

sysTRAX™

USER GUIDE



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1.0 Introduction

DESSA offers efficient lightweight temporary roofing, encapsulation solutions, aluminium lattice girders and safety products. DESSA's unique and distinctive aluminium solutions are suitable for not only grandstands, stages and events but also public utility works, local authorities, government buildings, historic buildings, highways, bridges and industrial market sectors. Time proven on demanding and complex applications across varied climates throughout the UK, Canada, UAE, Australia and Europe, DESSA offer unrivalled span capabilities and alternative configurations. From a choice of roofing solutions and general purpose lattice girders providing unrivalled cost to strength ratio, to high capacity lattice girders complete with a dedicated bracing system, we provide the industry with an ever widening range of cost effective products along with extensive after sales support to the highest professional standards. At DESSA we develop innovative and practical solutions for the support, access and weather protection industries. All of our designs are technically proven and are registered with protected design rights meaning only DESSA can offer superior solutions through our products.

2.0 Roof Installation Methods

Temporary roofs are erected in three traditional ways, by hand, by crane, or by rolling out from one end. Roofs built by hand are assembled directly onto the supporting structure. On completion of the first braced bay operatives then work from this bay, 'pushing out' each beam line and bracing in turn. This method is the slowest of all three methods, and involves substantial working at height for connection of all parts and installation of all bracing elements.

Crane built roofs are erected on the ground in individual braced bays and lifted into position on the supporting structure. Once landed, the individual braced bays are connected together with bracings to complete the structure. This method is time consuming as it requires operatives working at height, traversing the roof bays and beam lines.

The rollout method of roof installation eliminates the need to work at height. From a pre-erected scaffold platform the roof bay is assembled and then rolled along the scaffold or supporting structure, allowing subsequent bays to be added working from the erection platform. The roll out method is the quickest and safest temporary roof installation method.

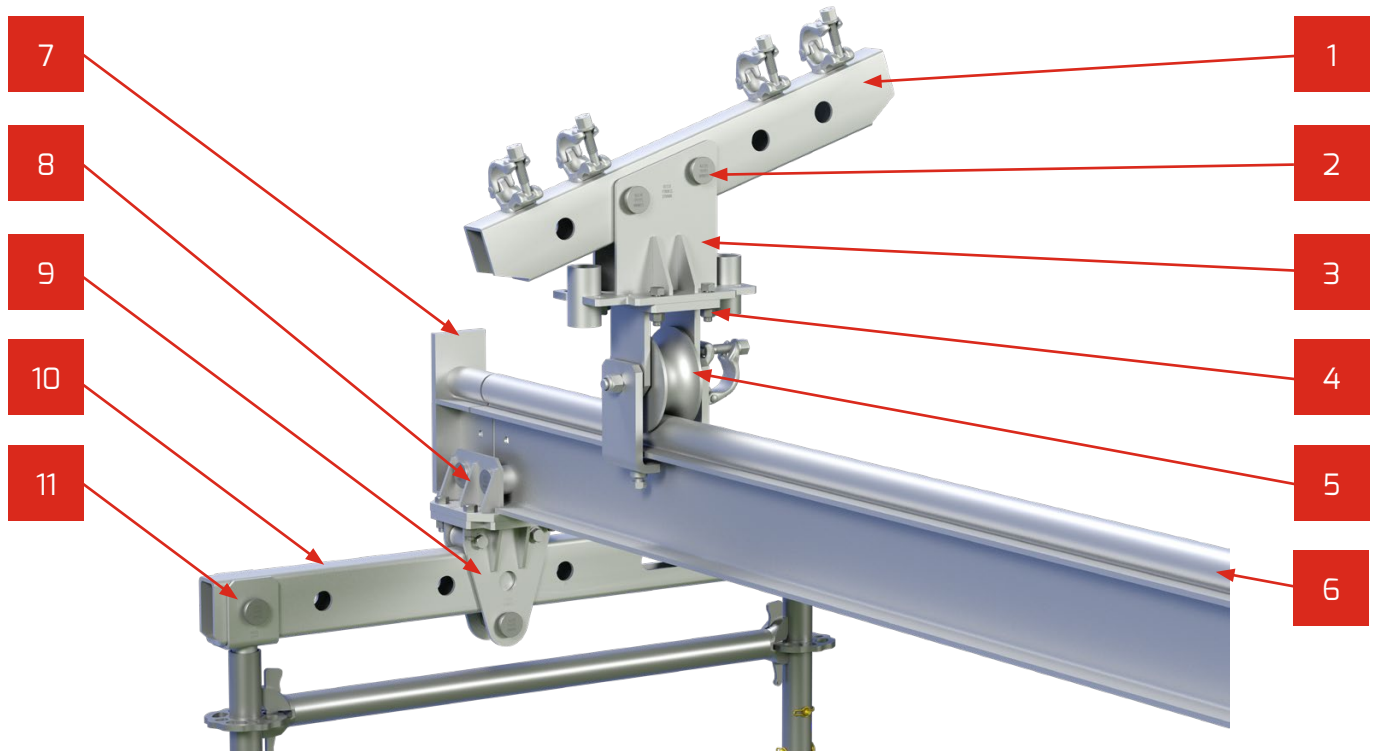
sysTRAX™ is the first fully modular, high capacity rolling track system for temporary roof and scaffolds. Historically, installing a high capacity runway required numerous supports, loose couplers, and scaffold tubes. sysTRAX™ is designed to integrate perfectly into modular scaffolds and is connected using simple, high capacity pins. This enables logical and rapid assembly of all parts. Rolling roof supports are subjected to both horizontal and vertical loads. sysTRAX™ has a unique innovative rolling support allowing elimination of horizontal loads, ease of installation, whilst maintaining unrivalled vertical load capacity. Unlike triangular truss runway beams, sysTRAX™ maintains capacity at all locations along its length with no weak points between nodes. By virtue of its top flange, it has integrated anti-uplift as standard, and when not in use stacks away efficiently due to its component size, unlike triangular trusses, which require large amounts of truck and yard space to transport and store. sysTRAX™ is a fully steel system, robust, long lasting, reliable in use and offers unrivalled technical capability.

3.0 sysTRAX™ Key Features

- Rapid assembly
- Logical assembly
- Fully modular system
- Integrates with modular scaffold systems
- No need for couplers
- Suits range of bay sizes and scaffold widths
- Allows in-line roller supports
- Eliminates horizontal loads
- Integrated anti-uplift
- High strength



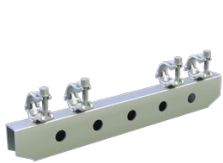
4.0 Component Recognition



1 Roof Supports/Beams

2 Locking Pin + Linch Pin

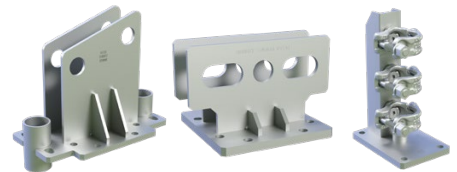
3 Castor Top Plates



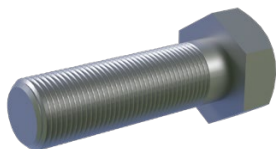
4 Hex Bolt and Nut



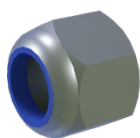
5 Castor



6 Beam



7 Beam End Closer



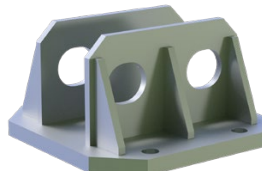
8 Connection Plate



9 Sliding Support



10 Bearer






11 Standard U-Head


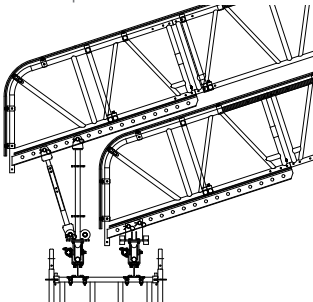






5.0 Catalogue



DESCRIPTION	PART No.	WEIGHT (kg)	DIM 1 (m)	DIM 2 (m)
sysTRAX™ End Closer Provides a fixed stopping location to mobile temporary roofs. Fully integrated with modular sysTRAX™ lengths. Simple installation using AF0004 locking pin and AF0039 linch pin. 	BQ0001	4.20	0.11	0.25
sysTRAX™ Beam Modular lengths of sysTRAX™ suitable for an exact fit on multiple systemised scaffold bay sizes. Fully integrated with Plettac Metrix, Contur and Futuro. Simple installation to connection plate UA0015 using AF0004 locking pins and AF0039 linch pins. 	BQ0390 BQ0400 BQ0500 BQ0700 BQ0732 BQ1000 BQ1065 BQ1072 BQ1088 BQ1500 BQ1572 BQ2000 BQ2072 BQ2500 BQ2572 BQ3000 BQ3072	8.59 8.80 10.92 15.16 15.84 21.52 22.89 23.04 23.38 32.11 33.64 42.71 44.23 53.30 54.83 63.90 65.43	0.387 0.397 0.497 0.697 0.729 0.997 1.062 1.072 1.085 1.497 1.569 1.997 2.069 2.497 2.569 2.997 3.069	0.20
sysTRAX™ Bearer Supporting member for sysTRAX™ connections. Installed atop of systemised standards and allows even transfer of loads. Multiple hole connection opportunities to suit bay sizes of 0.7m to 1.09m. Simple installation using AF0004 locking pins and AF0039 linch pins. 	UA0007	14.86	1.21	0.10

