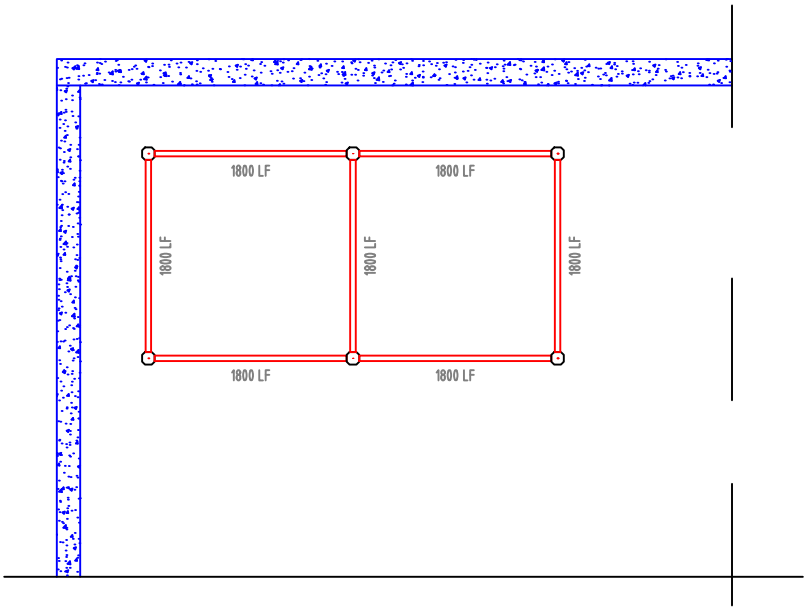
Plan View

E. Now the first Titan Tower is complete, more frames can be added.



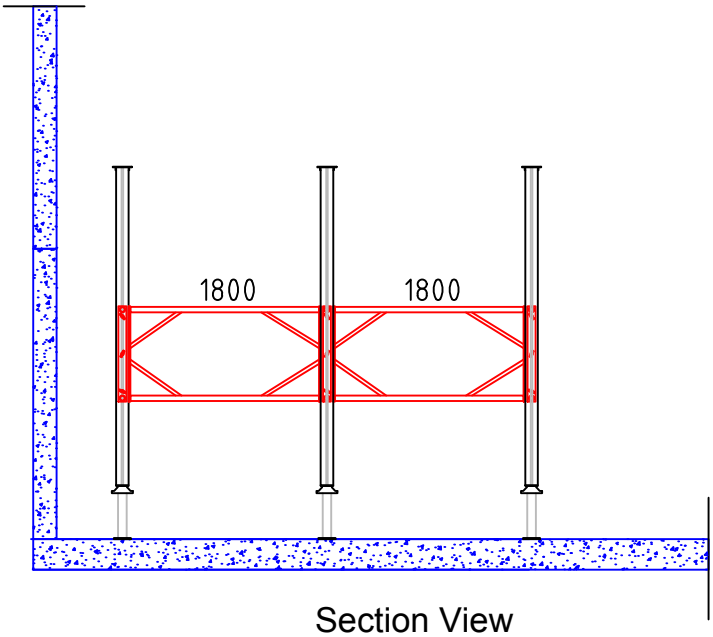
Section View

Method Statement | Titan Erection Procedure



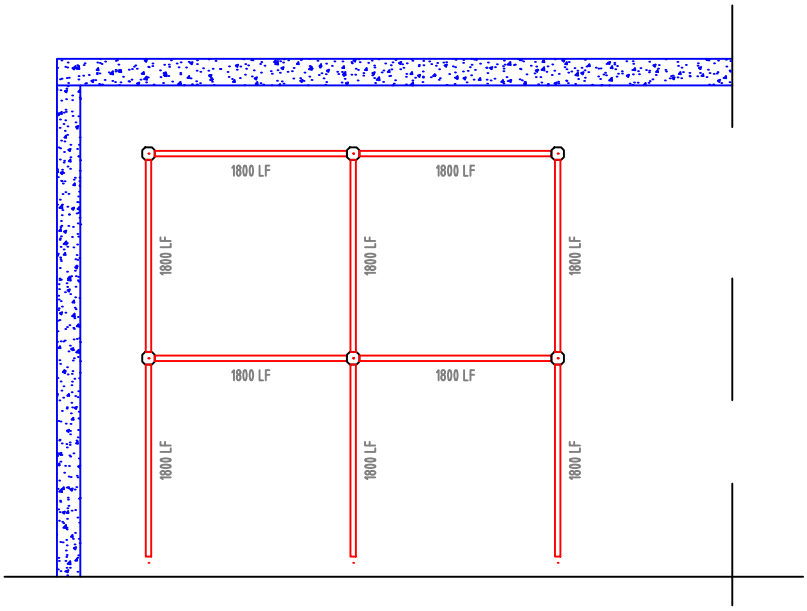
Plan View

F. Finishing the second Titan Tower, add in the 7th Ledger Frame.



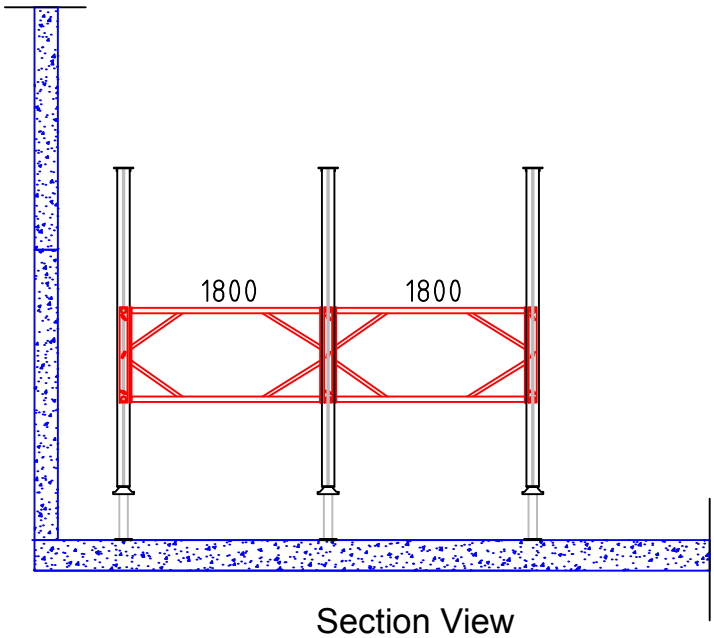
Section View

Method Statement | Titan Erection Procedure



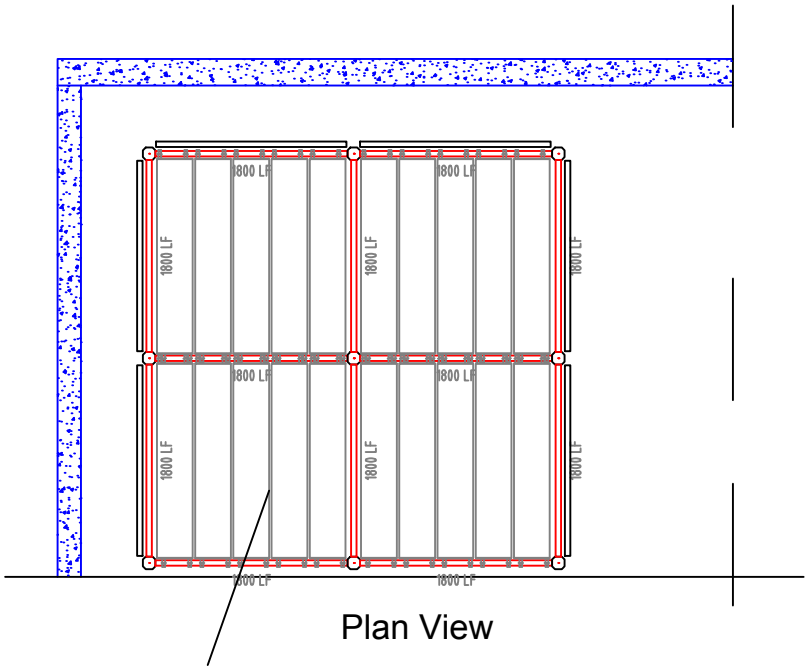
Plan View

G. Continue to create towers following the specific scheme drawing.



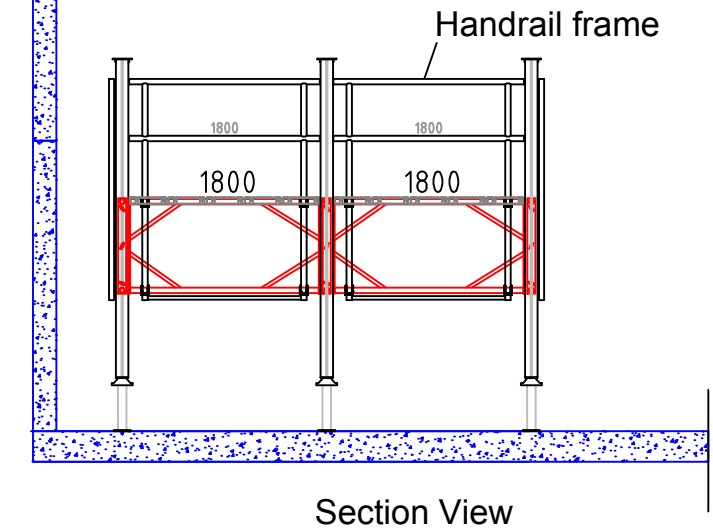
Section View

Method Statement | Titan Erection Procedure



Plan View

Titan access platforms or Intermediate transom boards with scaffold boards can be used.

