KOMBI®
MODULAR ACCESS

SAYFA GROUP

1300 072 651
KOMBIACCESS.COM

INSTALLATION MANUAL

ENGINEERED STAIR & PLATFORM SYSTEMS BUILT MODULAR PROVIDING ON-SITE MEASUREMENT FLEXIBILITY & SIMPLE INSTALLATION

⚠ MUST BE READ AND UNDERSTOOD PRIOR TO INSTALLATION

KOMBI® MODULAR ACCESS SYSTEM

SAYFA GROUP leads the industry in the design, installation and management of access and fall protection safety systems.

KOMBI is a proprietary modular stair and platform system designed to allow on-site assembly and customisation to suit exact site parameters, reducing design and delivery lead times considerably.

KOMBI is the safest solution for access and fall protection whilst accessing and maintaining elevated systems and equipment.

#	DESCRIPTION	
1	3 SIXTY	Fall arrest anchors
2	TRAVEL 8	Roof or wall mount static lines
3	SENTRY	Roof mount guardrails
4	ON-TRAK	Roof walkways (grey)
5	PROTEX	Skylight protectors
6	RAPTOR	Overhead fall arrest rails

#	DESCRIPTION	
7	KATT	Rung Ladder supports
8	VISTA	Modular fold down ladders
9	KOMBI	Stairs & platforms
10	ALTO	Step ladders & bridges
11	SKYDORE	Roof access hatches

For more information, please contact SAYFA GROUP directly.

DOWNLOAD THE AUGMENT REALITY APP THEN SCAN HERE FOR 3D KOMBI IMAGE

IT'S THE SAYFA WAY

KOMBI® FEATURES

POST BRACKET
Attaches support structure to platform

CORNER BRACKET
Secures platform corner structure

ADJUSTABLE STAIR BRACKET
Allows varying degree of stair angle and tread positioning

PLATFORM FOOT
Secures platform to ground

KOMBI T-BOLT
Proprietary KOMBI fastening system

STAIR FOOT
Attaches stair to landing surface

UNIQUE PRODUCT FEATURE

MODULAR ADVANTAGES

VARIABLE STAIR ANGLE & TREAD SPACING

KOMBI stairs can be adjusted to suit the required stair angle whilst allowing each individual tread to be leveled and spaced accordingly. This minimises pre-installation precise on-site measurement and fabrication requirements resulting in significant time savings.

PATENTS AND DESIGN REGISTRATIONS APPLY

INSTALLATION REQUIREMENTS

MUST BE READ PRIOR TO USE

1. This system must only be installed by competent persons trained in the selection, use and maintenance of access systems.
2. Persons installing this system are required to have a comprehensive knowledge of the Australian Standards, codes of practice and industry guidelines that relate to the selection, use and maintenance of access and fall protection systems and equipment.
3. Integrity and suitability of the structure to which KOMBI is attached must be approved by a structural engineer unless it is clear to a competent person as to the suitability of the support structure.
4. Read installation and operating instructions carefully before commencing any work. Consent to deviate from the installation guide must be obtained in writing from the manufacturer.
5. Conduct an initial work/risk assessment, and take all reasonable precautions to eliminate or control potential hazards and risks during the installation of this product.
6. Complete all necessary WHS documentation, including a Job Safety Analysis and Work Method Statement and obtain consent from responsible person in workplace prior to commencement of work.
7. Installers must possess valid industry licenses, be appropriately trained, and comply with all relevant WHS legislation prior to installation of this product.
8. Do not modify or remove any element of the support structure without prior authorisation by a qualified engineer.
9. Decorative coatings and coverings must be removed to ensure correct evaluation of structure prior to attachment of system.
10. Any re-routing of electrical and/or other services must be carried out by qualified or authorised personnel.
11. Appropriate temporary access and safety equipment must be used during installation, such as platform ladders or scaffolding and fall protection anchorage points.
12. In case of emergency, access and fall protection systems must be installed by a minimum of two persons.
13. Do not tamper with, modify or remove any part this system unless authorised by the manufacturer in writing.
14. Appropriate labels or markings must be attached to each system and include the following:
    - System for personnel use only
    - Service entry date
    - Next examination/service due date
    - Maximum designed load ratings
    - Installer/Certifier contact details
15. Documentation confirming correct use and maintenance of the system and equipment must be provided to the workplace manager on completion of installation.

⚠ **SAYFA GROUP instructions and recommendations, drawings and diagrams, and all other documentation are copyright, errors and omissions excepted, and must be carefully read and implemented. Any assistance or guidance given is without prejudice, and SAYFA GROUP cannot be held responsible for any inaccuracy or misinterpretation whatever. Failure to follow site installation requirements and warnings, may result in serious injury or death. SAYFA GROUP accepts no direct or indirect responsibility and/or consequential liability whatever, for any products and systems incorrectly installed or certified. SAYFA GROUP cannot warrant the integrity or suitability of the structure to which the products may be attached. Prior assessment must be made by a qualified structural engineer, unless the structure is authorised or approved by a competent person.**

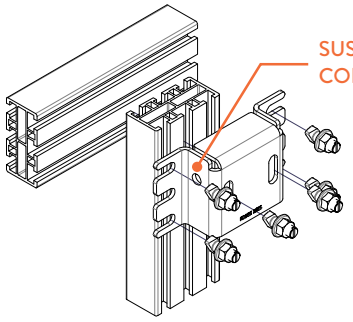
LIMITATIONS

MUST BE READ PRIOR TO USE

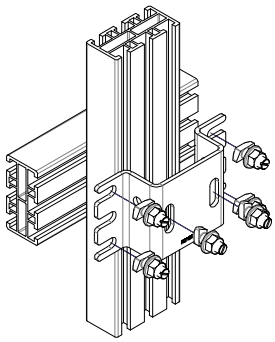
1. KOMBI stairway and platform system is rated to 2.5kPa live load (250kg/m^2)
2. KOMBI platforms are designed for a maximum free standing height of 6000mm. Taller platforms are achievable based on engineer's specifications.
3. Stairs can have a max of 17 treads (18 risers) as per AS1657-2018.
4. Platform deflection has been based on two variables, moderate deflection and minimal deflection. Moderate deflection is calculated using span length divided by 100mm. Minimal deflection is calculated using span length divided by 200mm.
5. Deflection is based on a uniformly distributed load combination of dead load + 0.7 live load. (G+0.7Q)
6. KOMBI platform is not designed for dead loads other than self weight. Please consult with the Sayfa team for these design scenarios.
7. Correct lock off position of T-Bolt is critical to ensure integrity of system. The slot in the T-Bolt must be perpendicular to the extrusion slot.
8. Not suitable for BCA/ NCC requirements (general public access.) This system is designed for industrial and maintenance access only.
9. Decorative coating and coverings must be removed to ensure correct evaluation of structure prior to attachment of system.
10. Do not tamper with or make alterations to system components without manufacturer's consent.
11. This system is not to be used for tethering, lifting machinery or equipment.
12. The access system must be checked by a competent system inspector as recommended:
    - Non corrosive/mild environment - 12 monthly
    - Corrosive/harsh environment - 6 monthly (more frequent inspection may be required).

⚠ **SAYFA GROUP recommends that persons working at heights do not work alone in case of an emergency and help is required.**
Should any part of the system/equipment have been subjected to abnormal loading, use must be discontinued until replaced/ recertified by a competent person.

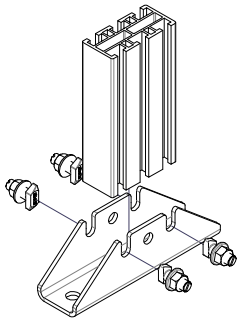
CONNECTION DETAILS



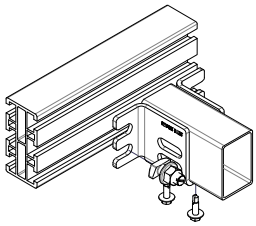
NAME	KOMBI 80 Top Support Bracket
PRODUCT CODE	KB021
MATERIAL	Powder coated stainless steel
USE	Connects KOMBI 80 post to platform
NOTE	If this bracket is used to support a suspended platform, drill M11 hole through extrusion using bracket suspension hole as a guide. M10 bolt is required to be used.