DESCRIPTION	PART No.	WEIGHT (kg)	DIM 1 (m)	DIM 2 (m)
sysTRAX™ Sliding Support Sliding bracket to allow for connection of sysTRAX™ modules and roofs to UA0007 support bearer. Integrated wheels within the assembly reduce horizontal loads acting on the support scaffold. Can be pinned to restrain vertically and horizontally or vertically only. Simple installation using AF0004 locking pin and AF0039 linch pin. 	UA0014	6.13	0.17	0.20
sysTRAX™ Connection Plate Provides a connection for sysTRAX™ UB. Elongated holes provided operational flexibility for connection of elements. Simple installation using AF0004 locking pins and AF0039 linch pins. 	UA0015	4.18	0.17	0.09
U-Head for OE Standard Allows connection to sysTRAX™ Bearer. Installed to open ended standards of system scaffold, secured in place using quick release pins AF0001 or M12 x 60 bolts AF0007. 	TA0002	2.10	0.43	0.08
U-Head for Standard with spigot Allows connection to sysTRAX™ Bearer. Installed to spigoted standards of system scaffold, secured in place using quick release pins AF0001 or M12 x 60 bolts AF0007. 	TA0003	1.69	0.31	0.08
Top Plate Support for OE Standard Allows direct connection with sysTRAX™ Connection plate. Installed to open ended standards of system scaffold, secured in place using quick release pins AF0001 or M12x60 bolts AF0007. 	TA0005	4.11	0.39	0.17
TRAX™ Anti Uplift Castor Unique rolling mechanism for roofing and scaffolding structures. Castor can be used in conjunction with a range of connectors to enable connection to roof or scaffold structures. 	AA0002	15.00	0.17	0.25
Castor Top Plate. D78 Beams Enables connection to D78 Beams secured using quick release pins or bolts. 	AA0004	3.40	0.17	0.35

DESCRIPTION	PART No.	WEIGHT (kg)	DIM 1 (m)	DIM 2 (m)
Castor Top Plate, Scaffold Tube Enables standard scaffold tube connections secured using 3 half couplers. 	AA0005	3.40	0.17	0.26
UNI Beam Support Upright. Support spur used in conjunction with AA0008 and AA0009 to allow for simple construction of telescopic mobile roofs.  	AA0007	11.28	1.05	0.25
UNI Beam Support Spur Inner This inner spur is used in conjunction with outer spur AA0009 and allows the spur to be located at various locations on the beam bearer. 	AA0008	3.06	0.67	0.11
UNI Beam Support Spur Outer This outer spur is used in conjunction with inner spur AA0008 and allows the spur to be located at various locations on the beam bearer. 	AA0009	3.95	0.76	0.11
Castor Top Plate 0 degrees Provides an 0 degree connection to the structure, when used in conjunction with beam connector UA0011. Also used in pairs for 90 degree connections. 	UA0000	5.00	0.17	0.14

DESCRIPTION	PART No.	WEIGHT (kg)	DIM 1 (m)	DIM 2 (m)
Castor Top Plate 18 degrees Enables an 18 degree connection to the roof structure, when used in conjunction with beam connector UA0011 or aluminium support beams. 	UA0018	5.20	0.17	0.17
Castor Top Plate 18 degrees for APA ledgers Enables an 18 degree connection to the roof structure, when used in conjunction with beam connector UA0011 or aluminium support beams. Stabilized with system ledgers. 	UA0028	7.30	0.17	0.26
Castor Conversion Plate for APA ledgers Used with non-system top plates to allow for stabilization using system ledgers. 	UA0029	3.55	0.17	0.08
Castor Top Plate 36 degrees Enables a 36 degree connection to the roof structure, when used in conjunction with beam connector UA0011 or aluminium support beams. Stabilized with system ledgers. 	UA0030	9.25	0.17	0.35
Locking Pin 30mm High capacity connecting pin used to connect tension bars and support components. 	AF0004	0.55	97.5mm	ø 30mm
Linch pin 6mm Used in conjunction with AF0004. 	AF0039	0.02	53	ø 6
Hex Bolt BZP G8.8 Steel M12 x 60 For connection of castor top plates to castor body AA0002. 	AF0007	0.06	67.5mm	ø 12mm
Hex Bolt BZP G8.8 Steel M12 x 45 For connection of castor top plates to castor body AA0002. 	AF0008	0.05	52.5mm	ø 12mm
Hex Lock Nut BZP G8.8 Steel M12 For use in conjunction with M12 bolts. 	AF0021	0.05	14mm	ø 12mm

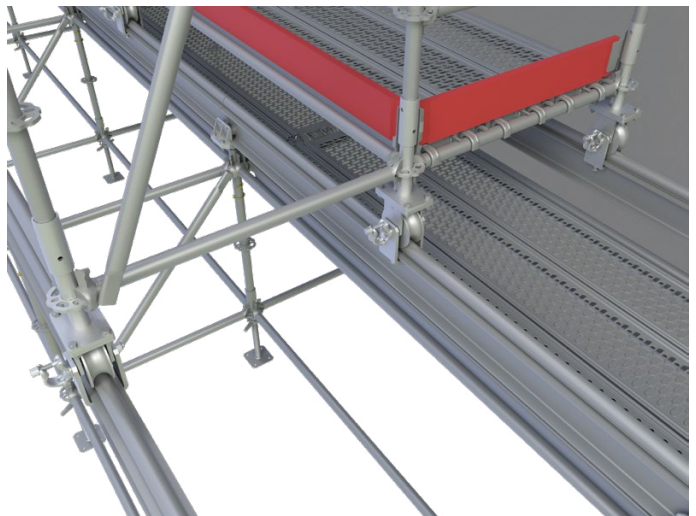
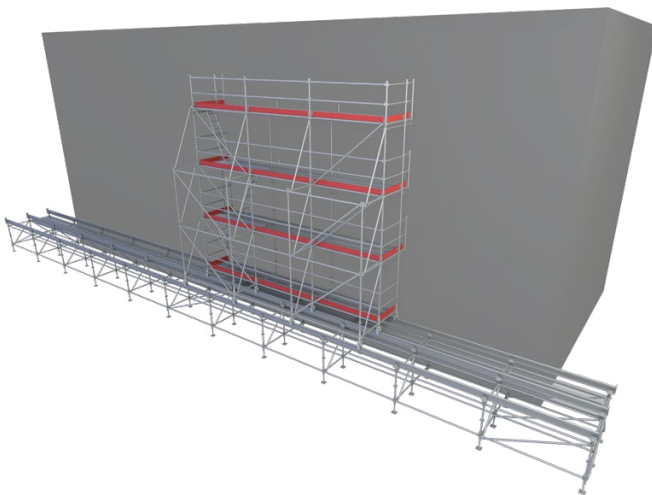
6.0 Typical Applications

sysTRAX™ is a fully modular rolling system, enabling stock to be utilised in a wide range of ways and allow different structure types to be erected. A number of pre set positions in the UA0007 bearer enable its use on a range of scaffold widths, whilst the systemised beam lengths accommodate all bay sizes and allow for easy installation onto any system scaffold.

6.1 Mobile Structures

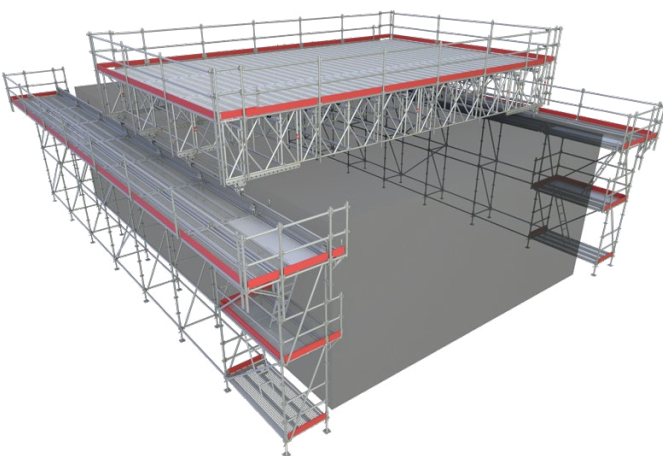
6.1.1 Scaffolds

Mobile scaffolds on rough or uneven ground are possible with sysTRAX™. From a low level scaffold, built to level, multiple lines of sysTRAX™ are installed to support each line of standards. Scaffold anchors are removed and replaced as necessary as the job progresses.



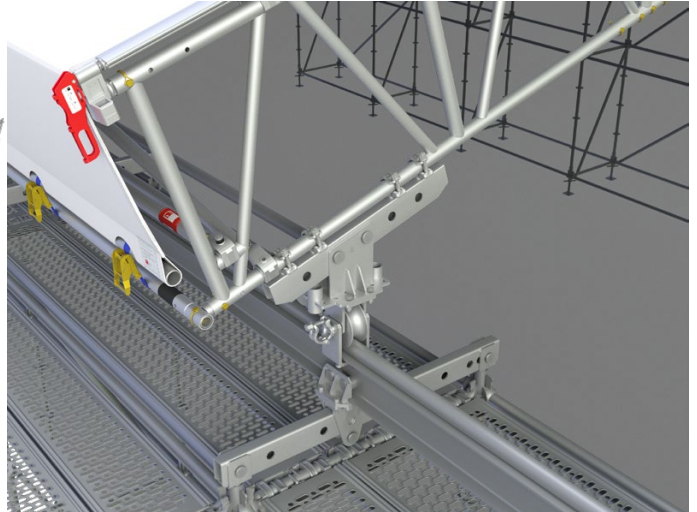
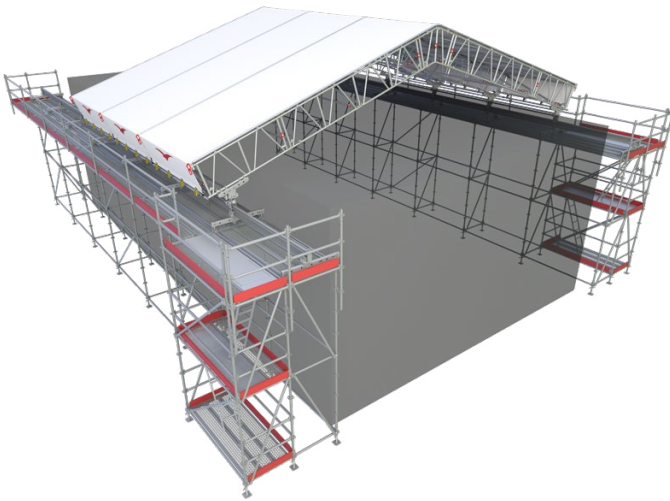
6.1.2 Platforms

For large mobile working platforms, overhead gantries or structures that do not cause significant horizontal forces, sysTRAX™ beams are mounted longitudinally directly between a single line of scaffold standards. Utilising top plate supports together with connection plates mounted to the top of each scaffold standard, the sysTRAX™ beams are secured quickly and simply by use of locking pins. In this installation method all vertical loads are transmitted into a single line of standards.