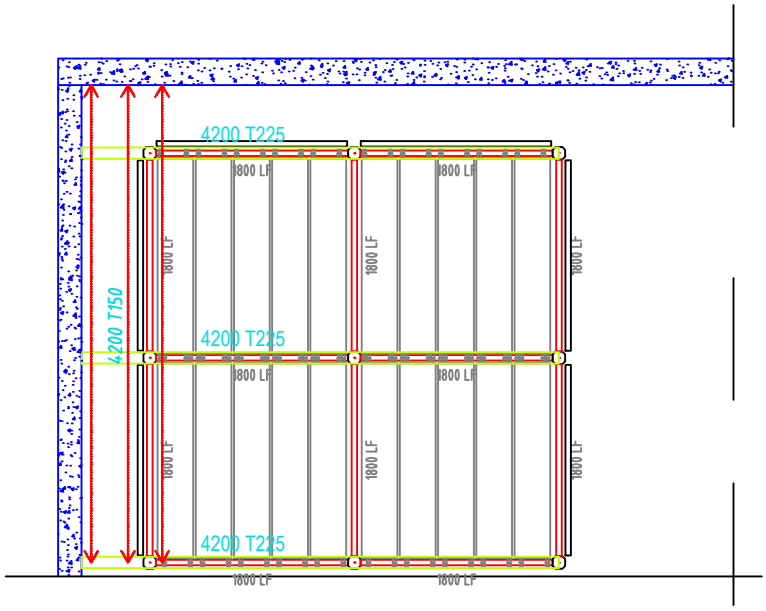


Section View

H. Now that the Titan Legs and Ledger Frames have been added. The work deck can now be constructed, Walkway Panels can be used across the ledger frames.

Titan quick release handrail frames should also be used for edge protection around the work area. Scaffold tube handrails and posts can also be fixed to the system if required.

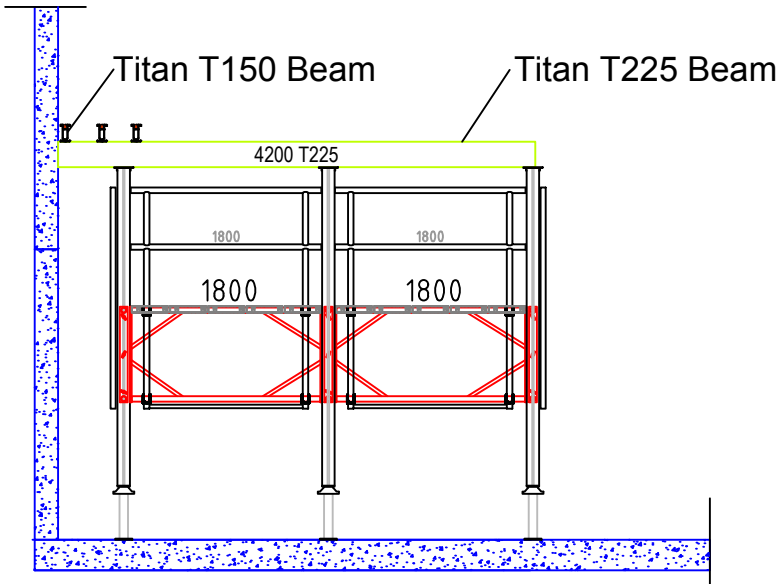
Method Statement | Titan Erection Procedure



Plan View

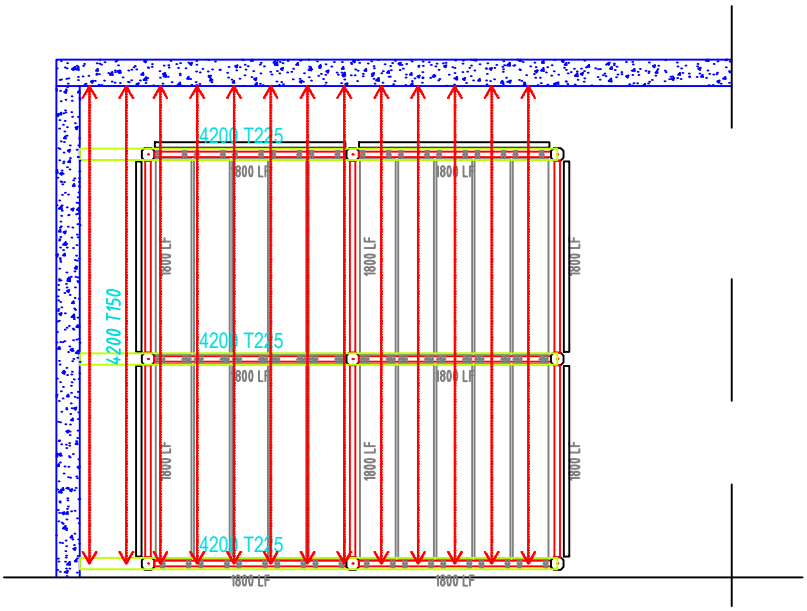
I. Now that the work deck has been constructed, the Titan T225 Beams and T150 Beams can be added to the system within a safe working environment.

J. As soon as the whole area required is covered by formwork. The Ply deck can be fixed onto the T150 Beams and the Intermediate working deck can be removed to use elsewhere if required.



Section View

Method Statement | Dismantling Procedure

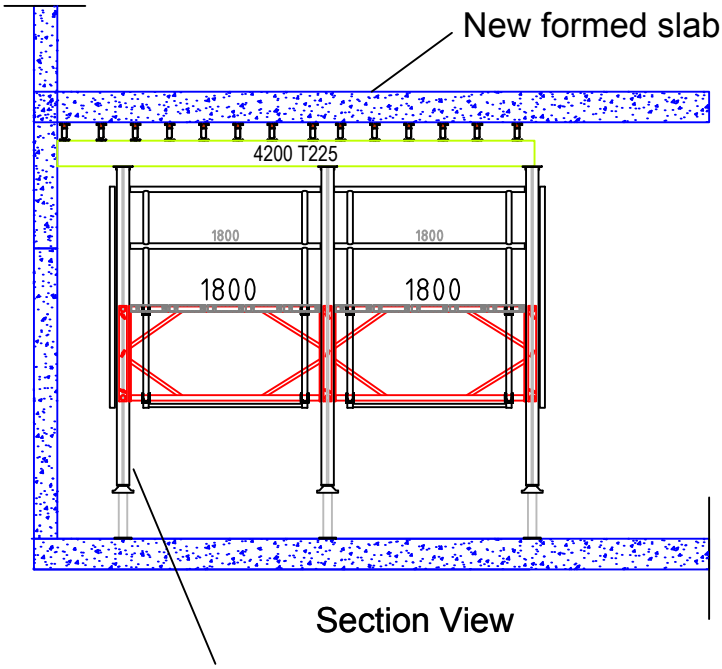


Plan View

A. Begin the Dismantling procedure by lowering the Jacks. Titan spanners to be used.

Re-fix working deck and handrail frames if required.

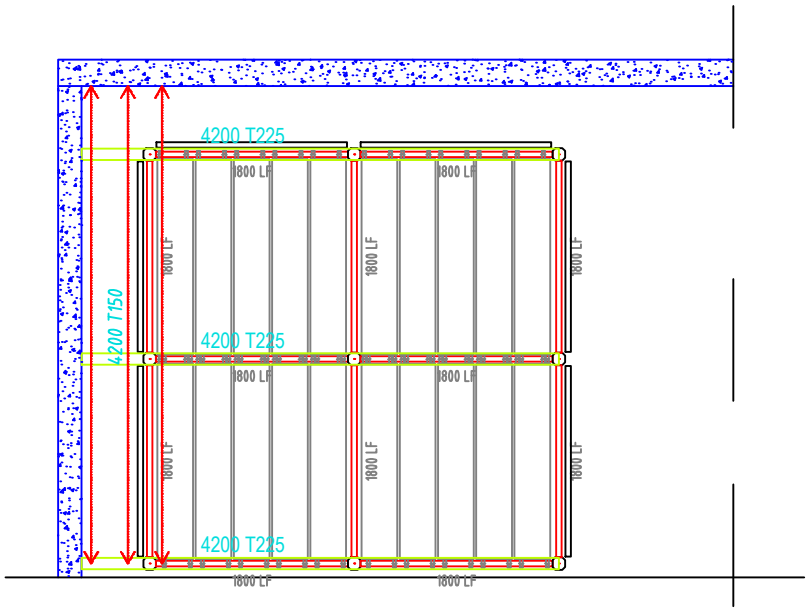
Lower the jack using the Titan Spanner



Section View

Jacks lowered, in turn lowering the Titan System for dismantling.