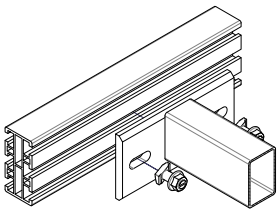
NAME	KOMBI 80 Post Through Bracket
PRODUCT CODE	KB022
MATERIAL	Powder coated stainless steel
USE	Connects KOMBI 80 post to platform



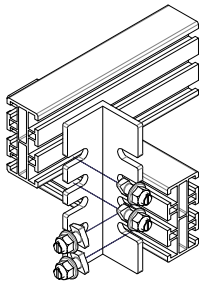
NAME	KOMBI 80 Base Support Foot
PRODUCT CODE	KB026
MATERIAL	Powder coated stainless steel
USE	Secures KOMBI post to ground



NAME	KOMBI 80 Horizontal Support Bracket
PRODUCT CODE	KB012
MATERIAL	Powder coated stainless steel
USE	Fixes platform cross supports to platform stringers

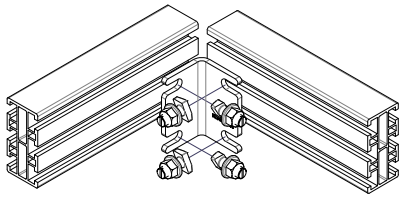


NAME	KOMBI Platform Cross Support
PRODUCT CODE	KB060
MATERIAL	Aluminium
USE	Supports and secures platform

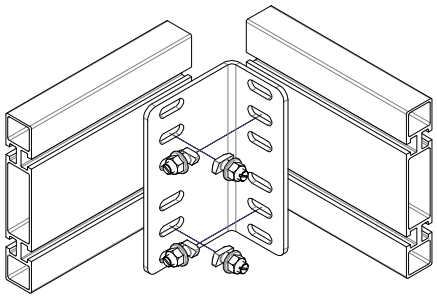


NAME	KOMBI Joist To Bearer Bracket
PRODUCT CODE	KB004
MATERIAL	Aluminium
USE	Connects KOMBI 80 joist to bearers

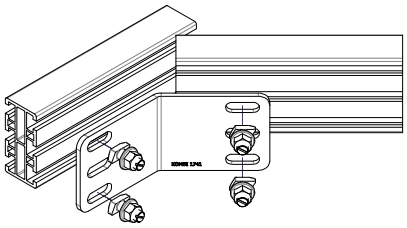
CONNECTION DETAILS



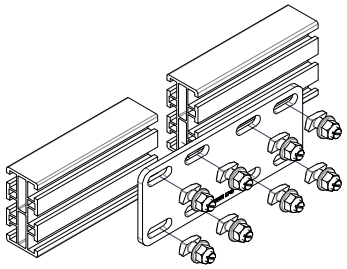
NAME	KOMBI 80 Angle Bracket
PRODUCT CODE	KB013.80
MATERIAL	Powder coated stainless steel
USE	90° KOMBI 80 corners



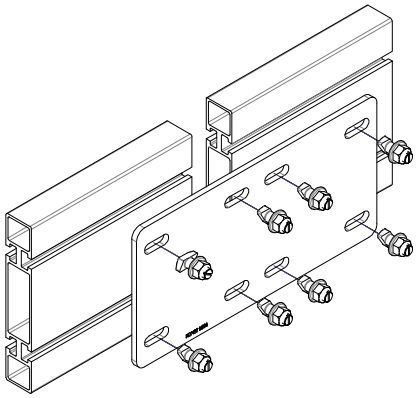
NAME	KOMBI 180 Angle Bracket
PRODUCT CODE	KB013.180
MATERIAL	Powder coated stainless steel
USE	90° KOMBI 180 corners



NAME	KOMBI 80 Angle Bracket Kit 45°
PRODUCT CODE	KB015.80
MATERIAL	Powder coated stainless steel
USE	KOMBI 45° angle corners

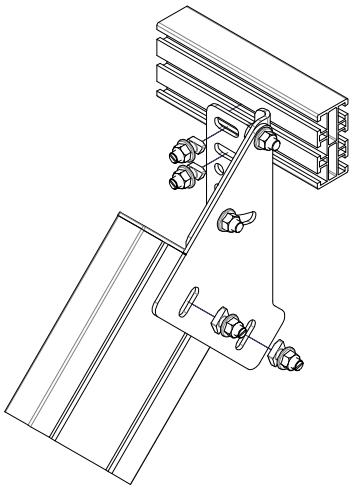


NAME	KOMBI 80 Post Joining Plate
PRODUCT CODE	KB016.80
MATERIAL	Aluminium
USE	Joins KOMBI 80 extrusion

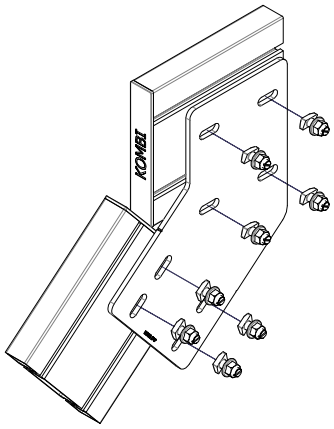


NAME	KOMBI 180 Joining Plate
PRODUCT CODE	KB016.180
MATERIAL	Aluminium
USE	Joins KOMBI 180 extrusion

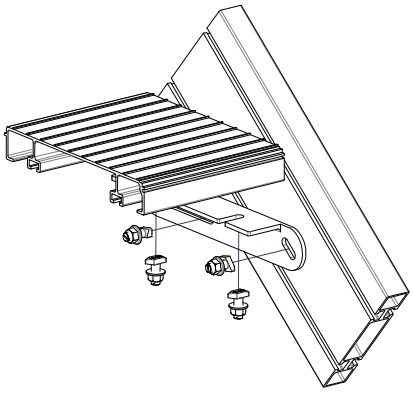
CONNECTION DETAILS



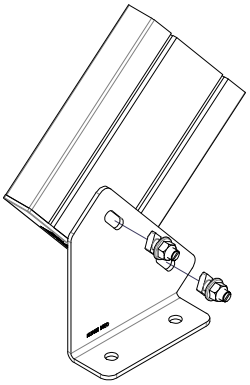
NAME	KOMBI Stair Mounting Adjustable Bracket
PRODUCT CODE	KB031
MATERIAL	Powder coated stainless steel
USE	Connects stair stringer to platform structure
NOTE	Stairs can be angled from 30° to 44°. For best flexibility, install stair at 40°.



NAME	KOMBI Stair Bridge Mounting Plate
PRODUCT CODE	KB014
MATERIAL	Powder coated stainless steel
USE	Connects stair stringer to platform structure

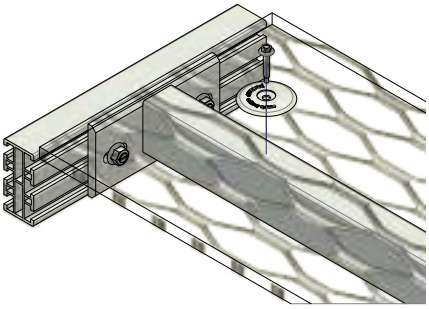


NAME	KOMBI Stair Tread Connection Bracket
PRODUCT CODE	KB019
MATERIAL	Aluminium
USE	Connects stair tread to stringers
NOTE	Maximum 17 treads / 18 risers in a single stair as per AS/NZS 1657.

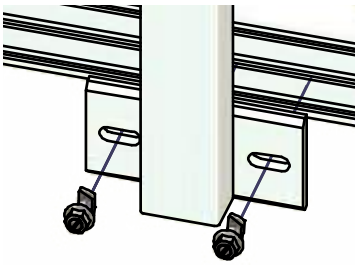


NAME	KOMBI Stair Foot 180mm Adjustable
PRODUCT CODE	KB034
MATERIAL	Powder coated stainless steel
USE	Connects stair stringer to ground

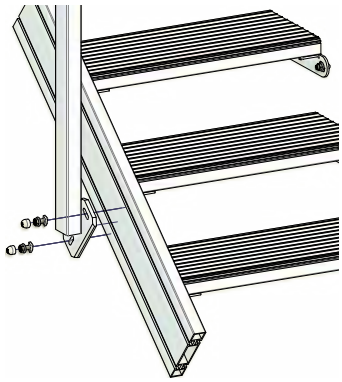
CONNECTION DETAILS



NAME	KOMBI Platform Deck
PRODUCT CODE	GW335
MATERIAL	Aluminium
USE	Provides walkway deck for platforms
NOTE	Platform maximum opening sizes no more than 15mm where possibility of persons accessing underneath. Use narrow mesh walkway deck in this application.