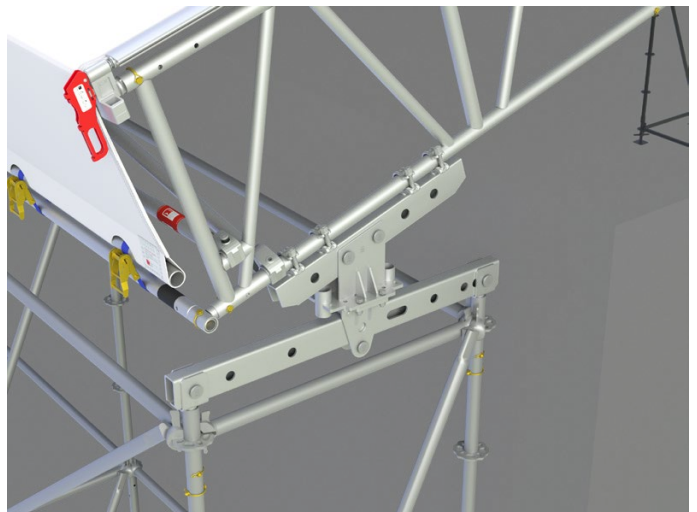
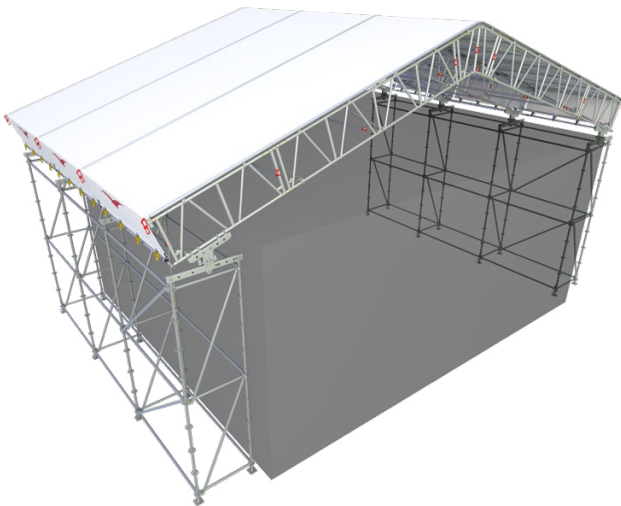
6.1.3 Temporary Roofs

Temporary roofs can impart large horizontal forces into the supporting structure, sysTRAX™ enables these loads to be eliminated and/or managed. sysTRAX™ beams are connected to transverse bearers using DESSA's innovative rolling connectors. These connectors enable the sysTRAX™ beams to be fixed in position one side of the scaffold and released horizontally the other side of the scaffold. Free movement of these supports also allows lack of parallelism of opposing scaffolds to be easily compensated. As the roof moves under the influence of environmental loads, such as snow and wind, the unique roller support allows the sysTRAX™ to move, mitigating negative effects from these forces. Vertical loads are shared between two standards. Full movement longitudinally is available at all times allowing the structure to be moved along the project as work progresses or opened and closed to allow access for materials.



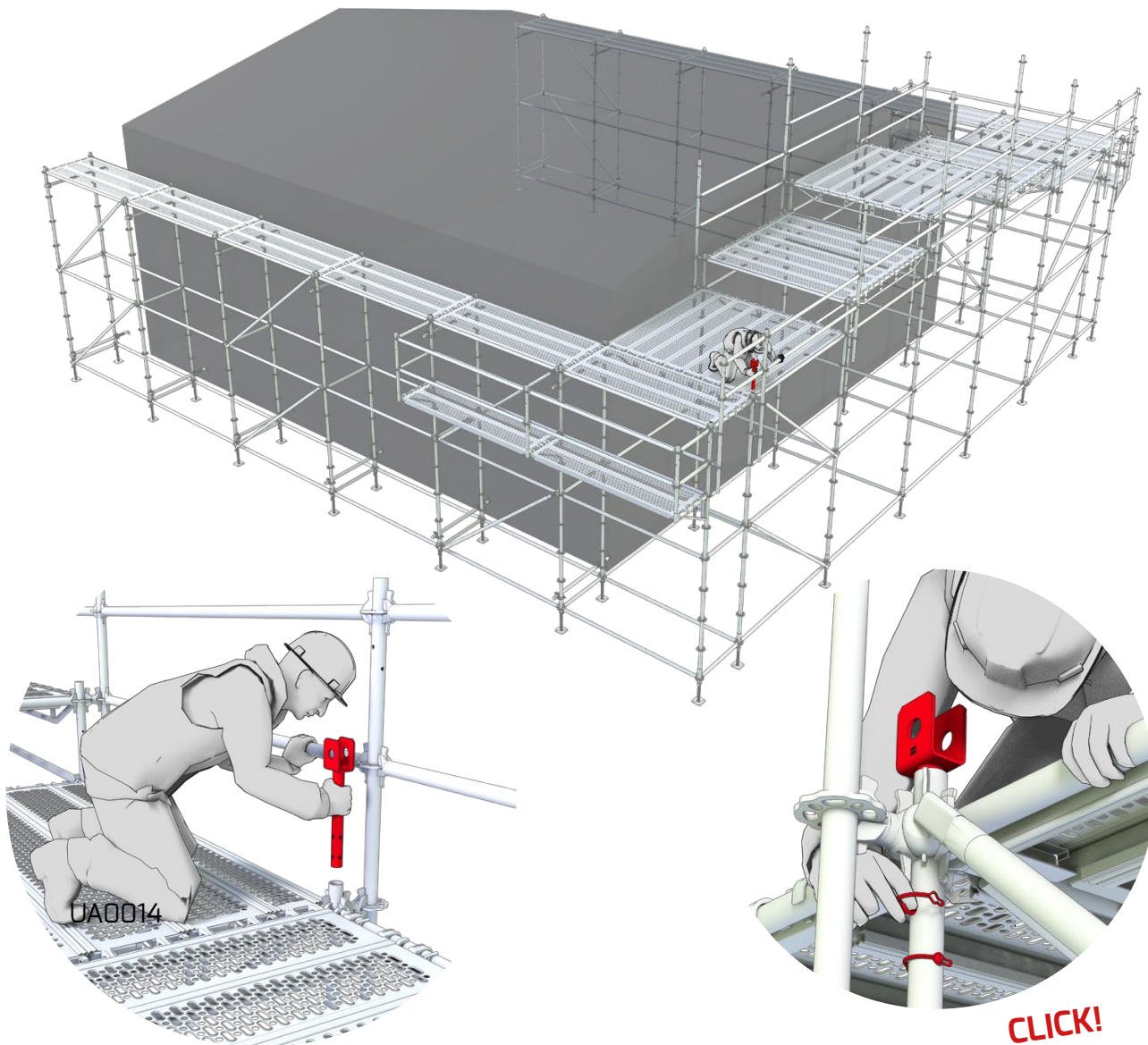
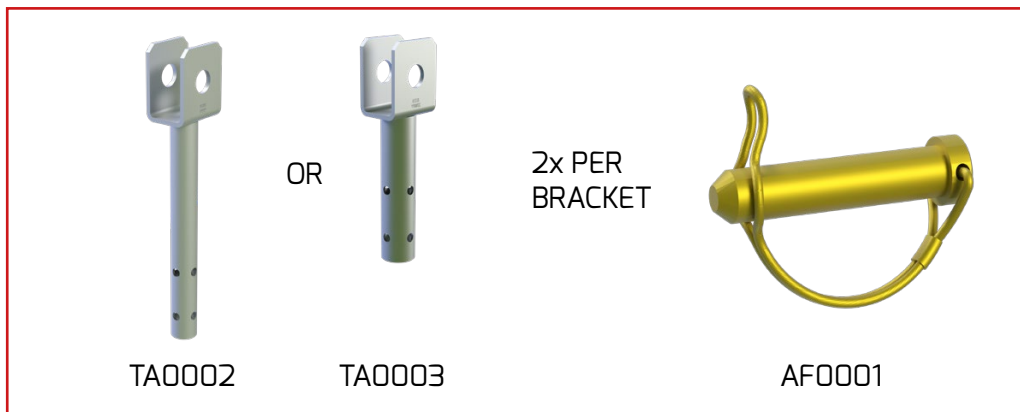
6.2 Static Structures