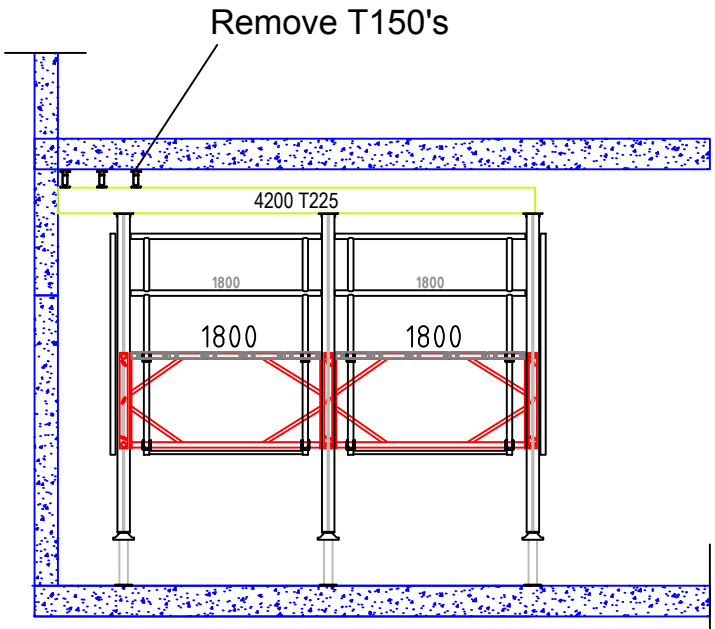
Method Statement | Dismantling Procedure



Plan View

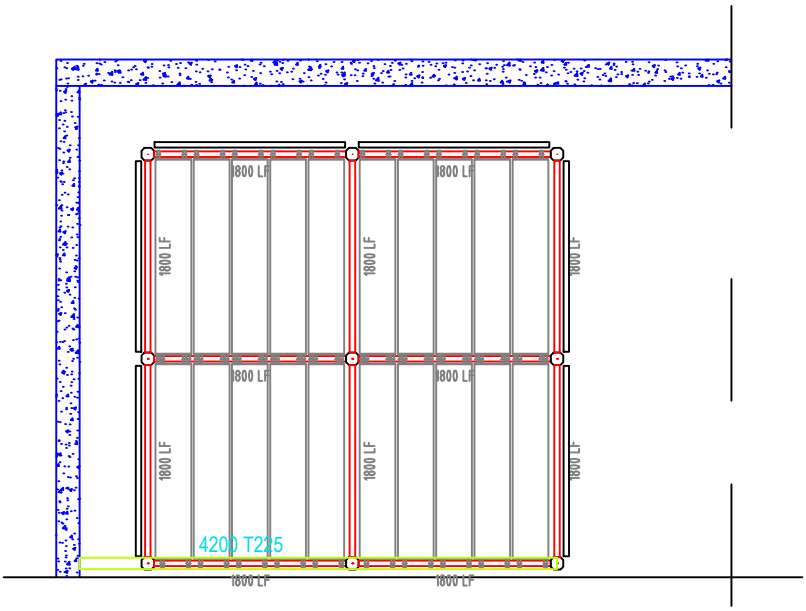
B. Now that the Intermediate Working Platform has been reinstalled for dismantling, the next dismantling stage can take place; removal of the T150 Secondary Beams.

Release secondary members (T150's) by unfastening the Titan clamp and passing each beam to the ground from an intermediate working platform.



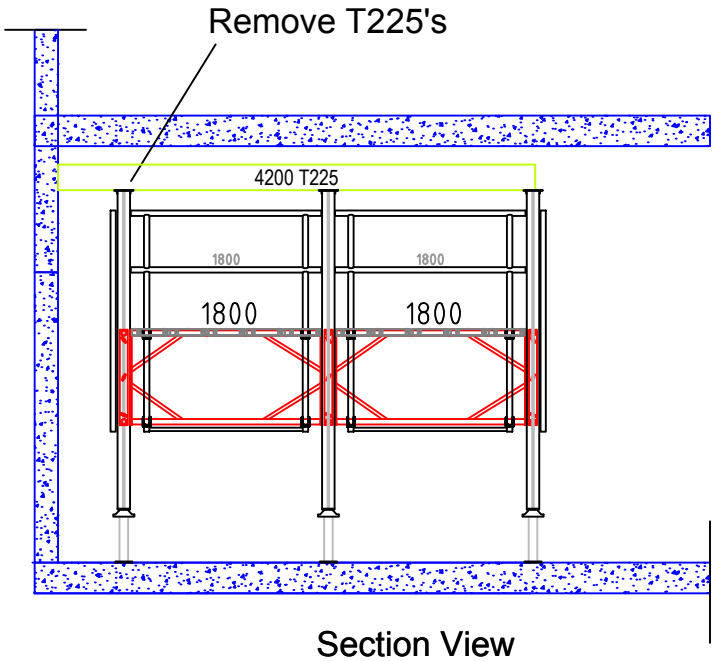
Section View

Method Statement | Dismantling Procedure



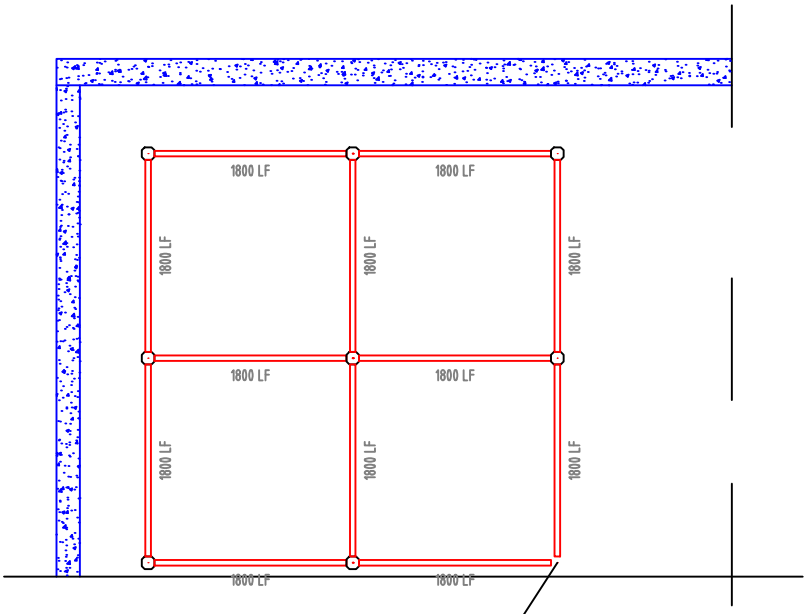
Plan View

C. Next, remove the Primary members (T225's) in the same way the T150's were removed on stage B.



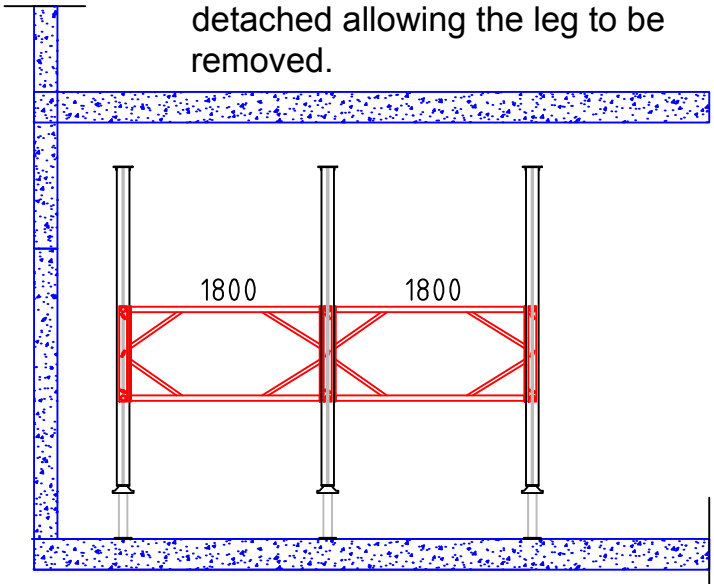
Section View

Method Statement | Dismantling Procedure



Plan View

Both ledger frames attached to the Titan Leg have been detached allowing the leg to be removed.