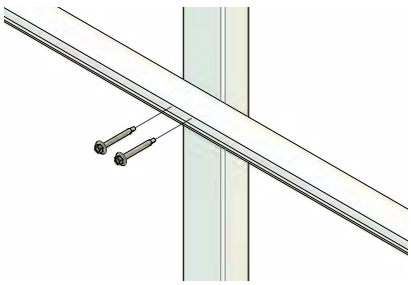


NAME	KOMBI Platform Guardrail Post
PRODUCT CODE	KB603S
MATERIAL	Aluminium
USE	Supports guardrail system



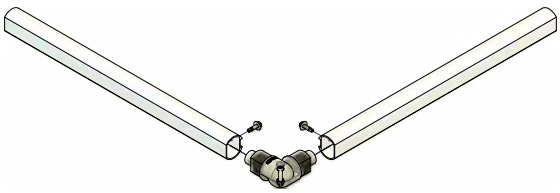
NAME	KOMBI Stair Handrail Post
PRODUCT CODE	KB601L (Left) & KB601R (Right)
MATERIAL	Aluminium
USE	Supports handrail system

NAME	KOMBI Guardrail / Handrail
PRODUCT CODE	GW374
MATERIAL	Aluminium
USE	Provides barrier / handrail for platform and stair

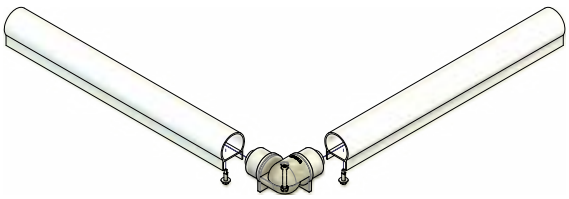


NAME	KOMBI Kneerail
PRODUCT CODE	GW375
MATERIAL	Aluminum
USE	Provides barrier / handrail for platform and stair

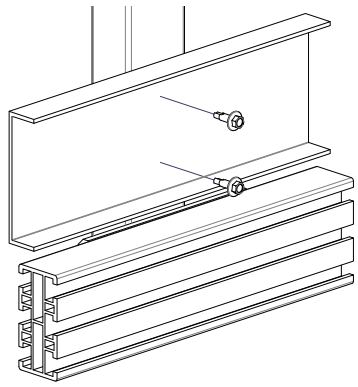
CONNECTION DETAILS



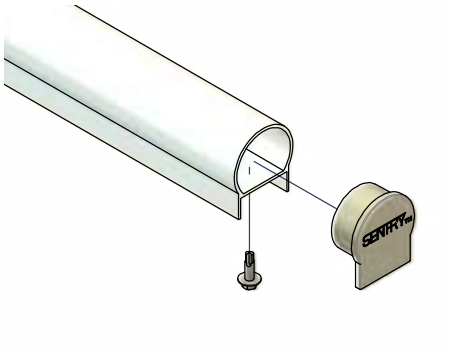
NAME	Kneerail Elbow Corner
PRODUCT CODE	GW383 (Kneerail)
MATERIAL	Die Cast Aluminium
USE	Connects rails together at corners
NOTE	Corners are adjustable to suit on-site requirements.



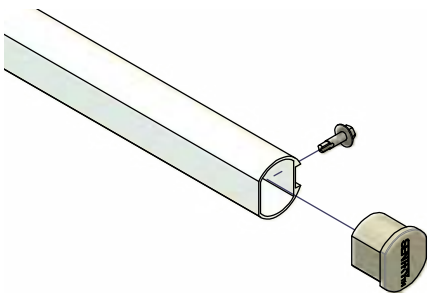
NAME	KOMBI Handrail Elbow
PRODUCT CODE	GW382 (Handrail)
MATERIAL	Die Cast Aluminium
USE	Connects rails together at corners
NOTE	Corners are adjustable to suit on-site requirements.



NAME	KOMBI Toe Board 100 x 25 C Section
PRODUCT CODE	GW320
MATERIAL	Aluminium
USE	Prevents objects from sliding off platform
NOTE	A maximum gap of 10mm is allowed between platform deck and underside of toe board.



NAME	KOMBI Handrail End Cap
PRODUCT CODE	GW378
MATERIAL	Die Cast Aluminium
USE	Caps exposed ends of handrail



NAME	KOMBI Kneerail End Cap
PRODUCT CODE	GW379
MATERIAL	Die Cast Aluminium
USE	Caps exposed ends of kneerail

FIXINGS & END CAPS

NAME	KOMBI T-Bolt (M10)
PRODUCT CODE	KB005
MATERIAL	Stainless steel
USE	Fixes all brackets and plates in the KOMBI system
NOTE	Slot on T-Bolt must be perpendicular to extrusion slot to ensure correct insertion.

NAME	KOMBI T-Bolt Nut Cap
PRODUCT CODE	KB005-C (Included with KOMBI T-Bolt)
MATERIAL	High density plastic
USE	Caps all exposed T-Bolt ends

NAME	KOMBI 80 End Cap
PRODUCT CODE	KB092.80
MATERIAL	High density plastic
USE	Caps exposed ends of KOMBI 80 extrusion

NAME	KOMBI 180 End Cap
PRODUCT CODE	KB092.180
MATERIAL	High density plastic
USE	Caps exposed ends of KOMBI 180 extrusion

NAME	KOMBI Certification Plate
PRODUCT CODE	SD970 KOMBI
MATERIAL	Aluminum
USE	Identifies install & certification information

TOOLS & EQUIPMENT

IMPACT WRENCH

15MM SOCKET AND WRENCH

5 /16 NUT SETTER

DROP SAW (POWERED UNIT) CUT OFF SAW

PITCH METER

TAPE MEASURE

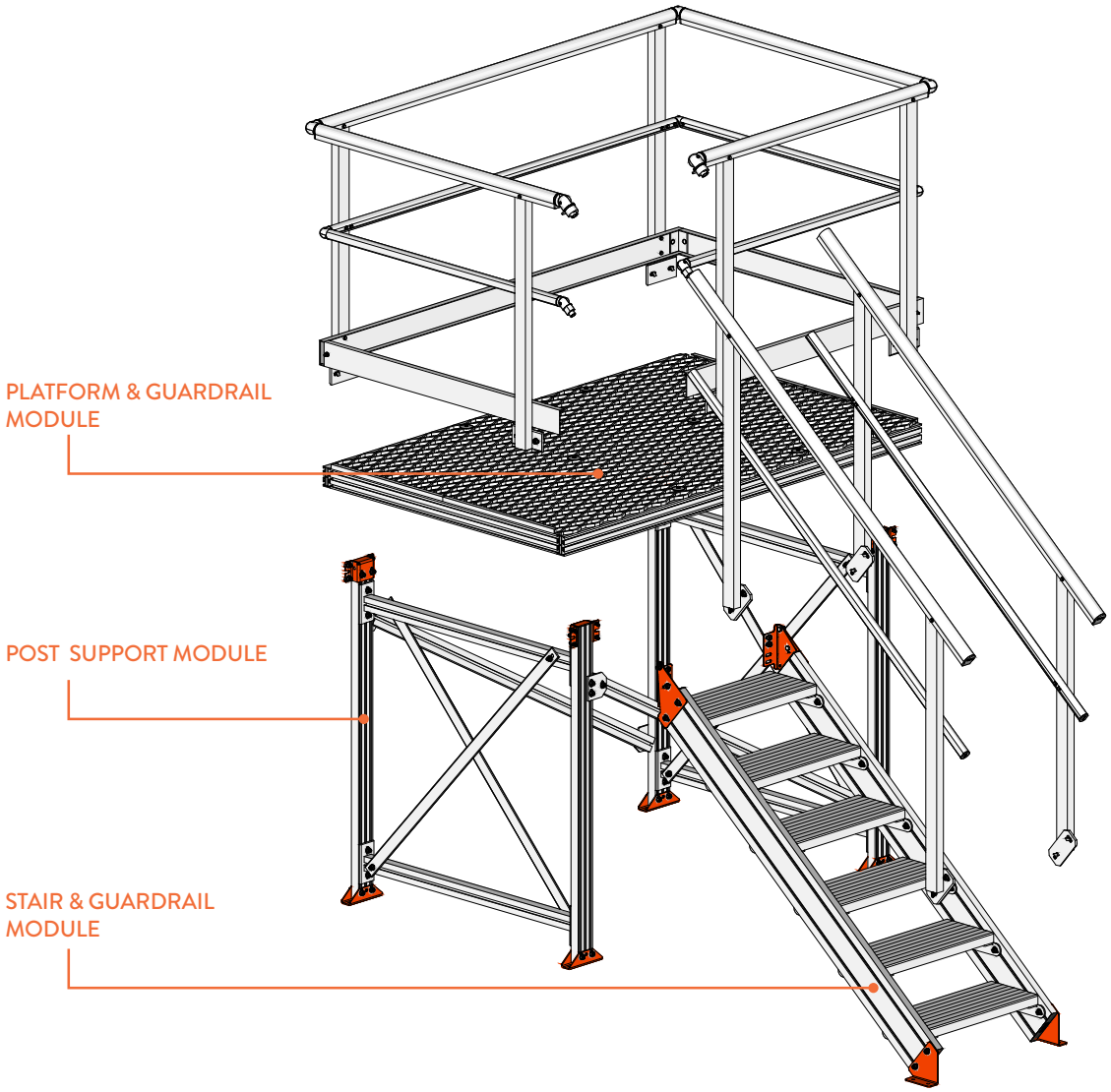
MARKING PEN

SPIRIT LEVEL

SYSTEM ASSEMBLY

KOMBI IS MADE UP OF 3 PRIMARY MODULES:

- Post support module - assembled first
- Platform module - assembled second
- Stair module - assembled third