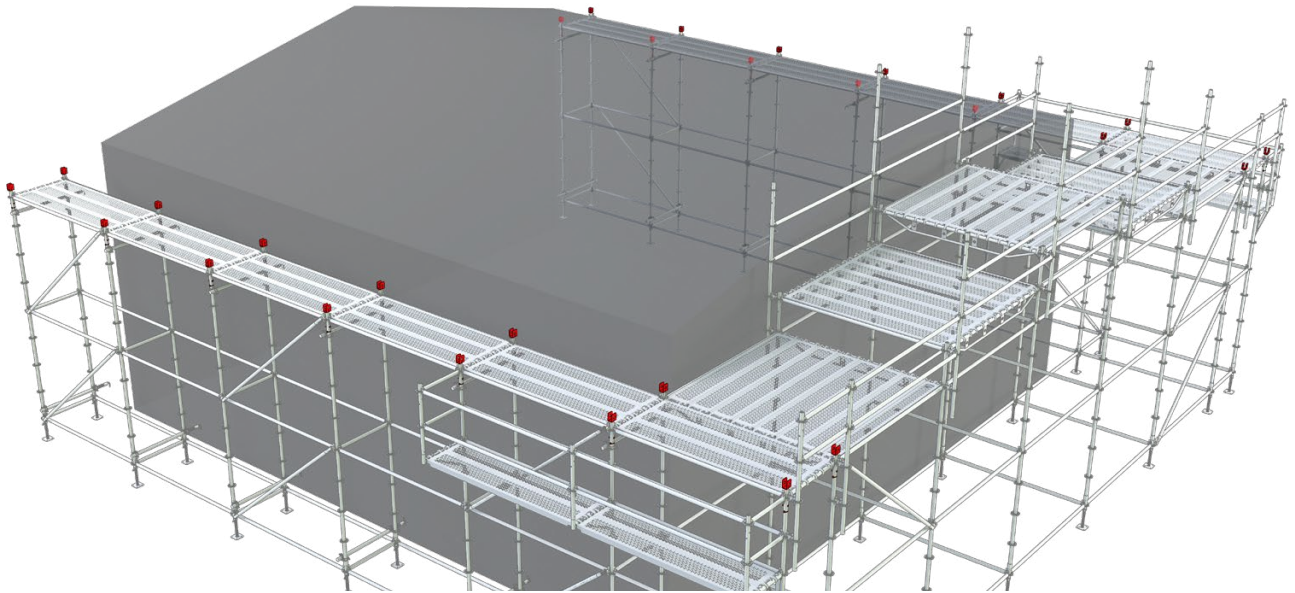
For crane built roofs or structures to be mounted on a complementary supporting scaffold sysTRAX™ is deployed without longitudinal sysTRAX™ beams. For temporary roofs it is possible to fix one side rigidly in position and release the other side horizontally to allow movement, this simplifies landing of the braced bays and also serves to eliminate and/or manage undesirable horizontal loads.



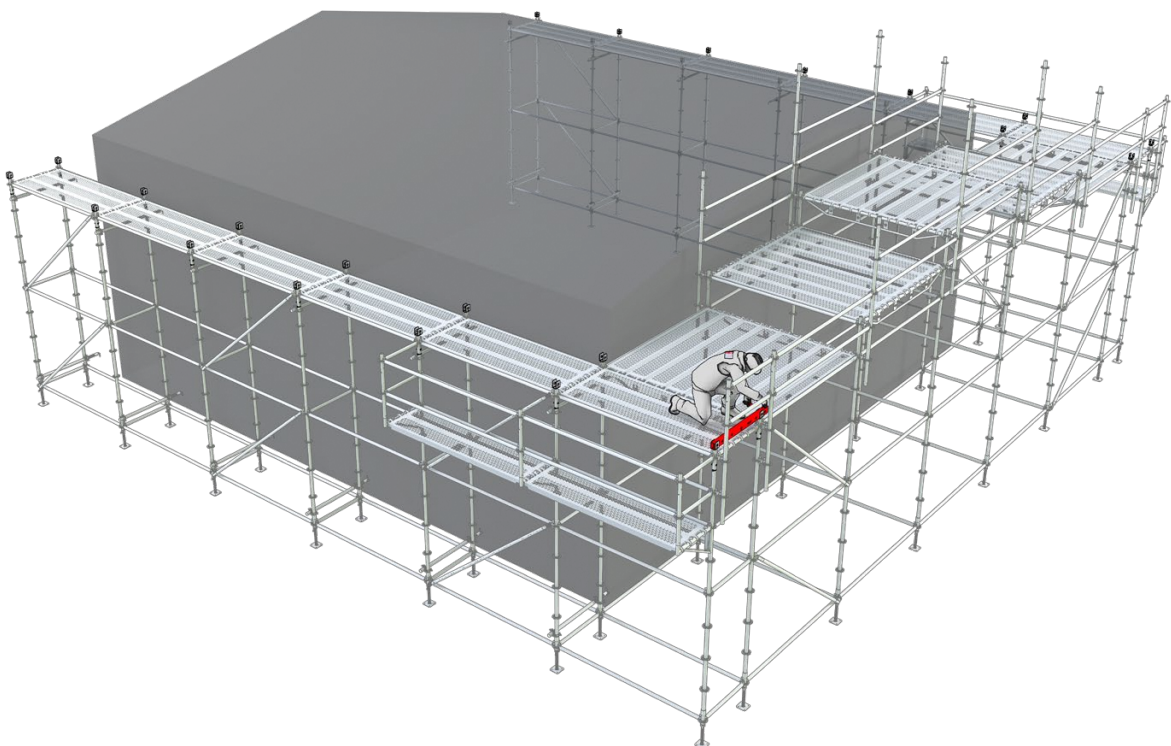
7.0 Typical Installation guide - Mobile Temporary Roofs

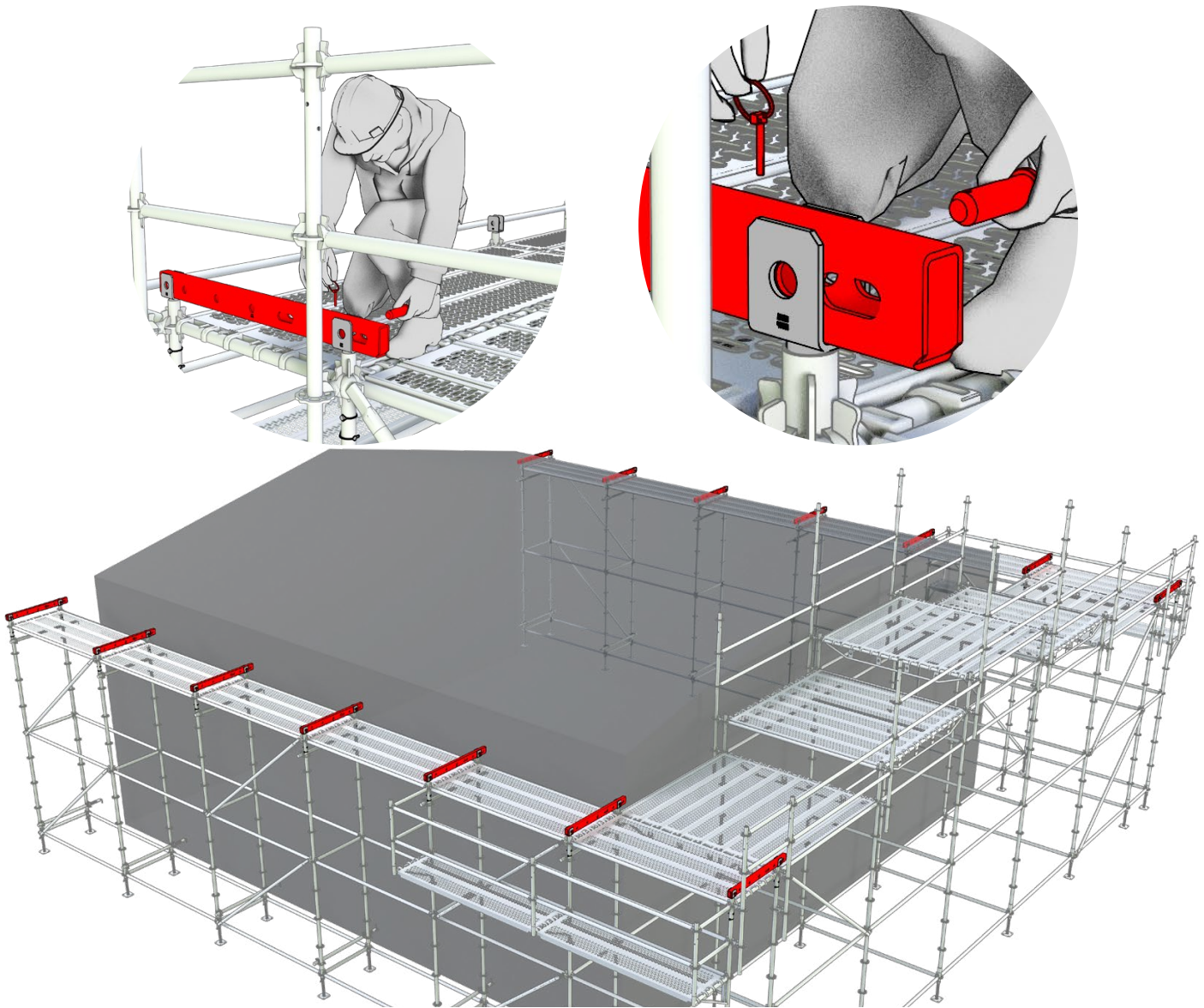
7.1 Install the internal support U-head (TA0002) into an open ended standard, or the external support U-head (TA0003) if using spigotted standards. Secure using 2x quick release pins (AF0001) per single support.