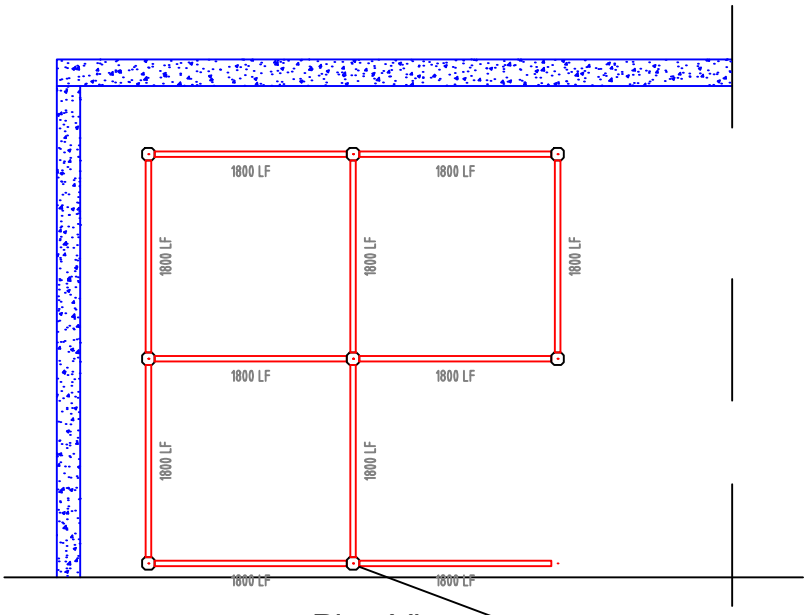
Section View

D. Now that the beams on the Titan deck have been removed, the Intermediate working platform can be removed.

Stripping of Titan falsework should begin by releasing one end of one ledger frame at all three locations and repeat this procedure for the adjacent Titan ledger frame which runs off at right angles.

-The above procedure will then release a leg, leaving two ledger frames 'hanging' from other legs.

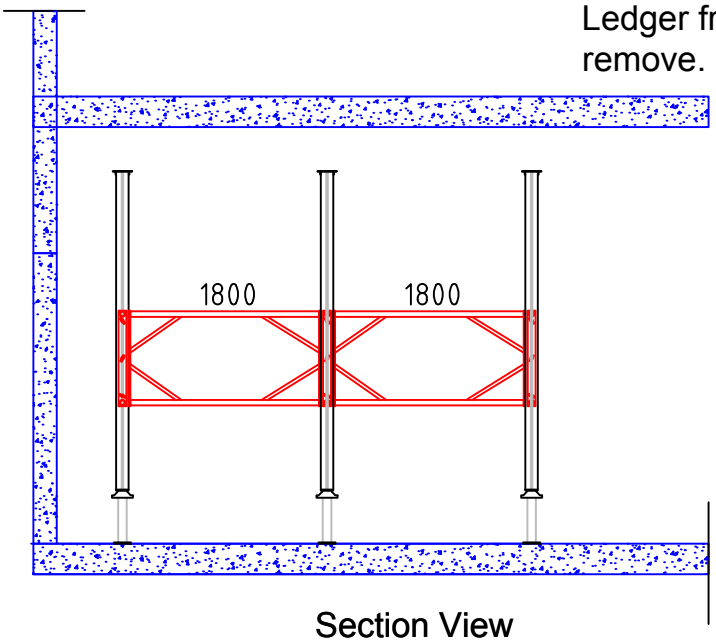
Method Statement | Dismantling Procedure



Plan View

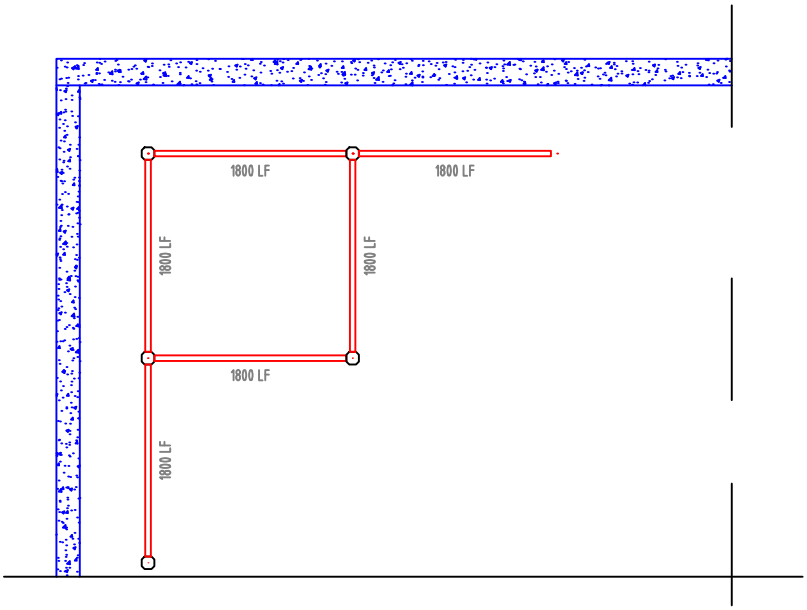
E. The two loose Titan Ledger frames can now be removed by loosening the last 3 final fixings on each ledger frame.

Release last fixings holding the Ledger frames onto the Leg and remove.



Section View

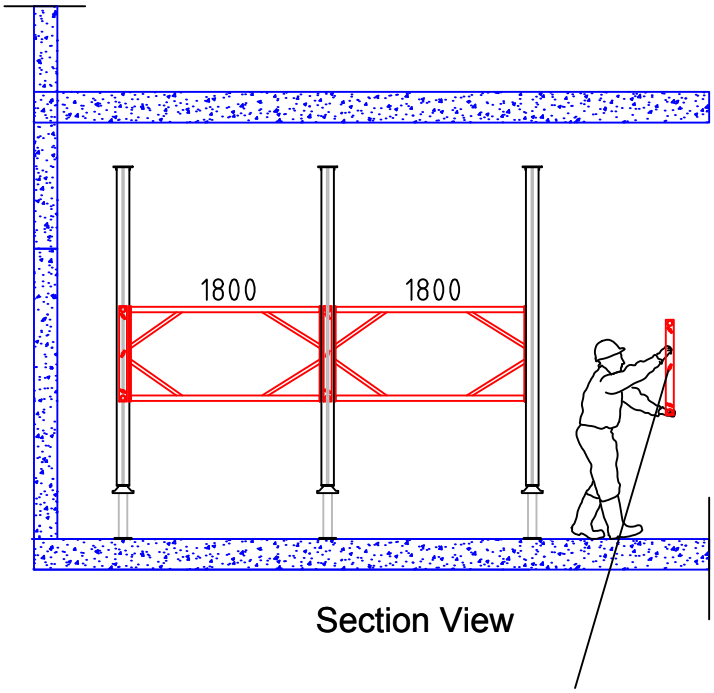
Method Statement | Dismantling Procedure



Plan View

F. Repeat processes G & F (Release Titan Ledger Frames then remove Legs).

Continue this process until all formwork has been removed.



Section View

- On falsework structures greater than one leg in height, all works as previously described should be carried out from safe, temporary working platforms.

Remove and store equipment safely and correctly once removed.

Titan tableforms (tables)

Introduction

The following identifies the components required and their proper use with a step by step procedure for stripping, flying and landing a Titan tableform (table). Instructions are provided for standard tables.

Titan Tableforms or Tables consist of individual Titan Falsework setups that can be lifted and maneuvered to a suitable craning position. Once in position, the Table can be lifted to the next level then maneuvered into the correct area ready for casting.

General

It is essential that these procedures are fully understood before the equipment is used. It is, therefore, recommended that all personnel using the equipment on the first occasion should be supervised by a competent person. There may be occasions when it is necessary for operatives to work adjacent to unguarded slab edges. In all such cases operatives should wear suitable anchored safety harnesses. In addition, other personnel should be made aware of such short duration hazards. Particular attention should be paid by site management to ensure that crane signaling systems comply with ruling regulations and that laid down procedures are fully understood and complied with. Loose materials or equipment must not be transported on tables during moving and flying operations. At no time during the operations is it necessary or desirable to exert undue force, either manually or through the equipment.

A team of dedicated, trained and competent personnel are required to carefully control the striking, moving and flying of tableforms. The team should comprise one supervisor and five personnel. A trained banksperson must be present for all the crane lifting operations.

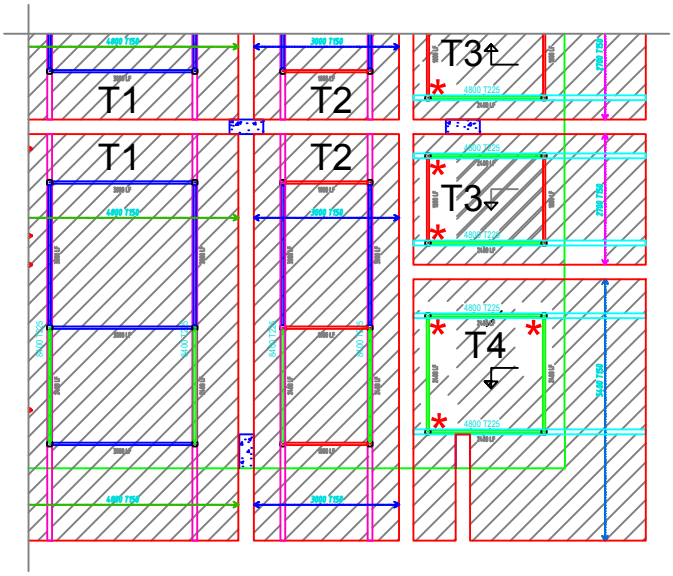
The Operation sequence is applicable for a working wind speed of 18m/s

Flying and Stripping Equipment

Trolleys/castors are used in the stripping and flying procedure of a Titan table. A minimum of 4 No. trolleys/castors are used for the movement of the table. 2 No. trolleys/ castors are used adjacent to the second row of legs in from the front of the table. These positions may vary depending on size and weight of table.