VIEW STAIR PLATFORM/ SUPPORT ASSEMBLY VIDEO

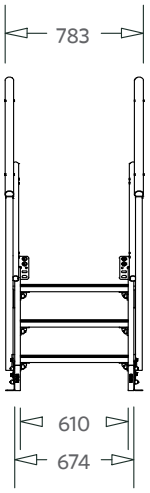
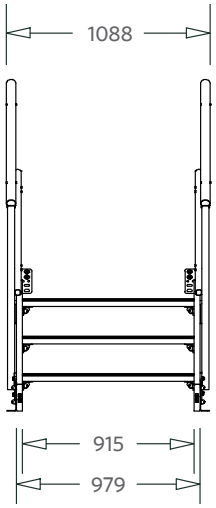
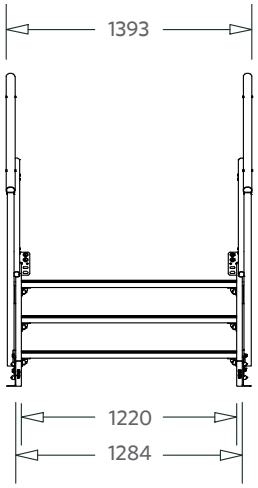
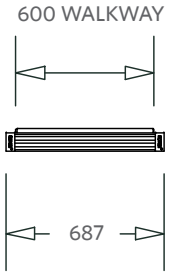
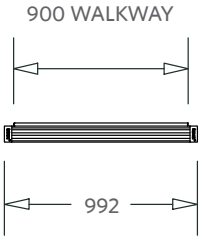
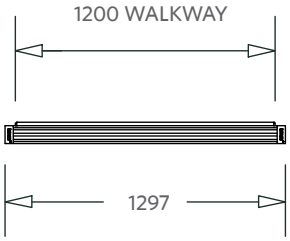
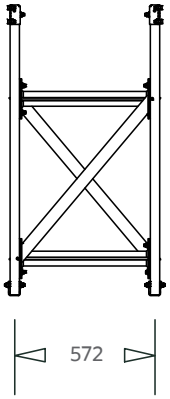
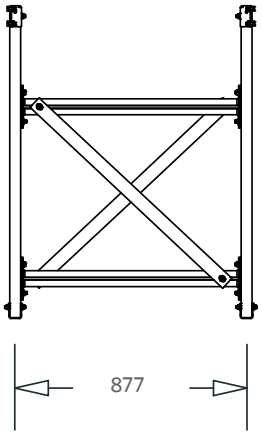
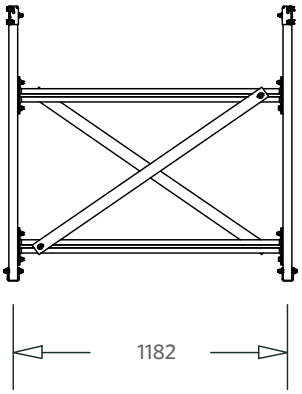
VIEW STAIRWAY ASSEMBLY VIDEO

VIEW GUARDRAIL ASSEMBLY VIDEO

DIMENSIONS

KOMBI DIMENSIONS

- KOMBI systems are available in three standard widths, 600 series, 900 series and 1200 series. Exact dimensions are shown below.
- Custom widths can be designed and built to suit specific site requirements.(Additional lead times may be required.)

	600 SERIES	900 SERIES	1200 SERIES
STAIR			
PLATFORM			
POSTS			

T-BOLT ASSEMBLY

KOMBI T-BOLT

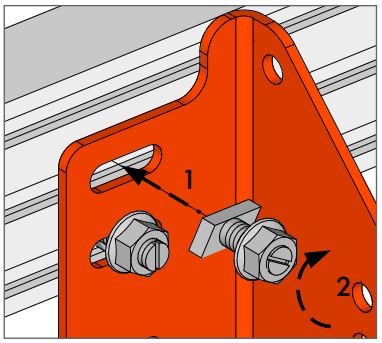
- The KOMBI T-Bolt is an M10, 316 stainless steel assembly designed for the KOMBI system.
- A slot on the end of the bolt is a visual aid to ensure correct lock position once inserted into the extrusion slot.

INSTALLATION REQUIREMENTS

- It is recommended that an impact wrench gun be used to tighten fixings.
- T-Nut tightening torque: 60 Nm.

KOMBI T-BOLT INSERTION

- Undo the nut to the extent of the bolt.
- Install T-Bolt & tighten.
- Ensure correct T-Bolt lock position by checking the slot on the end of the bolt is perpendicular to the extrusion slot.



KOMBI T-BOLT CORRECT POSITION

- Slot perpendicular to extrusion slot.

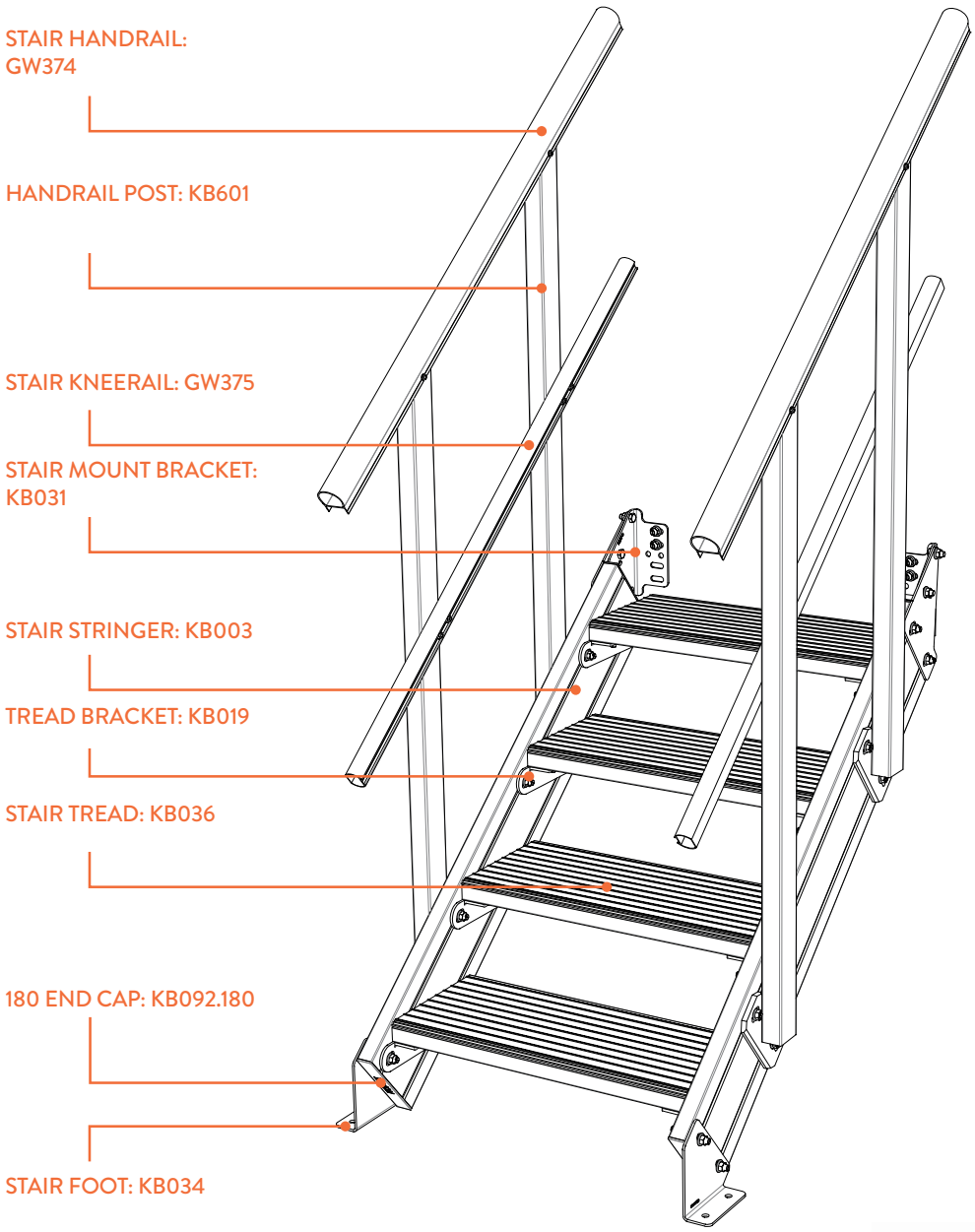
KOMBI T-BOLT INCORRECT POSITION

- Slot NOT perpendicular to extrusion slot.

STAIR ASSEMBLY

KOMBI STAIR MODULE

- KOMBI stairs are designed to support a load of 2.5 kPa live load (250kg/m^2)
- KOMBI stairs are designed to best suit a 40° angle however are suitable for angles from 25° - 45°.
- KOMBI stairs are available in three standard internal widths: 610mm, 915mm & 1220 mm. Custom widths can be manufactured.