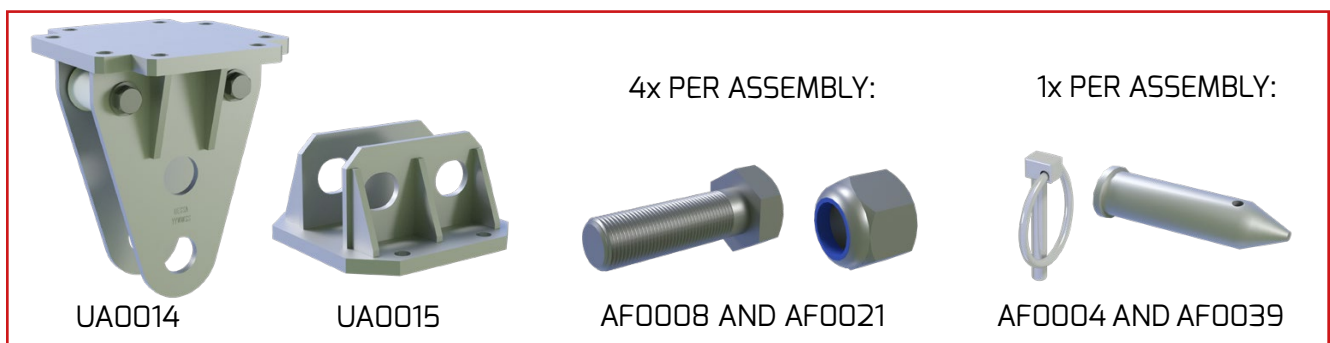


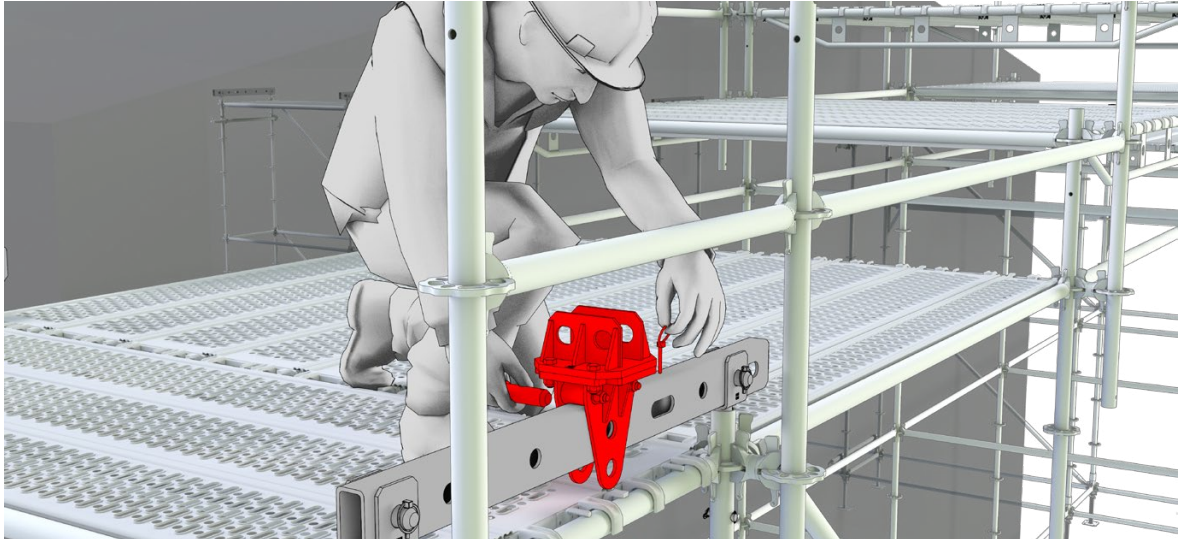
7.2 Locate the sysTRAX™ bearers in the support U-heads, ensuring the slotted hole is on the **inside** of the scaffold. Fix into position using 2x 30mm locking pins (AF0004) and linch pins (AF0039).





7.3 Fix the sysTRAX™ sliding supports (UA0014) to the sysTRAX™ connection plates (UA0015) using four hex lock nuts (AF0008) and four hex bolts (AF0021) per assembly. Note that this stage may not be necessary as usually these items are supplied as pre-built assemblies.





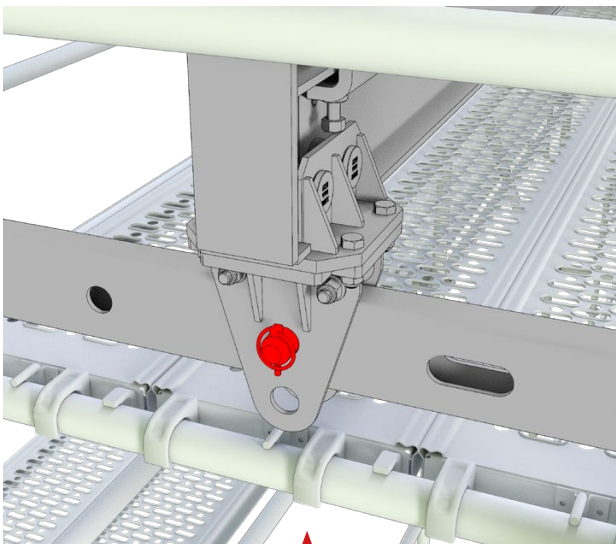
The sliding assembly can be fitted to the bearer in two ways:

7.3.1 Fixed: secured through the central hole of sliding assembly and bearer, providing horizontal and vertical restraint.

7.3.2 Free: secured through the lower hole of sliding assembly and underneath bearer, providing vertical restraint only.

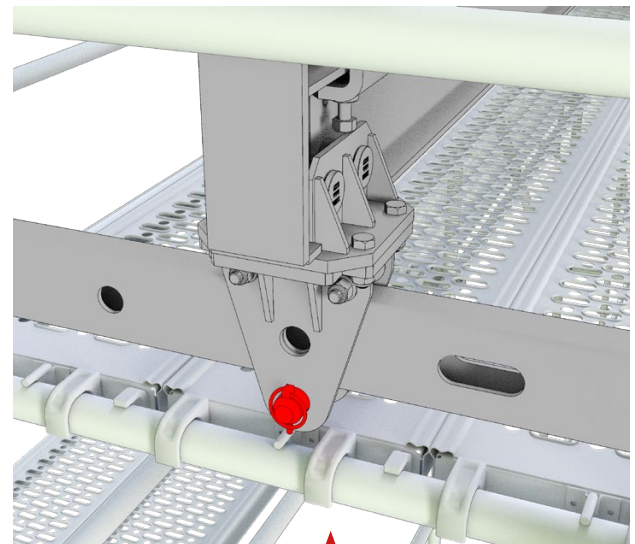
Fixing one side of the roof and allowing the opposite support to slide will reduce the lateral loads exerted on the support scaffold. Only **Fixed-Fixed** or **Fixed-Free** are permissible configurations. It is **not** permissible to install as **Free-Free**.

7.3.1)

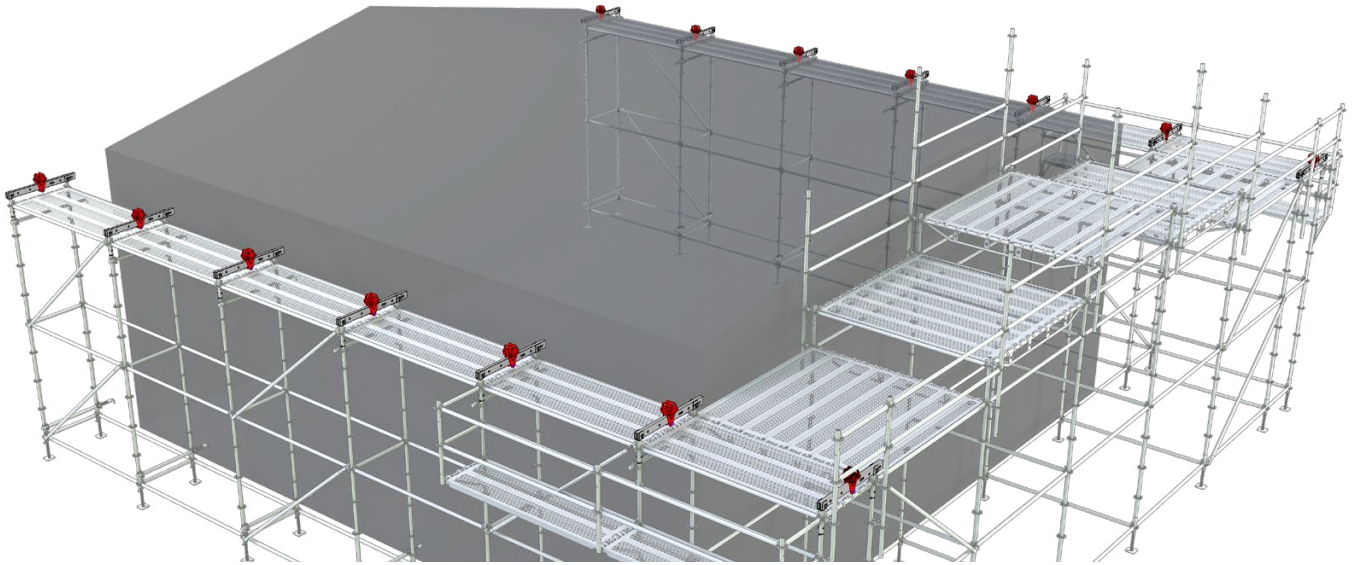


Fixed: Horizontal and vertical restraint

7.3.2)



Free: Vertical restraint only
(MAX: 1 Side only)



7.4 Locate the sysTRAX™ beams into the desired positions and fix into the connection plates (UA0015) using 2x 30mm locking pins (AF0004) and linch pins (AF0039).