Method Statement | Titan Tables

Titan tableforms (tables)



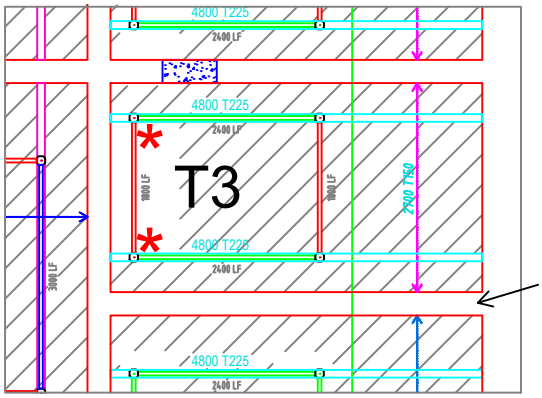
Titan Tables are a part of our Titan System however, they comprise of a set Titan assembly including plywood called a 'table'. This Table is firstly erected and set in position for the first slab to be cast. Once this slab is cast, the Titan Table can be moved up to the next floor for another cast slab. This saves time and is suited to buildings where it's footprint is similar throughout the floors.

The next few pages show various ways Titan Tables can be utilized.

Method Statement | Typical Infill Methods

Titan tableforms (tables)

Infill's are required between table tops to create a continuous deck suitable for concreting operations.



Areas where infill is required. See below and on next page for infill solutions.

Infill method for up to 0.4m wide infill areas.

Erection

a. Cut plywood to a suitable width.

b. For Infills upto 400mm, single span plywood (in the ply's strong direction) is generally acceptable. The ply on the tables needs to be cut back from the table perimeter to expose the secondary beams. The plywood infill spans onto the adjacent tables and is supported by the exposed table secondary beams.

Dismantling

c. Lower tables.

d. Remove plywood infill. If height is above 2.0m, a temporary access platform will be required.

e. Reposition tables and then follow erection sequence above.

0.4m to 0.9m wide infill areas between tables

Erection

a. Cut plywood to a suitable width.

b. Single span plywood (in the ply's strong direction) is generally acceptable. The ply on the tables needs to be cut back from the table perimeter to expose the secondary beams. The plywood infill spans onto the adjacent tables and is supported by the exposed table secondary beams.

c. Support plywood at mid span by means of temporary stringer beam and suitable props.

Dismantling

d. Remove temporary props and stringer beams.

e. Lower tables

f. Remove plywood infill. If height is above 2.0m, a temporary access platform will be required.

g. Reposition tables and then follow erection sequence above.

PTO

Method Statement | Typical Infill Methods

0.9m to 1.5m wide infill areas between tables

Erection

a. Undersling primary beams from existing table secondary beams (Beams fixed from below). If height is above 2.0m, a temporary access platform will be required.

b. Place secondary beams in position. Beams fixed from above with operatives wearing a suitable safety harness.

c. Cut, place, secure and fix plywood in infill area. Single span plywood (in the ply's strong direction) is generally acceptable. The ply on the tables needs to be cut back from the table perimeter to expose the secondary beams. The plywood infill spans onto the adjacent tables and is supported by the exposed table secondary beams.

d. Position support props to infill area and then lower table.

Dismantling

e. Remove support props to infill area and then lower table.

f. Remove secondary beams and plywood. If height is above 2.0m, a temporary access platform will be required.

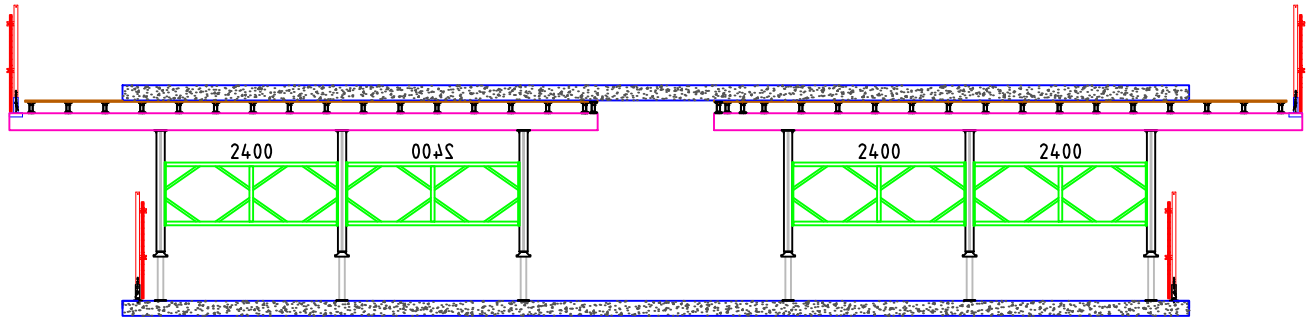
g. Remove underslung primary beams.

h. Reposition tables and then follow erection sequence above.

All Ply Infills must have plywood cut & orientated with the ply face grain in its strong direction to avoid excessive quilting/ deflection of the ply.

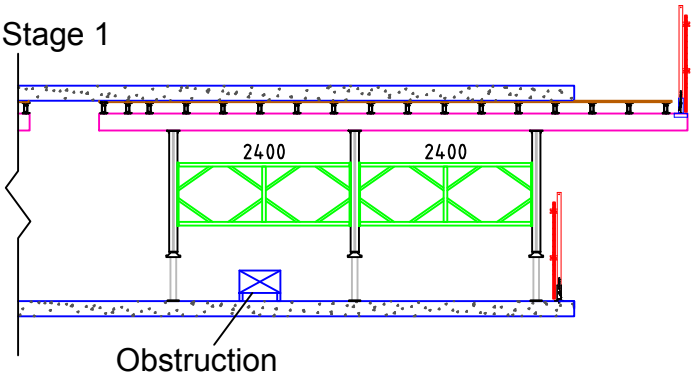
Method Statement | Moving Tables - Option 1

Stripping and flying procedure - using electric chain hoist



Once all pre pour stages have been carried out including any infill required. The slab can be poured. The following pages will show the processes of moving the tables up to the next pour.

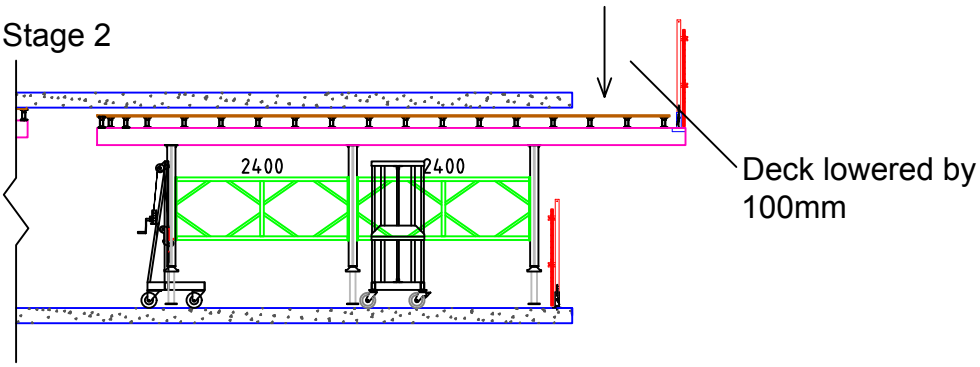
Stage 1



Firstly, before proceeding with the stripping and flying procedure. Clear area of all obstructions for the safe movement of the tables.

Once clear, break the bond between the slab and decking by turning collars on jacks.

Stage 2

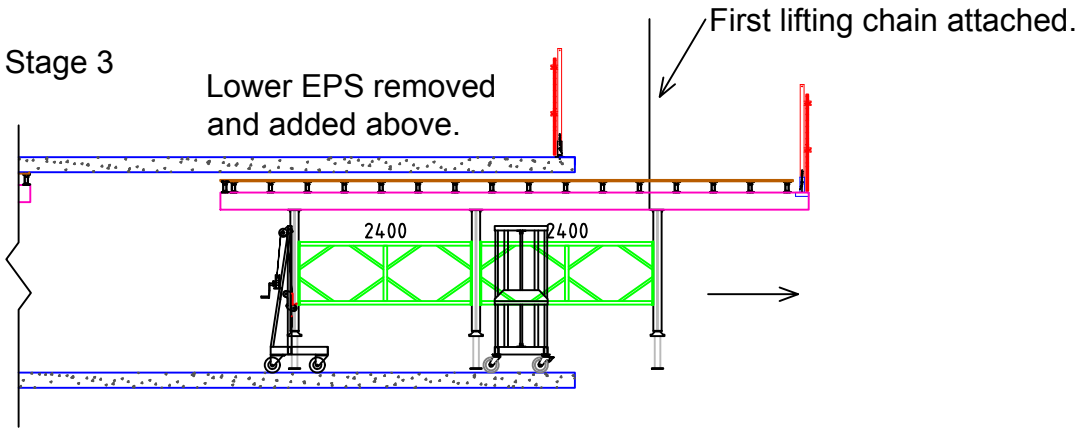


After unwinding around 100mm off each jack, locate trolleys in position.
With the weight now being carried by the four trolleys, the jacks can be retracted to lift the system up off the ground to give enough clearance.