STEP 1:
POSITION & FIX TREAD SUPPORT BRACKETS TO BOTH STRINGERS

STEP 2:
ATTACH TOP TREAD FIRST TO LHS STRINGER

STEP 3:
ATTACH REMAINING TREADS TO LHS STRINGER

STEP 4:
ATTACH RHS STRINGER TO TREADS

STEP 5:
INSERT END CAPS

STEP 6: ATTACH STAIR MOUNTING BRACKETS

STEP 7:
ATTACH STAIR TO PLATFORM

STEP 8:
ATTACH STAIR FOOT & SECURE STAIR TO LANDING

INSTALLATION REQUIREMENTS:

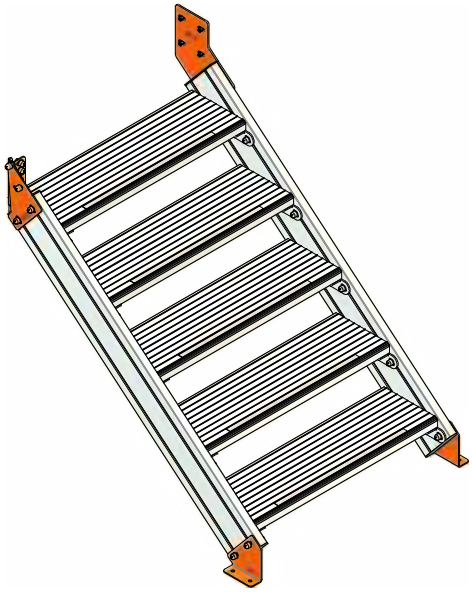
- Minimum inside distance between stair stringers to be not less than 600mm.
- Clear width between handrails to be no less than 550mm.
- The number of treads in a flight must not be less than 2 or greater than 17.
- Treads are allowed a maximum of 5mm variation in spacing as per AS1657: 2018.

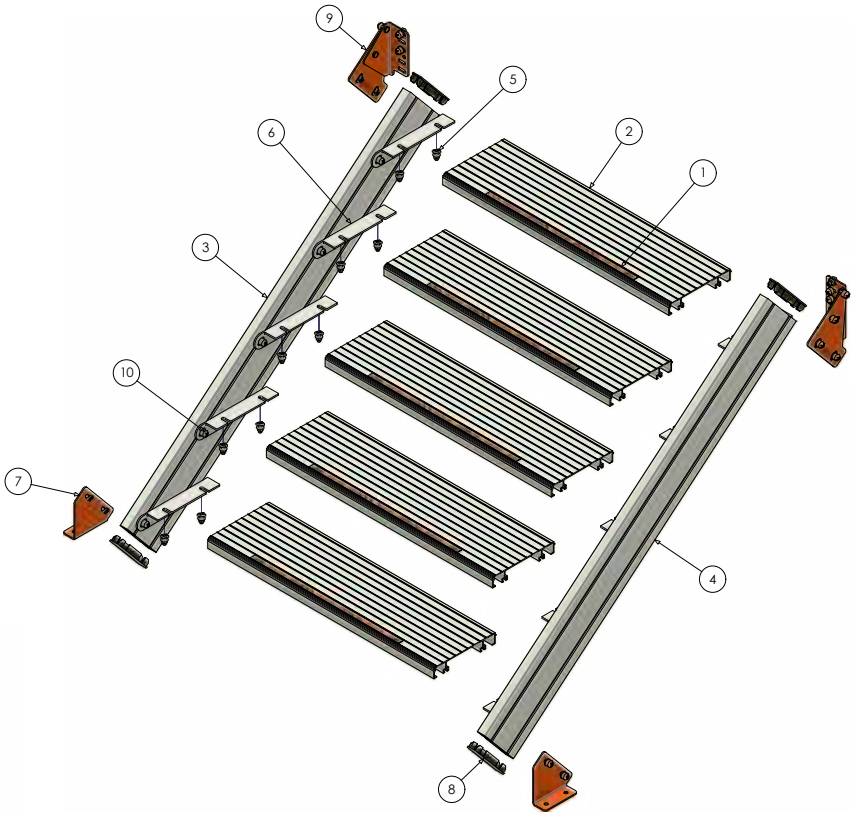
VIEW STAIR ASSEMBLY VIDEO

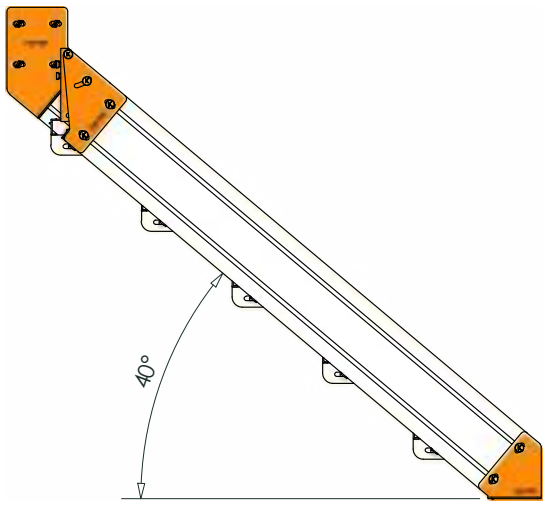
VIEW TREAD CALCULATOR

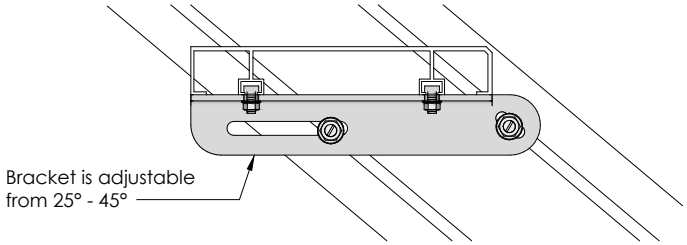
STAIR ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION
1	1660	Kombi Stair Grip Tape Orange 1 x 20mm x 600mm
2	AL736	Kombi Stair Tread
3	KB003	Kombi 180
4	KB003	Kombi 180
5	KB005	Kombi M10 x 25 T-Bolt & Nut Set
6	KB019	Kombi Stair Tread Adjustable Bracket Kit
7	KB034	Kombi Stair Foot 180mm Adjustable
8	KB092.180	Kombi 180 End Cap
9	KB031	Kombi Stair Mounting Bracket
10	SD935K.10	Nut Cap M10 Kombi



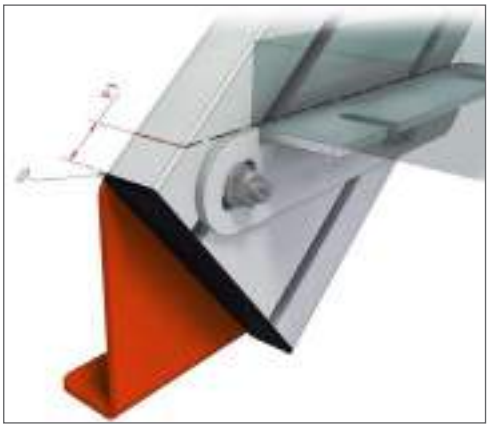






STAIR ASSEMBLY

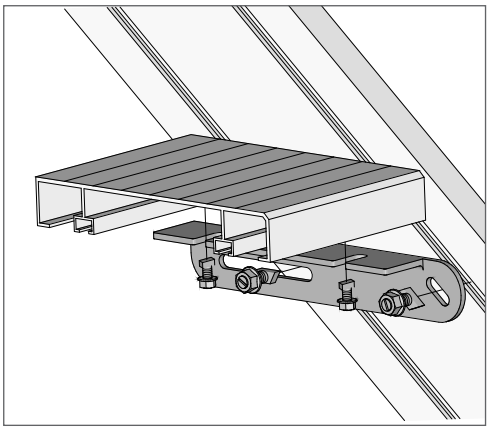
KOMBI STAIR TREAD BRACKET ASSEMBLY



- Align top of stair tread bracket with front and rear tread set out measurements.
- See KOMBI online tread calculator, (https://kombiaccess.com/kombi-stair-tread-calculator/) for measurements.
- A maximum of 18 risers per stair is allowed after which a change in direction or landing platform is required.

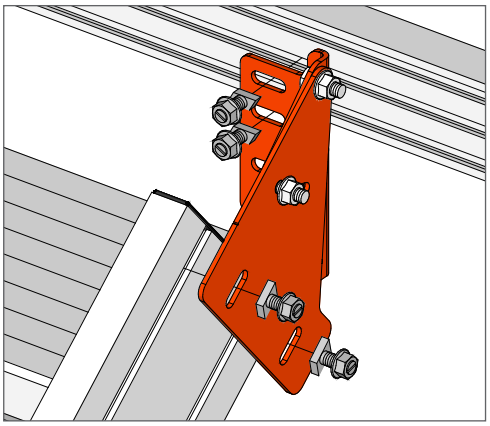
VIEW STAIR CALCULATOR

KOMBI STAIR TREAD TO STRINGER ASSEMBLY



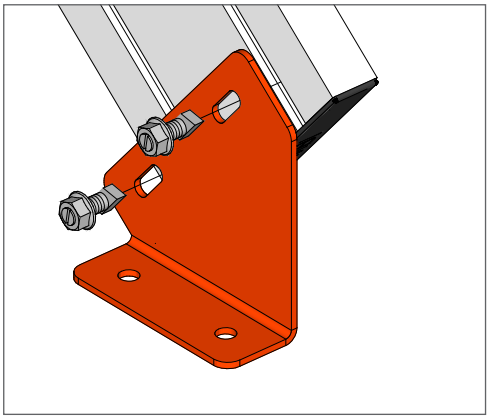
- Align tread to the top of the angle
- Insert KOMBI T-Bolt into slot on stair tread & through stringer bracket.
- Ensure stair tread is firmly against stringer.