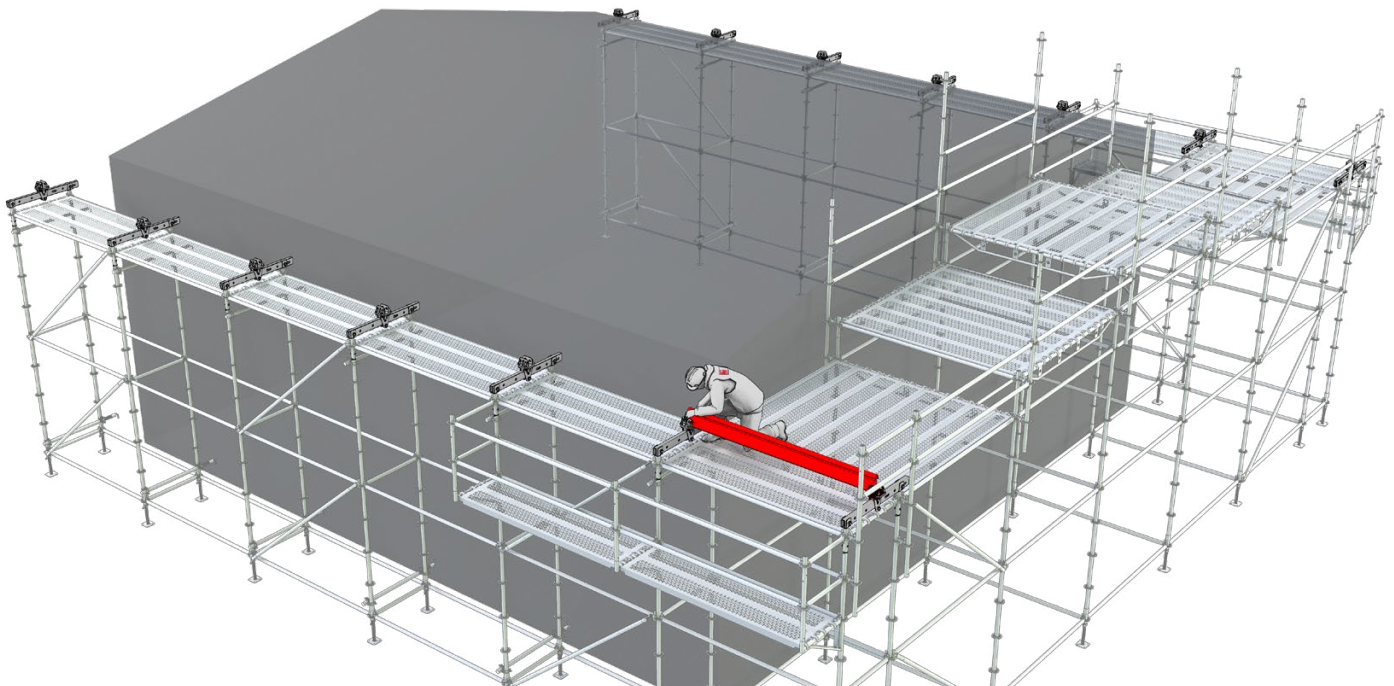


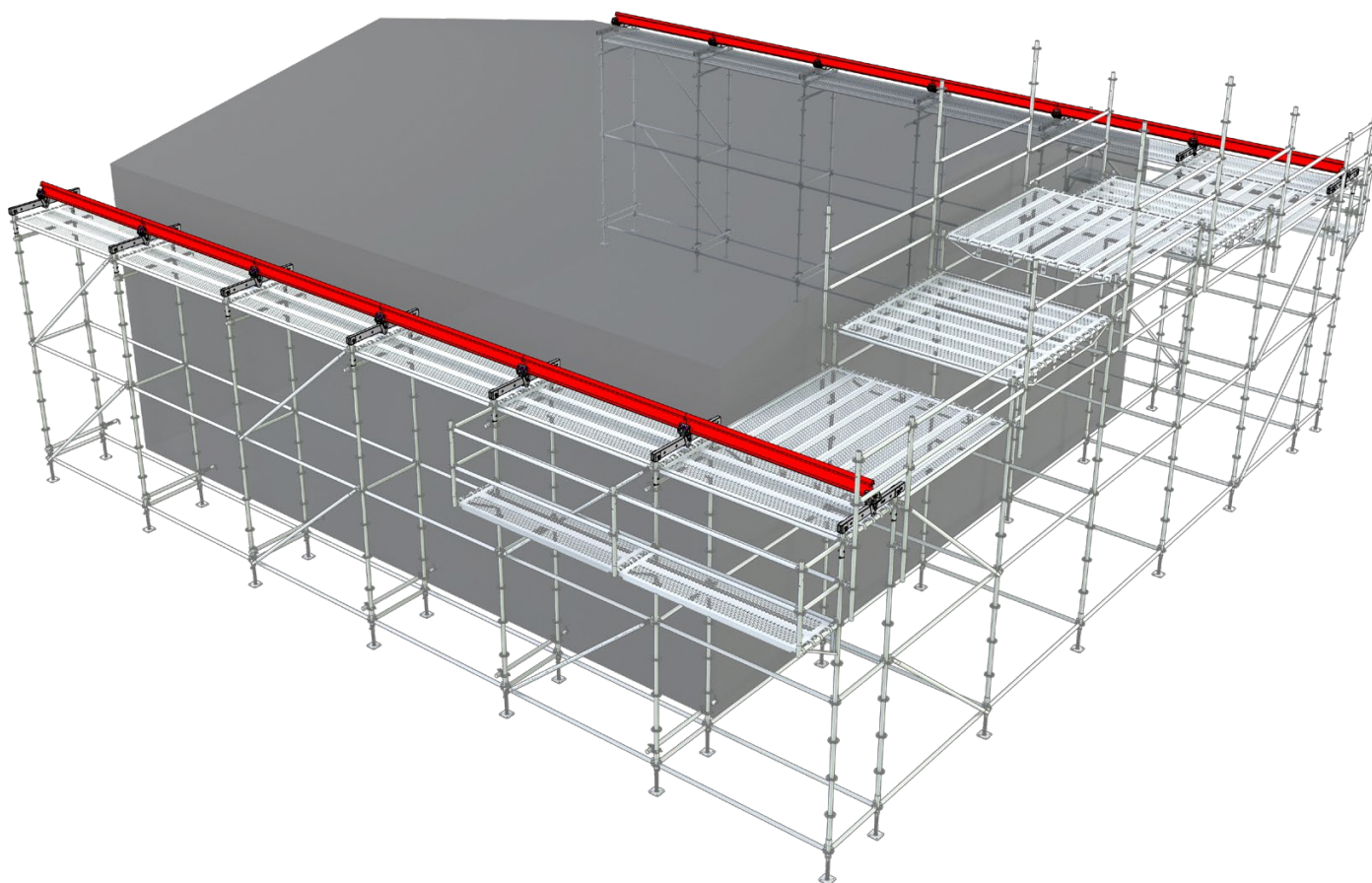
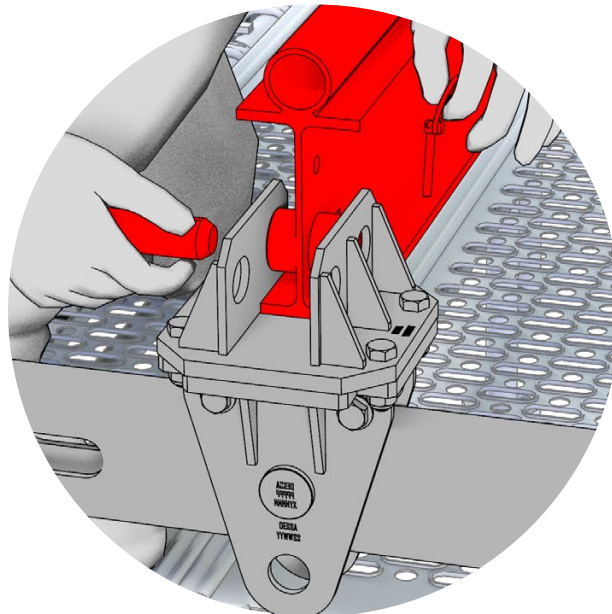
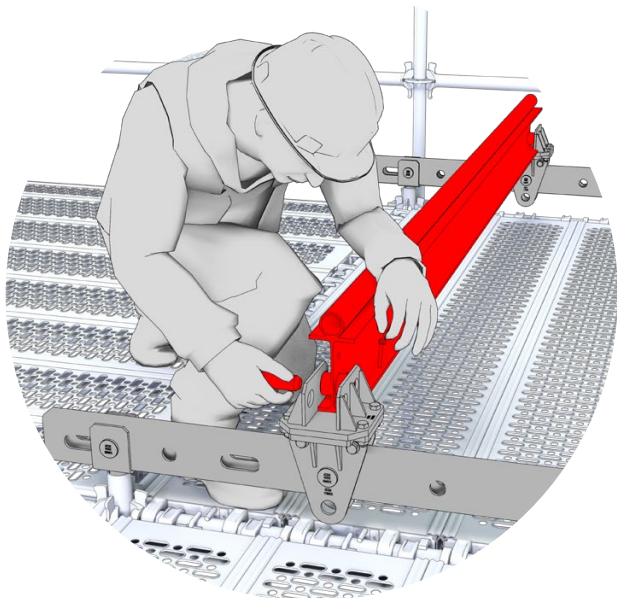
BQ0390/ BQ0400/ BQ0500/ BQ0700/ BQ0732/ BQ1000/
BQ1065/ BQ1072/ BQ1088/ BQ1500/ BQ1572/ BQ2000/
BQ2072/ BQ2500/ BQ2572/ BQ3000/ BQ3072

2x PER sysTRAX™ BEAM:

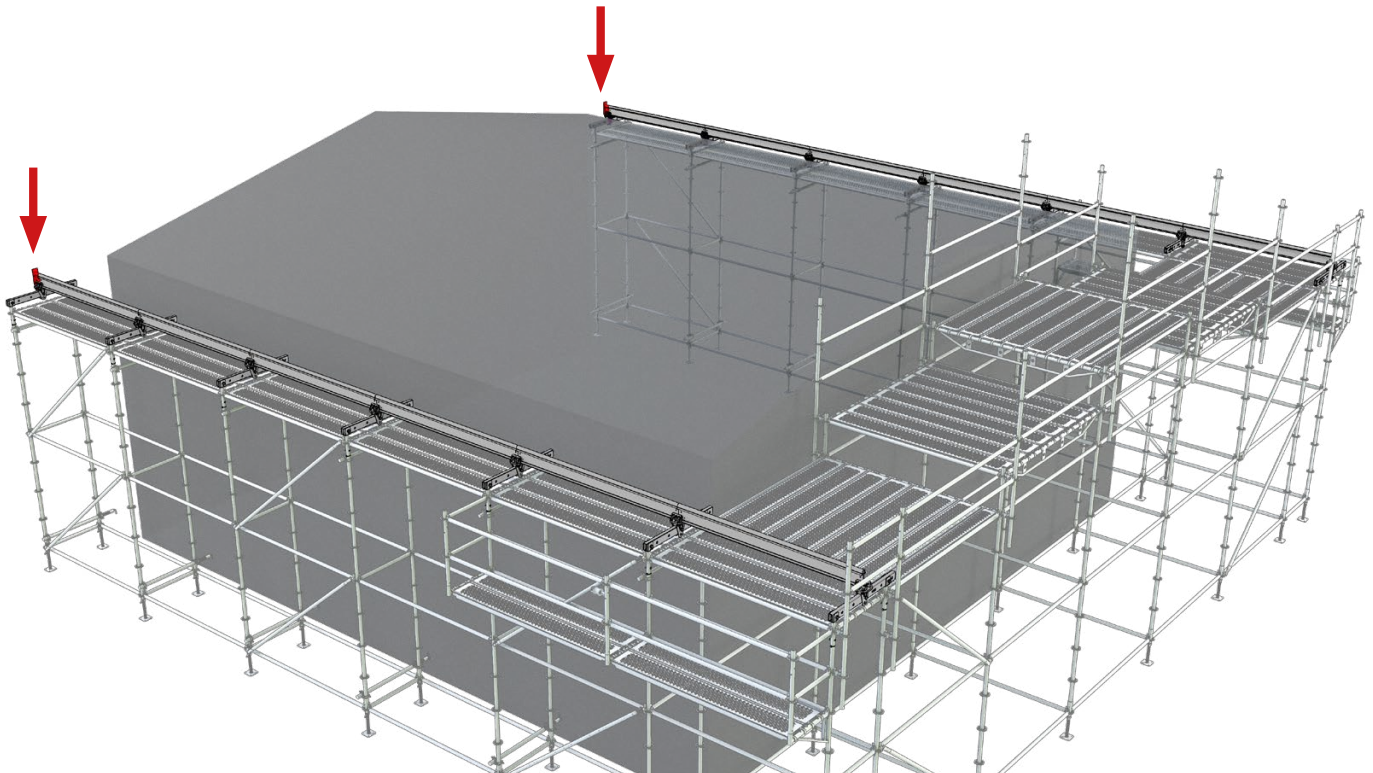
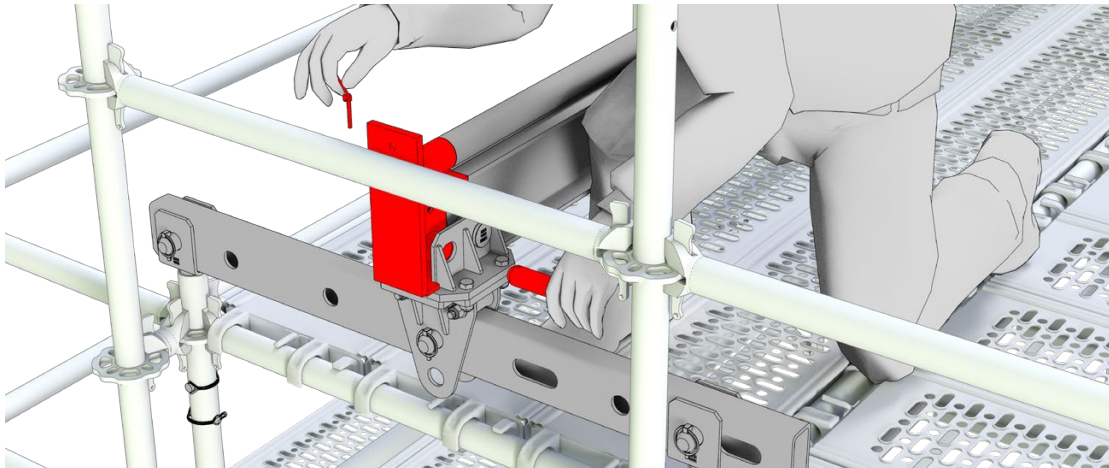


AF0004 AND AF0039

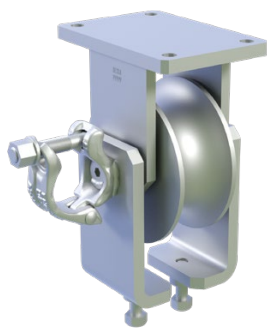




7.5 Attach the sysTRAX™ end closer to one end of each overall sysTRAX™ beam run using 30mm locking pins (AF0004) and linch pins (AF0039). This should be done at the opposite end of the structure from where it is intended to erect the roof bays.



7.6 Assemble the castors (AA0002) with the desired top plates using 4x hex lock nuts (AF0007/AF0008) and hex bolts (AF0021) per castor assembly. From the unclosed end, slide the assemblies onto the sysTRAX™ beams. For modular top plates, stabilise the consecutive assemblies with pairs of Altrad scaffold ledger (I). For universal top plates install continuous scaffold tube through the axle mounted couplers on the castors (II). Assemblies can be further stabilised by temporarily fixing them to adjacent scaffold.

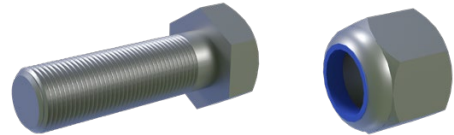


AA0002

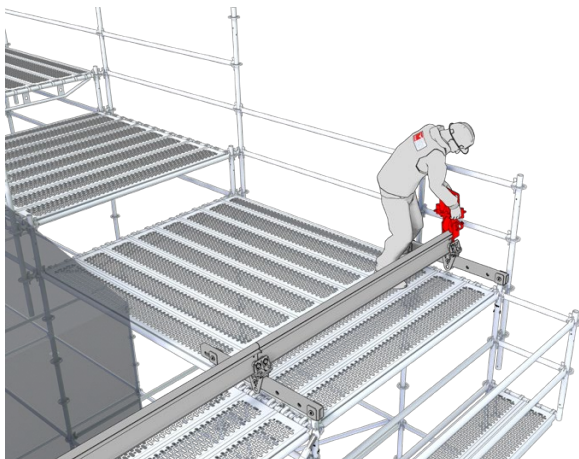


UA0000/UA0018/UA0028/
UA0029/UA0030
AA0004/AA0005/AA0007

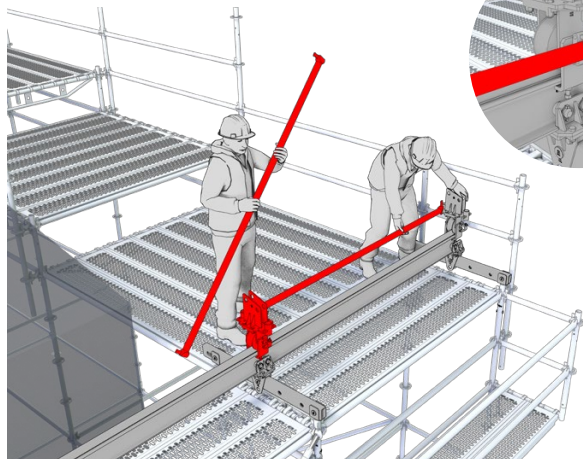
4x PER ASSEMBLY:



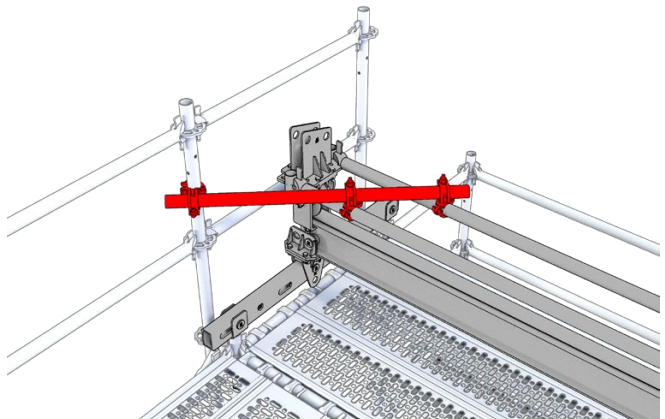
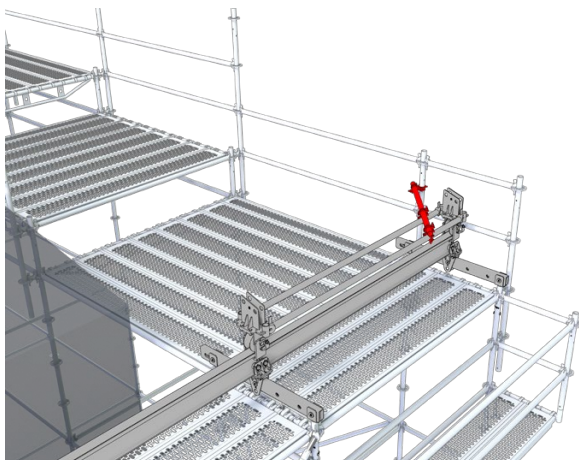
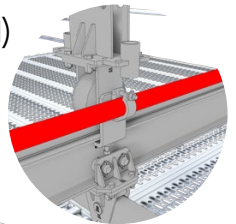
AF0007/AF0008
AND AF0021