Ensure trolley brakes are engaged when the trolleys are stationary!

Stripping and flying procedure - using electric chain hoist

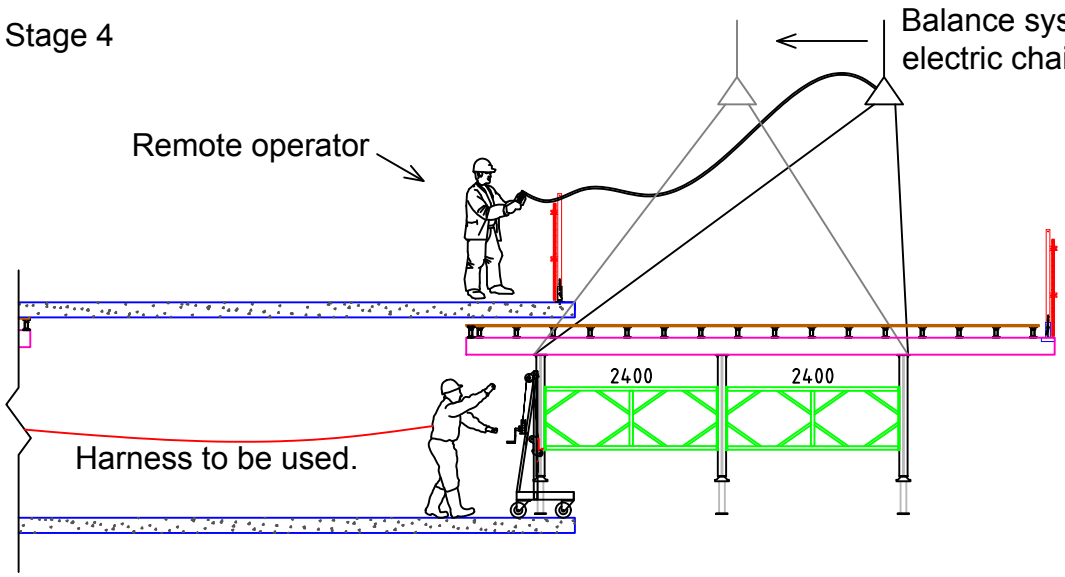
Stage 3



The table can be moved out until the first two legs are clear of the slab, allowing the fixing of the chains (fixed to predetermined lifting points that suit the balance of the table).

If using trolleys, the front pair can be removed once chains attached and load taken.

Stage 4

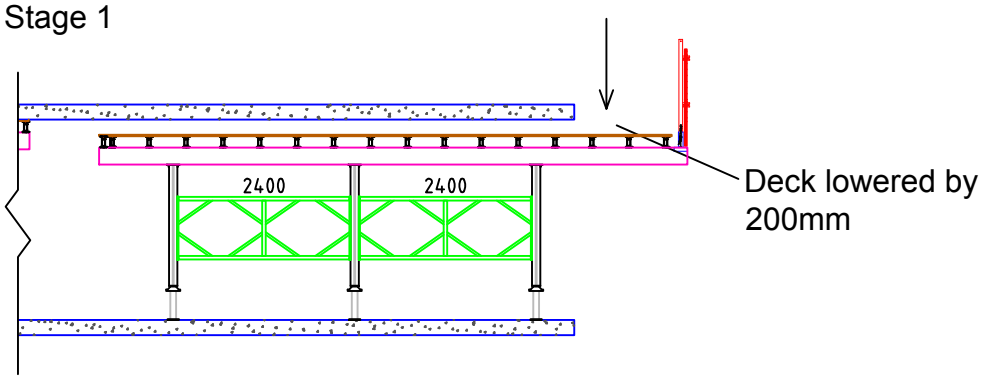


Continue pushing the table out of the building with the help of the crane, until the 2nd leg is out of the building. At this point attach the second chain to the second predetermined lifting point.

If using the electric chain hoist (as shown), balance out the system. Once balanced, the final Trolleys can be removed and the system lifted once clear of the slab above.

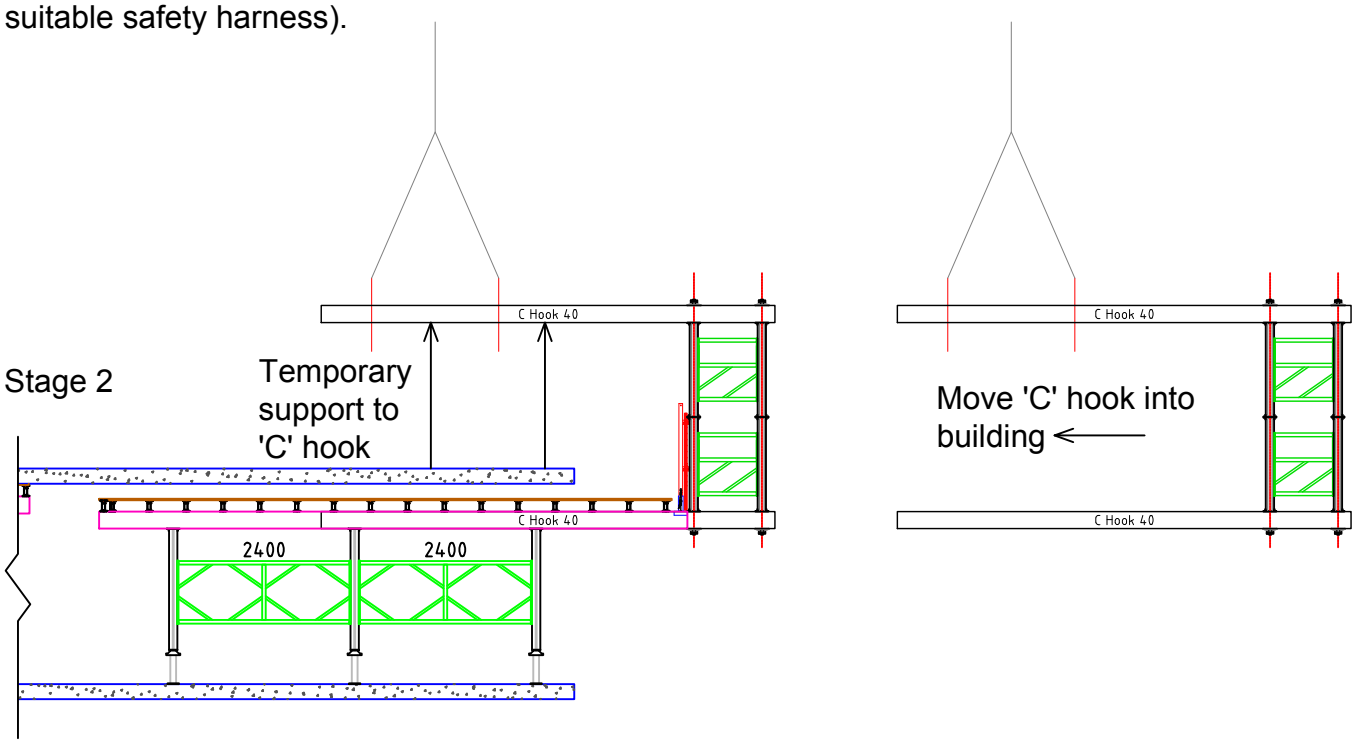
Stripping and flying procedure - using 'C' hook

Stage 1



Lower the table approximately 200mm and remove edge protection system (operatives to wear suitable safety harness).