KOMBI STAIR TO PLATFORM ASSEMBLY



- Requires 2 x KOMBI T-Bolt fixings into stair stringer and platform support beam.
- Align the 'V' groove with the end of the stringer extrusion.
- The bottom edge of the bracket is to align flush with the end of the stringer extrusion.
- Only lock off adjustable bracket once the stair is in final position.

KOMBI STAIR FOOT ASSEMBLY



- Adjust stair foot to suit ground angle.
- Secure using 2 x KOMBI T-Bolts into stringer.

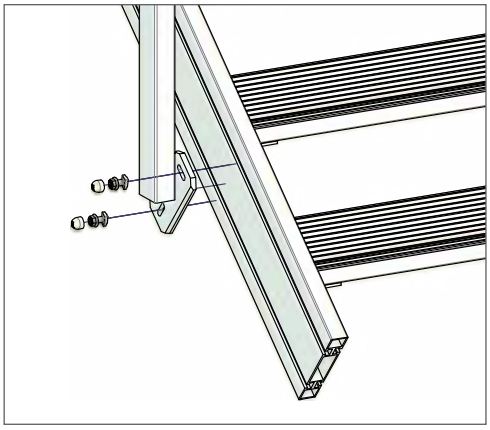
FIXING RECOMMENDATIONS INTO SUPPORT STRUCTURE:

- Into steel - min 2 x M8 bolts per foot.
- Into concrete - min 2 x M8 x 75 screw bolts.
- Into mesh - min 2 x M8 toggle bolts.

STAIR HANDRAIL ASSEMBLY

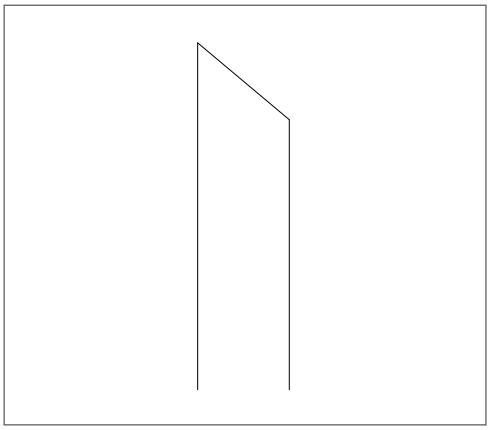
KOMBI STAIR SIDE MOUNT POST ASSEMBLY

- Each stair requires a left and right hand post.
- Posts to be positioned at a maximum of 2000mm centres.
- Post to be set vertical for any stair angle.
- The KOMBI stair post angle can be adjusted to suit stairs ranging from 20° - 45° incline.
- Secure using 2 x KOMBI T-Bolts into stringer.



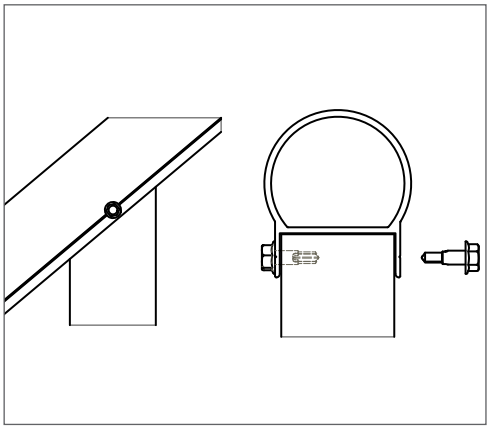
STAIR HANDRAIL POST TOP CUT

- Stairs from 25° - 35° require the top cut angle at 30° (KB602.)
- Stairs from 36° - 45° require the top cut angle at 40° (KB601.)



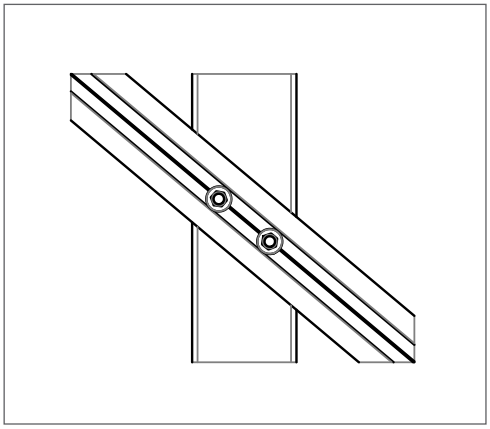
STAIR HANDRAIL ATTACHMENT

- Secure handrail to post using 2 x 16mm Tek screws.
- Insert handrail end caps and secure using 2 x 16mm Tek screws.



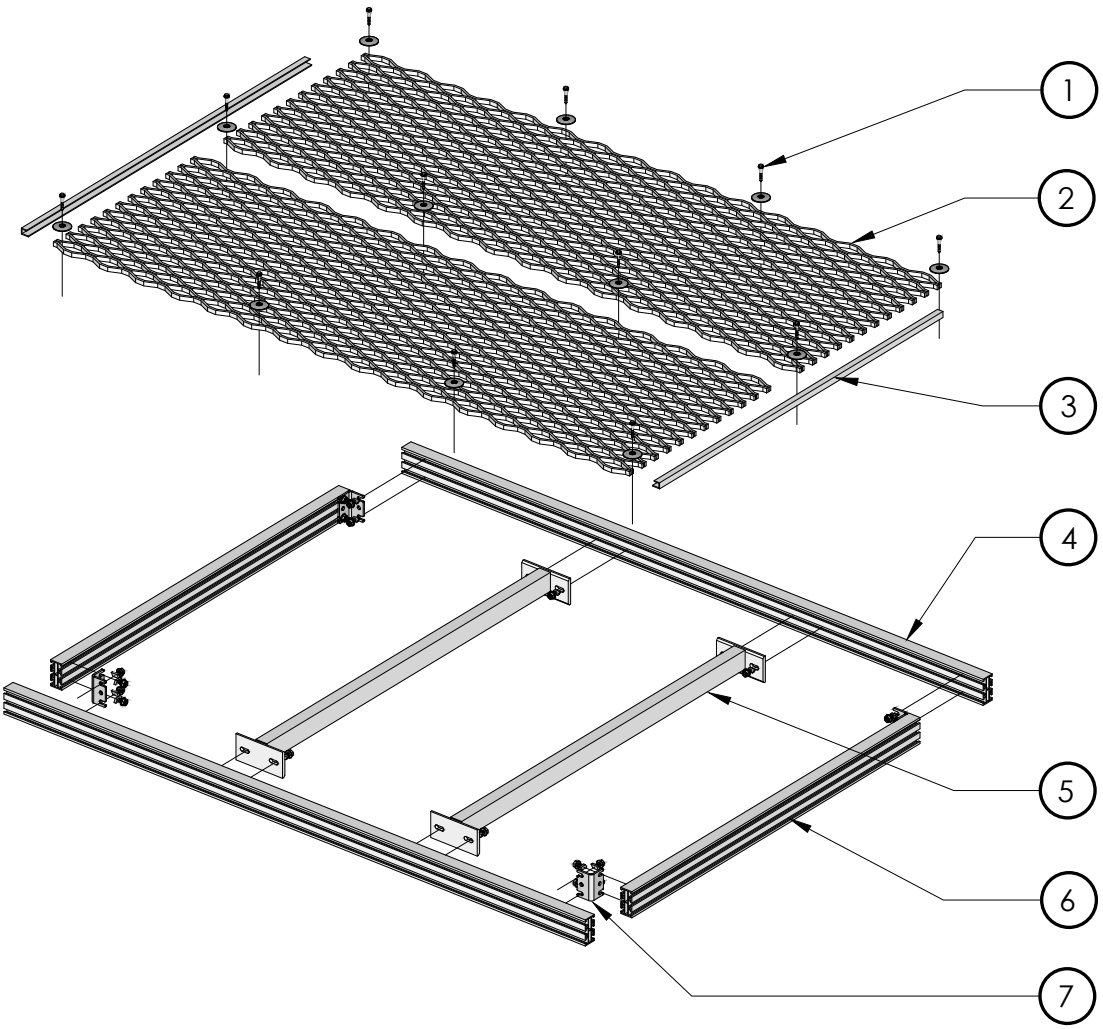
STAIR KNEERAIL ATTACHMENT

- Secure kneerail to post using 2 x 48mm Tek screws.
- Insert kneerail end caps and secure using 2 x 16mm Tek screws.