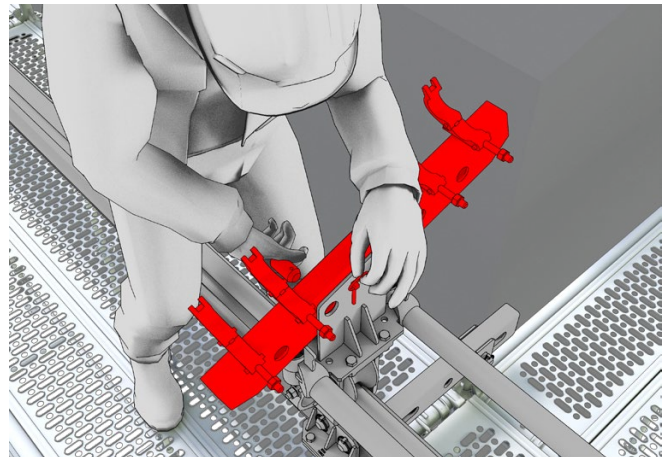
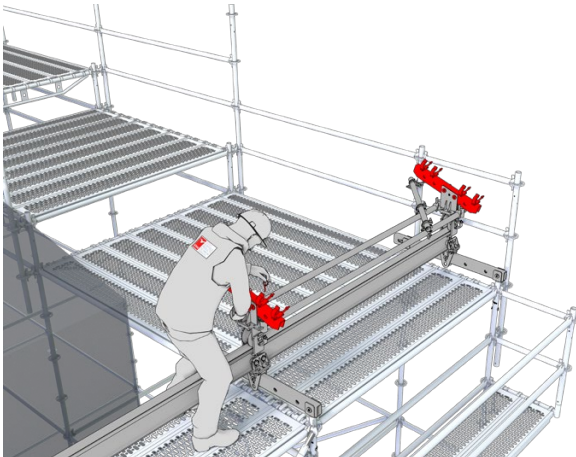
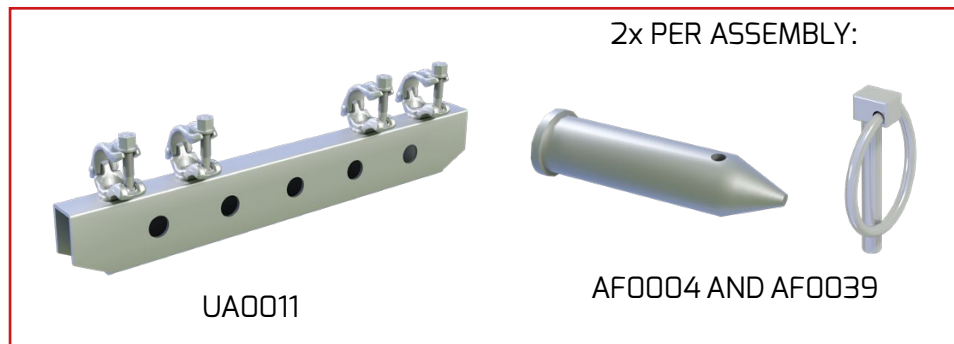
(I)



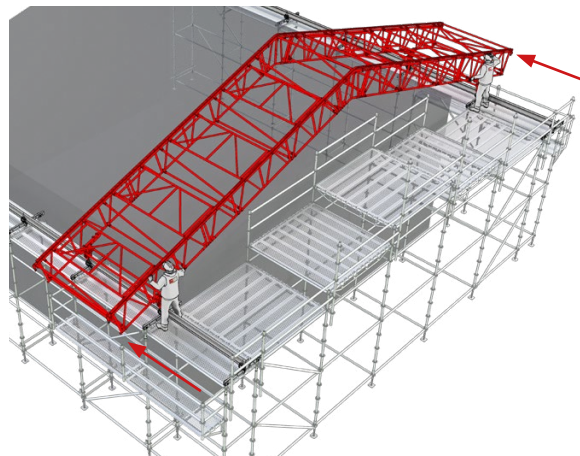
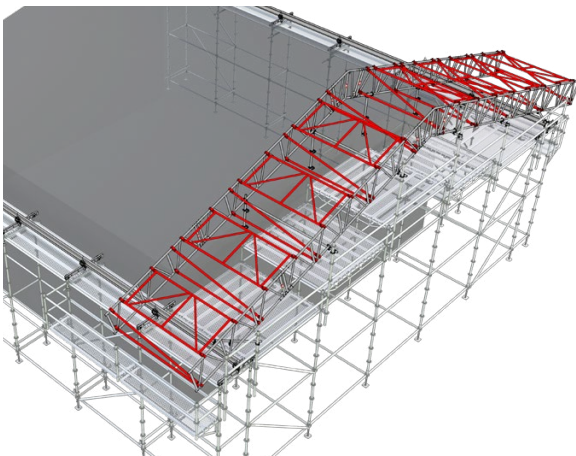
(II)



7.7 Attach the chosen beam support components to the castor assemblies and prepare them for beam installation. In this case the beams will be installed onto the beam connector (UA0011) using 2x 30mm locking pins (AF0004) and linch pins (AF0039).

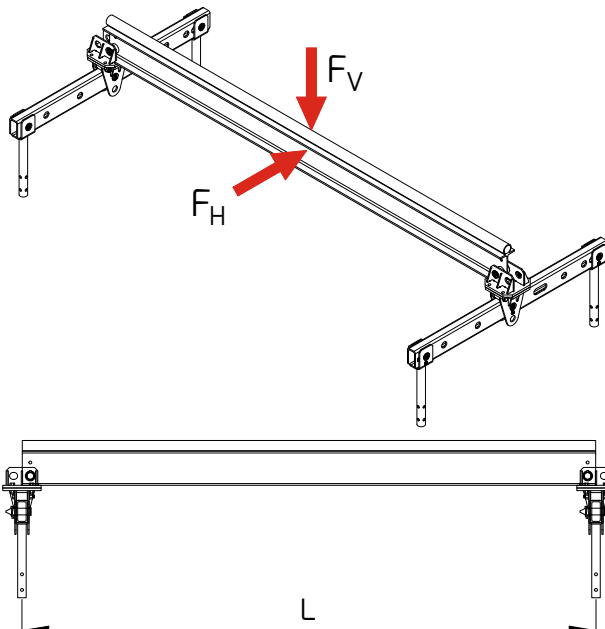
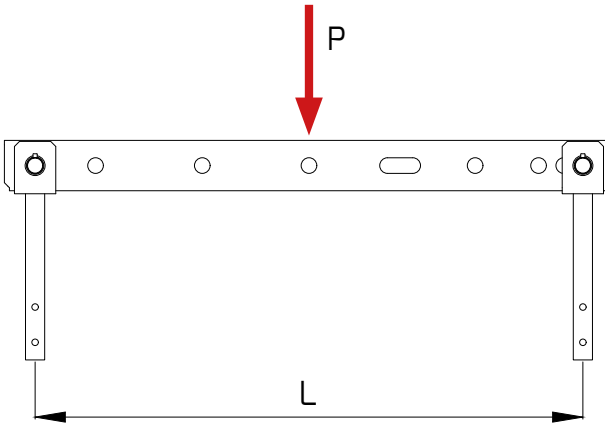


7.8 Proceed to assemble the roof using the desired technique. This can be done by crane (bays will be assembled on the ground and raised up) or by hand (beamlines assembled on top of support scaffold.). See Quick Start Guides for in-depth roof installation.



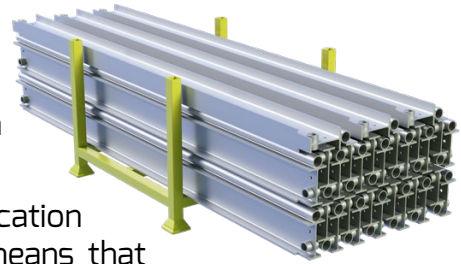
7.9 On completion of all the roofs bays, close the open end of the sysTRAX™ runway using the sysTRAX™ end closers (BQ0001). Repeats steps shown in section 7.5.

8.0 Technical Details

Component	Support Centres, L (m)	Permissible Central Point Load, FV (kN)	Permissible Central Point Load, FH (kN)
<p>sysTRAX™ Beam</p> 	1.00	140.1	36.4
	1.09	128.8	33.3
	1.50	87.6	23.6
	1.57	82.3	22.5
	2.00	58.3	17.5
	2.07	55.2	16.9
	2.50	40.7	13.9
	2.57	38.7	13.5
	3.00	29.4	11.5
	3.07	28.1	11.1
Component	Support Centres, L (m)	Permissible Central Point Load, P (kN)	
<p>sysTRAX™ Bearer</p> 	0.390	96.5	
	0.400	94.1	
	0.700	53.7	
	0.732	51.4	
	1.000	37.6	
	1.065	35.3	
	1.088	34.6	

9.0 Storage

sysTRAX™ components should be stored in basket stillages, and parts bins. sysTRAX™ beams should be stored upright in 4 post stillages or securely banded together in small stacks.



While it is recommended to store sysTRAX™ in a sheltered location where possible, the high quality protective galvanisation means that components can be stored outdoors if necessary with minimal degradation.

Both the castors (AA0002) and sysTRAX™ sliding support (UA0014) should be stored in a sheltered location where possible to prevent water ingress to the moving parts and prolong the life of the rolling components.

A single standard stillage can accommodate 29 sysTRAX™ beams, as illustrated above.

PART No.	BAY SIZE (mm)	UNIT WEIGHT (kg)	WEIGHT OF 29 (kg)	NUMBER IN 1000kg
BQ0400	400	8.80	255.2	113
BQ0500	500	10.92	316.68	91
BQ0700	700	15.16	439.64	65
BQ0732	732	15.84	459.36	63
BQ1000	1000	21.52	624.08	46
BQ1065	1065	22.90	664.10	43
BQ1072	1072	23.04	668.16	43
BQ1088	1088	23.38	678.02	42
BQ1500	1500	32.11	931.19	31
BQ1572	1572	33.64	975.56	29
BQ2000	2000	42.71	1238.59	23
BQ2072	2072	44.23	1282.67	22
BQ2500	2500	53.30	1545.70	18
BQ2572	2572	54.83	1590.07	18
BQ3000	3000	63.90	1853.10	15
BQ3072	3072	65.43	1897.47	15

10.0 Maintenance

The sysTRAX™ beams, bearers, connection plates, and U-heads do not require maintenance.

The castor (AA0002) wheels must freely move, and the axle mounted coupler should be in usable condition and able to freely rotate. Both bolts must be attached to the anti-uplift brackets on the side of the castors. All bolts must be tightly secured.

The sysTRAX™ sliding support (UA0014) rollers must move freely within their assemblies, and all bolts for these parts must be tightly secured.

It is important to check all the bolts are secure on pre-assembled castor assemblies before installation.