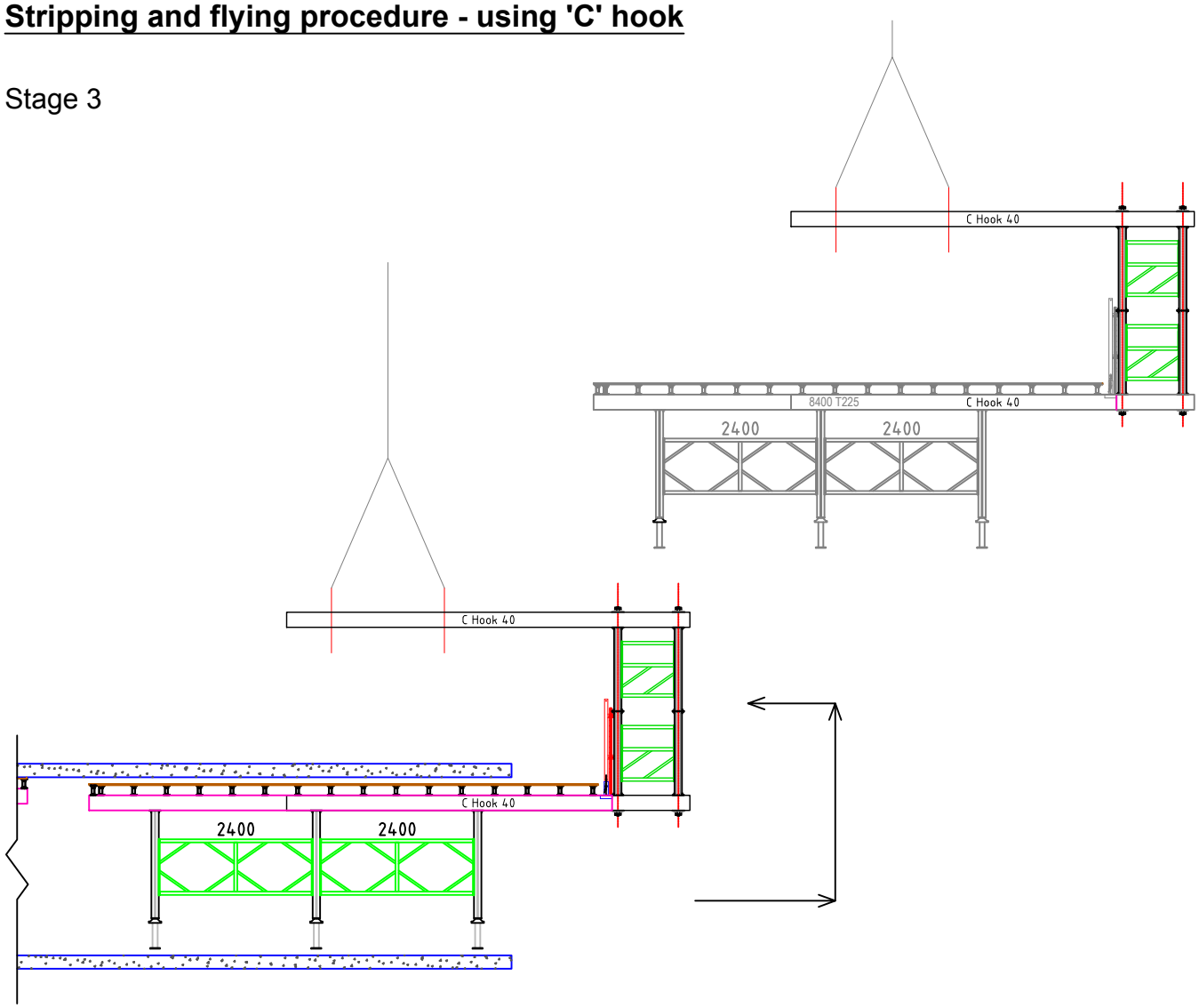
Stage 2



Position ‘C’ hook under T.W.150 secondary beams.
Support ‘C’ hook off slab and readjust lifting plates to suit center of gravity of table.
Ensure M24 locking bolt locates in predrilled holes on top chord of ‘c’ hook.
Secure bottom boom to secondary beams with Titan clamps.
Do not rest ‘C’ hook on ledger frames.

Stripping and flying procedure - using 'C' hook

Stage 3

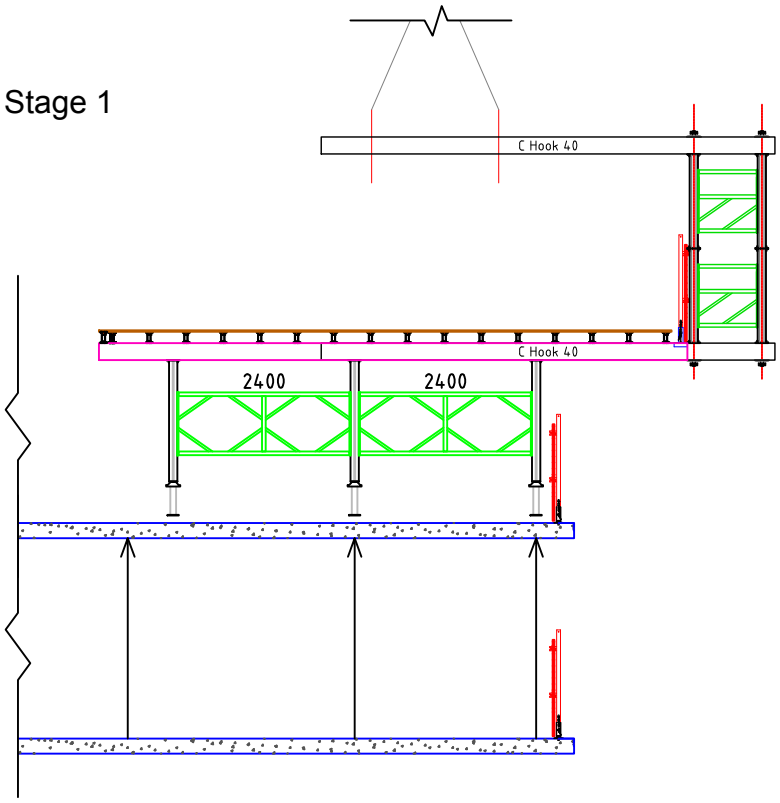


Lift the table up 100mm, remove temporary support and then remove table from building.

Method Statement | Moving Tables - Opt 1&2

Stripping and flying procedure - setting Table on floor above. Here shows 'C' hook setting procedure however, this is very similar to the electric chain hoist.

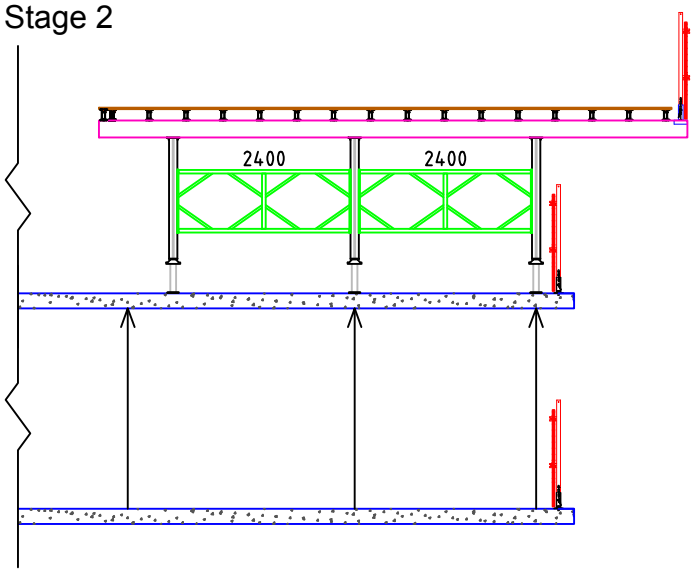
Stage 1



Just before lowering the Table onto the new slab, it is suggested that, if required, the contractor's props for re-propping are installed at the necessary positions.

Once back propping is complete, the Table can be lowered and lifting gear removed. ('C' hook) requires temporary propping while the slings are being adjusted).

Stage 2



Once the Table is down on the slab with all lifting gear removed, the Table can be repositioned if required using Titan trolleys or the existing castors if used.

When in position, lower and remove trolleys. If castors have been used; all legs without castors can be lowered and then castors can be removed. Followed by lowering all legs.

With the system stable and in position, the Table is ready to be leveled into final pouring position by site engineers.

Process repeats for all tables,

- All narrow width tables should be stabilised against overturning from either wind forces or horizontal loading due to construction loads.
- Where operatives are required to lean over the edges of the slab, a suitable harness must be worn and appropriately fixed.

Method Statement | Before pouring concrete

General Site Safety Checklist

1. Ensure plumbness of legs.

2. Ensure that all spring loaded wing nuts are tight on ledger frames (over-exposed thread on 'T' bolt indicates otherwise).

3. Ensure that base jack extensions are within design parameters.

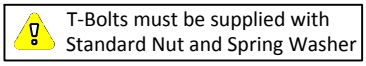
4. Ensure that jack nut is properly located in leg (Retainer clip securely fixed).

5. If Falsework is erected on rough terrain, ensure the legs are placed on adequate timber sole plates, sufficiently bedded and leveled.

6. Ensure that the size, number and location of ledger frames are as per design drawings.

7. If bolting legs together vertically and/or using extension pieces, ensure that a positive, rigid connection is maintained by means of 4 No. M12 x 35 nuts & bolts or 2 No. Titan connector brackets.

8. If using jacks at the top of the falsework, ensure items 3 and 4 above are followed and that 2 No. Titan clamps/'T' bolts are used to locate jacks securely to underside of primary beams.



9. Ensure that primary beam spans are no greater than those shown in design drawings.

10. Ensure spacing and span of secondary beams are no greater than those shown in design drawings.

11. Ensure all/any damaged parts are removed and replaced immediately.

12. Ensure the proper safety procedures are adopted to facilitate the above items in compliance with construction and health and safety working regulations.