PLATFORM ASSEMBLY

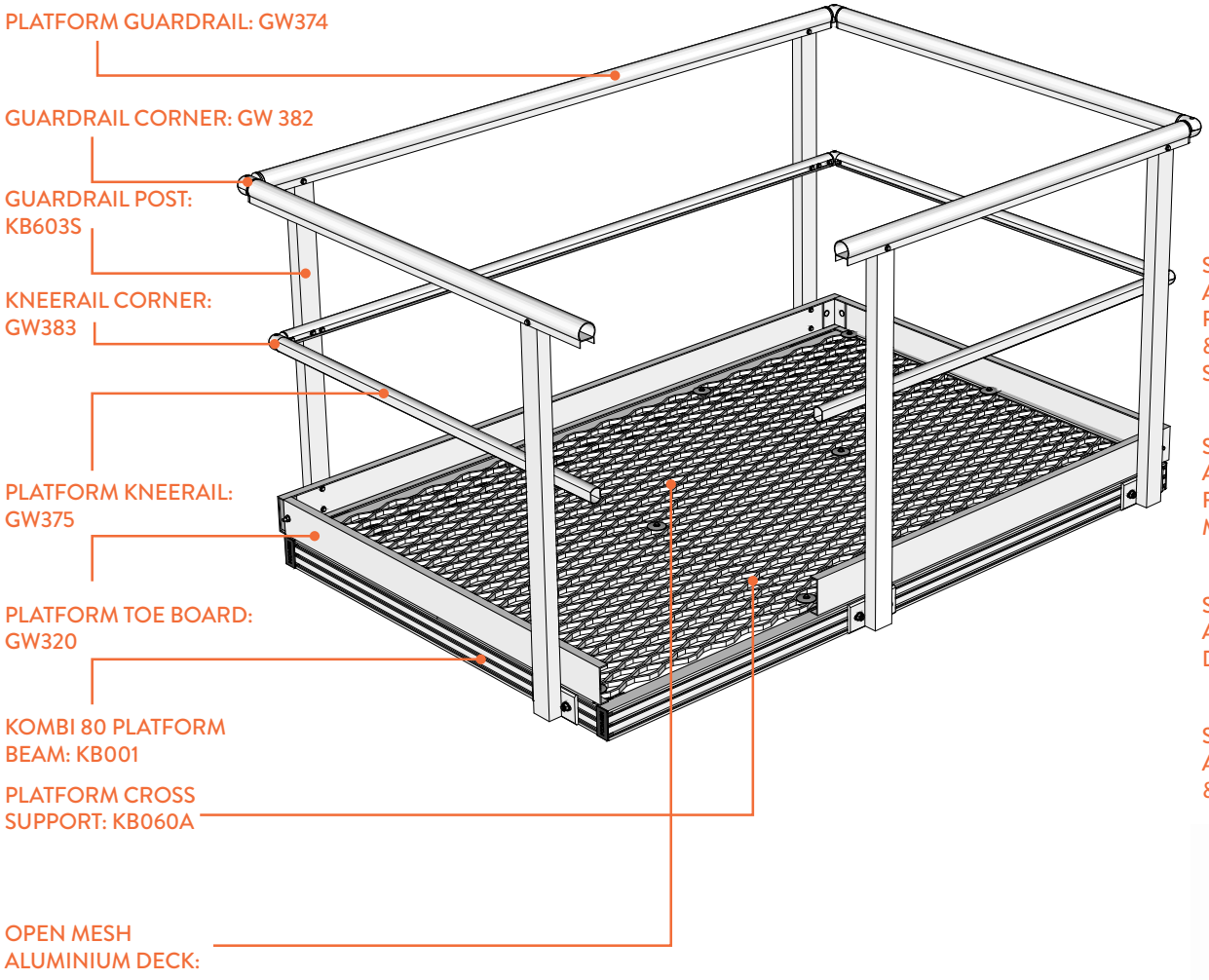
ITEM	PART NUMBER	DESCRIPTION
1	SD907.20	Screw 12-14 x 20mm
2	GW334	Walkway Mesh 32A - 600
3	AL719	Walkway Edge Bar
4	KB001	Kombi 80
5	KB060	Platform Cross Support
6	KB001	Kombi 80
7	KB013.80	Kombi 80 Angle Bracket Kit



PLATFORM ASSEMBLY

KOMBI PLATFORM MODULE

- KOMBI platforms are designed to support a live load of 2.5 kPa(250kg/m^2 distributed load.)
- KOMBI platforms are available in three standard external width dimensions: 687mm, 992mm and 1297mm. Custom widths can be manufactured.
- KOMBI platforms can be joined together to create larger decks where required.
- For dead loads such as an aircon units, pallets etc. please consult with the Sayfa design team to confirm correct configuration.



STEP 1:
ASSEMBLE PLATFORM FRAME & PLATFORM SUPPORTS

STEP 2:
ATTACH PLATFORM FRAME TO SUPPORT MODULES

STEP 3:
ATTACH WALKWAY DECK TO PLATFORM

STEP 4:
ATTACH HANDRAIL & TOE BOARDS

VIEW PLATFORM ASSEMBLY VIDEO

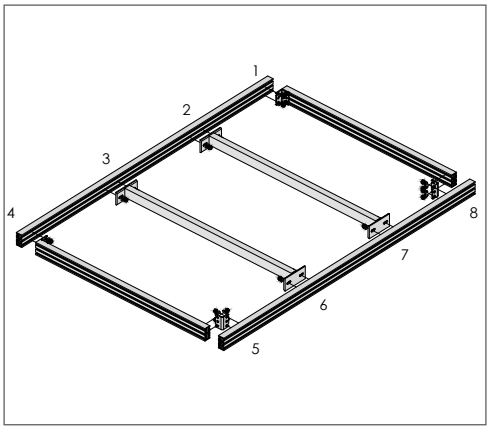
INSTALLATION REQUIREMENTS:

- Platform mesh aperture to be a maximum of 15mm where persons have access to or work beneath the platform. The GW334 narrow width deck to be used in this application.
- Guardrail posts to be spaced at a maximum of 2000mm centres.
- Maximum dimensions between underside of handrail to top of kneerail is 450mm.
- Platform toe board is required where an object could fall from the platform onto an area to which access by persons is a possibility. Maximum gap between toe board and deck is 10mm.

PLATFORM ASSEMBLY

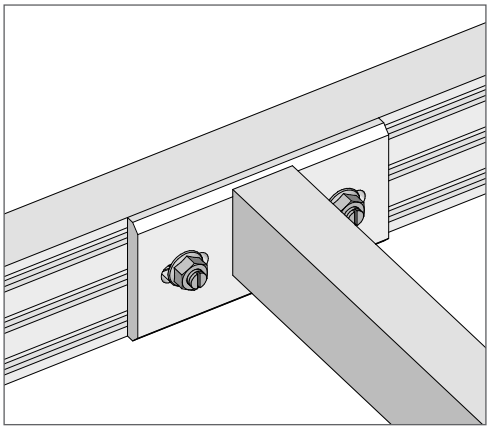
PLATFORM STRUCTURE ASSEMBLY

- Step 1 - Attach first corner bracket to first platform beam.
- Step 2 & 3 - Attach platform cross supports to platform beam.
- Step 4 - Attach second corner bracket to platform beam.
- Step 5 - Attach third corner bracket to second platform beam.
- Step 6 & 7 - Attach platform cross supports to second platform bracket.
- Step 8 - Attach fourth corner bracket to second platform bracket.
- Step 9 & 10 - Attach end platform supports.



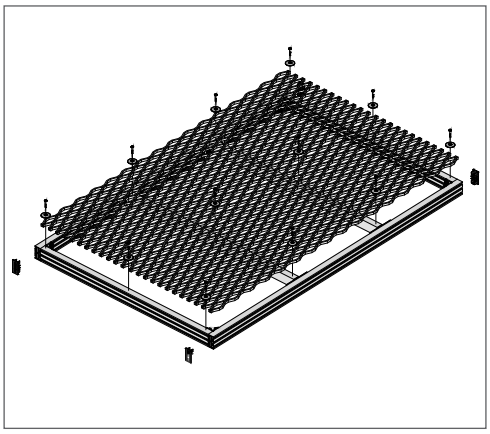
PLATFORM CROSS SUPPORT ASSEMBLY

- Secured to platform structure using 2 x KOMBI T-Bolts.
- Top of cross support to be level with platform beam.
- Space cross supports at a maximum of 600mm centres.