13. Ensure permanent works/ slabs and ground are adequate for all loads and forces.

14. Make sure platforms contain no trip hazards. Gaps in platforms must be closed off to prevent injury and/or injury from falling objects.

15. When ladders are used, make sure they stand on a firm base, are securely fixed and project at least 1m above the landing platform.

16. All working platforms where a person is liable to fall must be fitted with a standard Titan Ledger Frame acting as a double guardrail and the deck must be fitted with Toe Boards.

17. Do not load the falsework platforms with site materials unless the loading has been allowed for in design.

18. All falsework must be designed by a competent person to carry the imposed loading. Designers must make referance to the ITUK Data Sheets for important information.

19. Titan falsework is considered to be fully restrained laterally by permanent works unless stated otherwise.

20. Consider wind uplift !

Method Statement | Flying Table Checklist

Flying Table Safety Checklist

1. Always use genuine ITUK Products.

2. Ensure there is a full Method Statement & Site Specific Risk Assessment by client.

3. Always use a team of dedicated, trained & competent personnel (including a qualified Banksperson).

4. Always use a safety rope between Table and Permanent Works.

5. Ensure both Jack Retaining Clamps are fully engaged and all bolted connections are tight before moving/flying.

6. Ensure crane slings are attached to table in correct position & always ensure table is flown and landed flat. Do not push table out beyond a safe distance.

7. Ensure that there are no loose attachments or unnecessary items on table during flying.

8. No personnel must be on the table during lifting/flying.

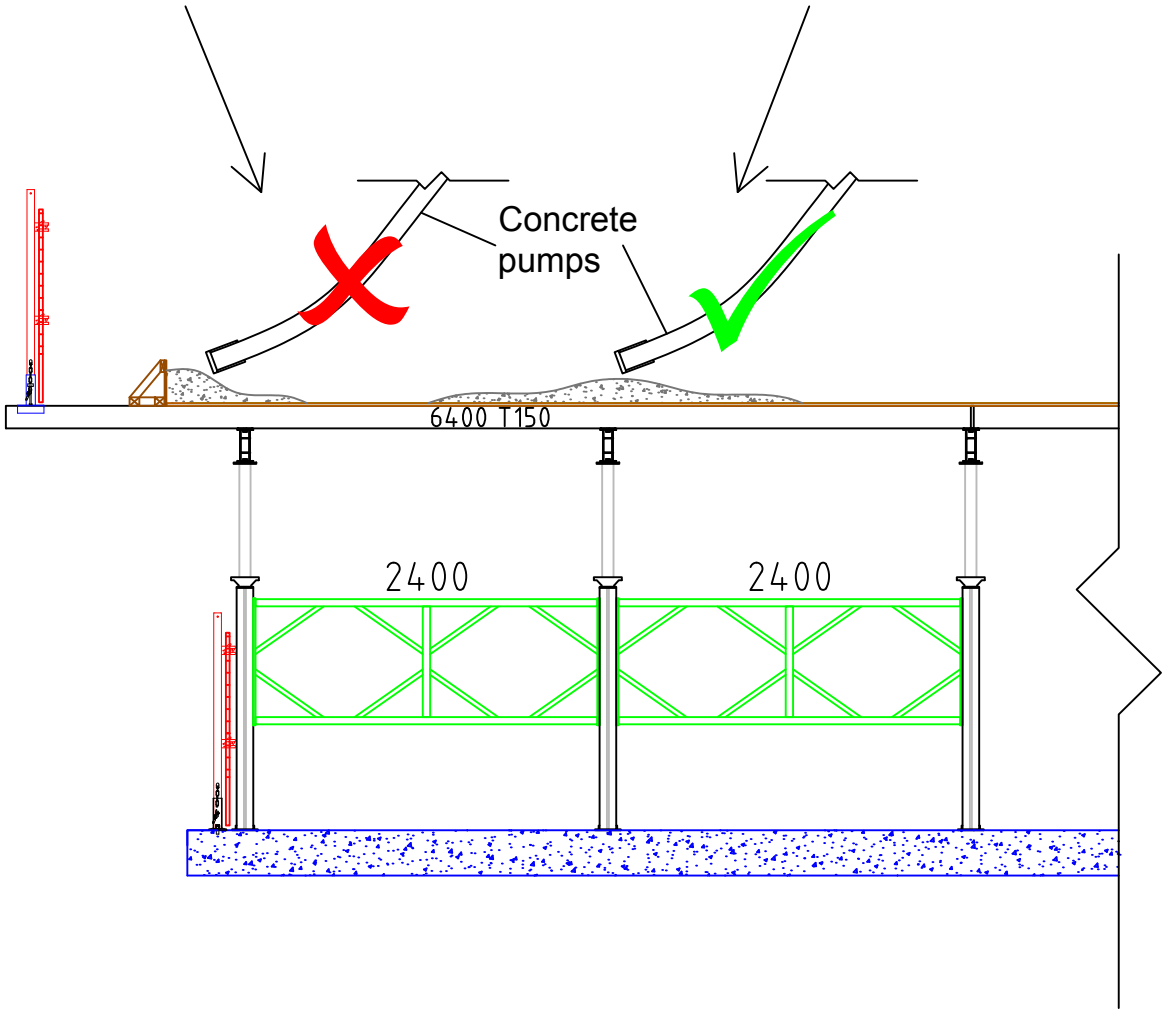
9. Ensure tables are landed in a controlled manner to avoid vibration and damage.

Method Statement | Pouring concrete

Distributon when pouring concrete

Incorrect method; concrete poured on cantilever first.
Loaded cantilever with no counter weight could possibly cause overturning.

Correct method; concrete poured evenly, starting the pour at a suitably supported area - i.e over a central leg within the system as shown below.



When pouring the concrete, distribute over suitably supported areas - doing this will ensure stability. As an example, pouring on to a cantilever first could possibly overturn the Titan system as there would be no counter weight to react against the undistributed concrete load.

Method Statement | Titan Trolley Positioning

Titan Table movement using Titan Trolleys

-Titan Tables must be struck before positioning trolleys so that the table is no longer carrying load.

-Trolley must be in working condition.

-Trolley must be used for its proper design purpose only.

-A minimum of 4 No. Titan trolleys to be used on Titan tables with 6 legs or more.

-Trolleys to be positioned as close to the Titan legs as possible.

-Safe Working Load of 1000kg must not be exceeded.

-Trolleys must be raised or lowered in sequence to prevent overloading.

-Ensure floor slab is clear of debris.

-Table to be raised at least 50mm clear of floor slab.

-Care must be taken when working close to slab edge.

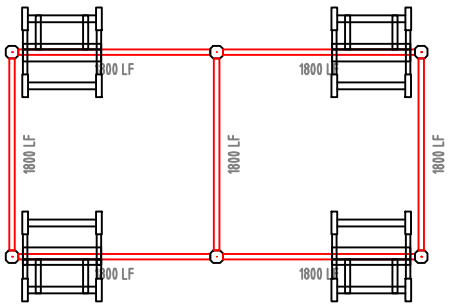
-Trolleys must be removed before flying tables.

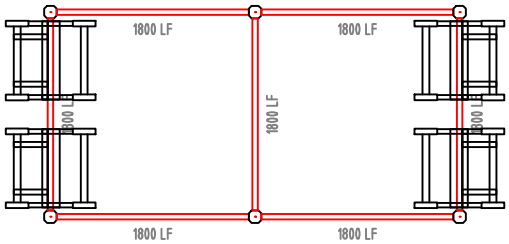
-Trolleys must be inspected at least once a year by a suitably qualified person.

-If in doubt about trolley positions contact the Ischebeck Titan Design Office.

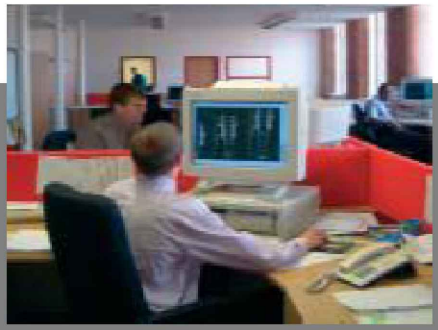
-Health and Safety requirements must be followed at all times.

Titan Trolley positioning examples





ISCHEBECK TITAN



Ischebeck Titan Group

Founded in Germany over 120 years ago, Ischebeck is renowned internationally for its aluminium formwork and false work systems, trench support systems and ground engineering products.

Ischebeck Titan Ltd

The company operates from headquarters centrally located in the heart of the UK.

Product Availability

Substantial stocks of equipment are available ex-stock from the company's strategically located 4-acre distribution site, with most items available nationwide on a 48-hour delivery. Products are available for both hire and outright purchase.

Technical Support

We will participate in concept stage development. Providing input on applications, production rates, budget design and costings. Active for on site support, particularly for new users. We can provide guidance on industry special European and national standards.

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