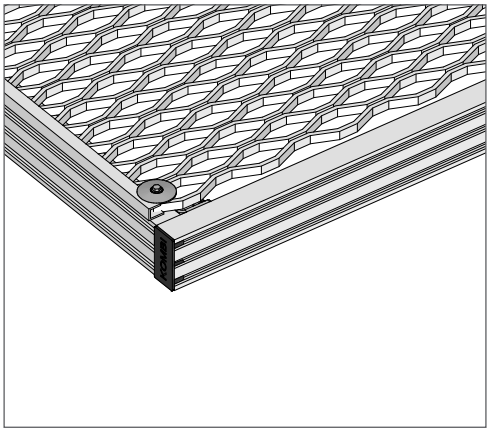
ALUMINIUM DECK ASSEMBLY

- Fix aluminium mesh deck to cross supports using 12 - 14 x 35mm Tek screws with fixing disc.
- 3 fixings required for each cross support. Use centre fixing to secure both panels.
- For non standard platforms, aluminium mesh will need to be trimmed to fit.



ALUMINIUM DECK EDGE BAR ASSEMBLY

- The mesh edge bar is secured by ensuring the fixing disc captures the edge bar when tight.
- Secure edge bar with 3 x fixing discs.

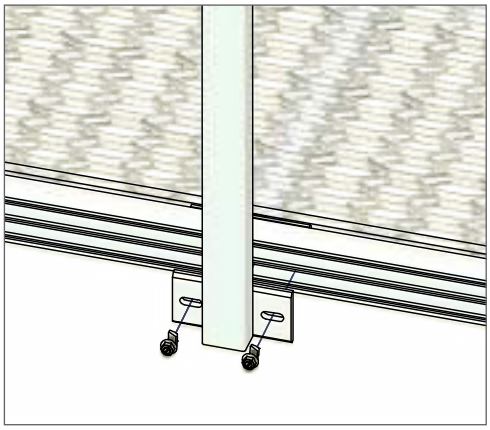


GUARDRAIL ASSEMBLY

POST GUARDRAIL ATTACHMENT

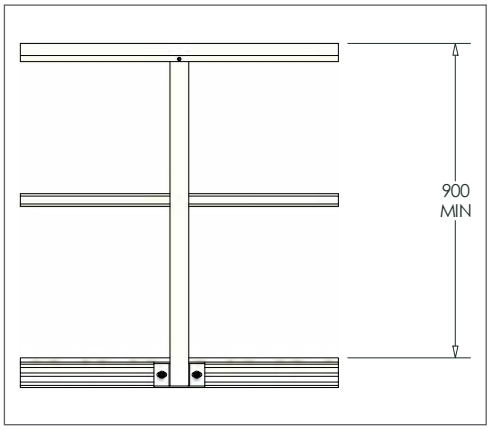
- Secure post to platform using 2 x KOMBI T-Bolts.

  NOTE: Two bolts to locate into centre slot of KOMBI 80 beam for maximum stability.



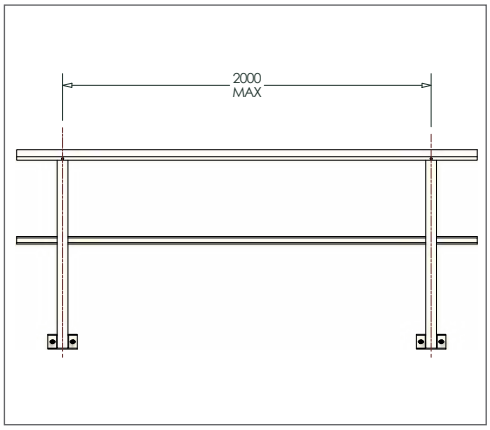
PLATFORM GUARDRAIL HEIGHT

- Standard height to top of KOMBI guardrail from top of platform is 990mm.



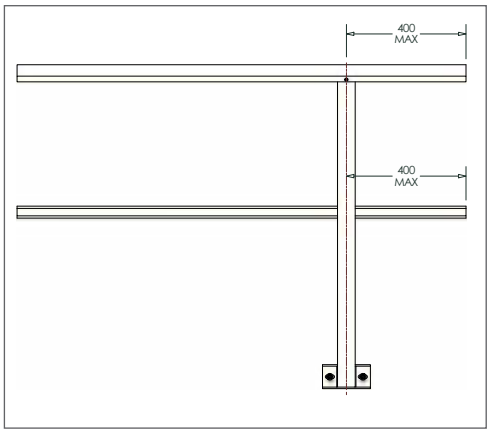
PLATFORM GUARDRAIL SPACING

- Maximum spacing between posts is 2000mm.



GUARDRAIL & KNEERAIL CANTILEVER

- When positioning posts, the maximum unsupported length of the handrail and kneerail is 400mm.

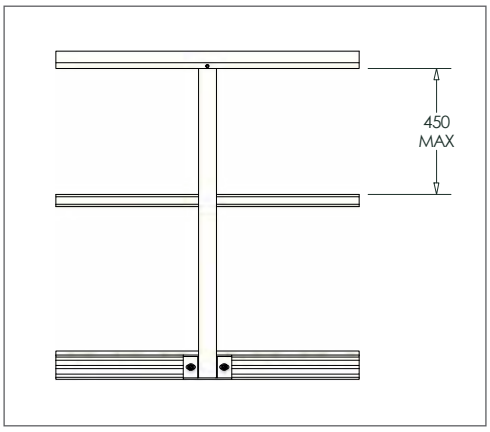


GUARDRAIL ASSEMBLY

GUARDRAIL & KNEERAIL SPACING

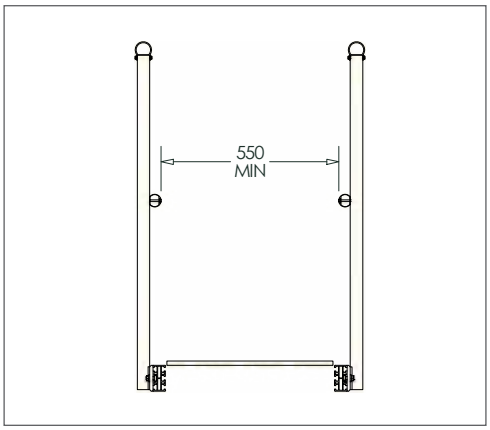
- Maximum spacing between guardrail and kneerail is 450mm.

  NOTE: Guardrail higher than 900mm above the deck will require second kneerail to be added to ensure spacing between rails does not exceed 450mm.



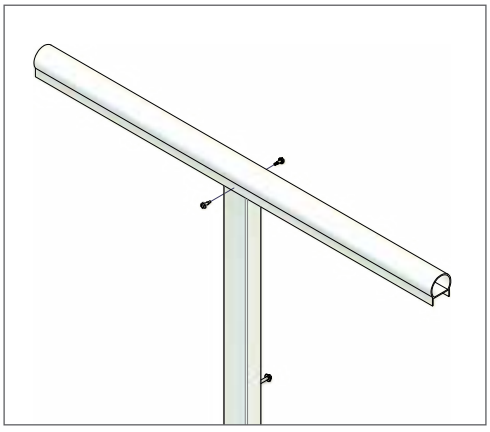
OPENINGS BETWEEN RAILS

- Minimum opening between rails (measured between kneerails) is 550mm. This is to ensure compliance with Australian Standard AS/NZS 1657:2018.



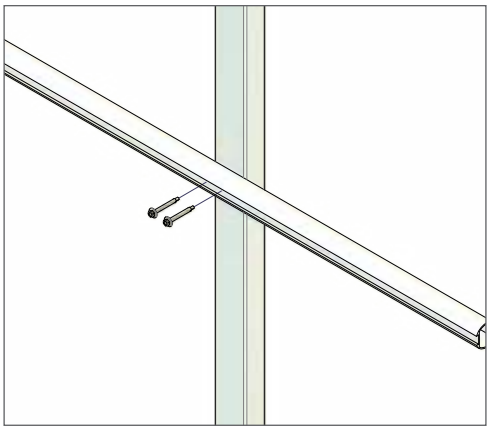
GUARDRAIL (TOP RAIL) ATTACHMENT

- Guardrail attaches to post using 2 x 16mm Tek screws.



KNEERAIL ATTACHMENT

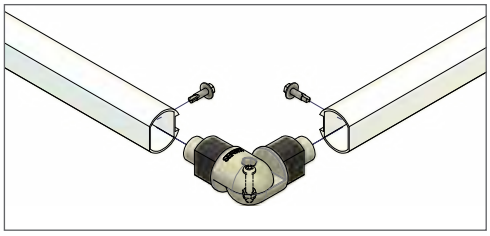
- Kneerail attaches to post using 2 x 48mm Tek screws.



GUARDRAIL ASSEMBLY

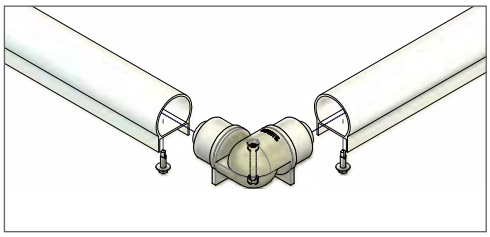
KNEERAIL ELBOW ATTACHMENT

- Elbow inserts into extrusion and is secured using 1 x 16mm Tek screw each side.
- Ensure hinge screw in elbow is tightened to provide rigidity.



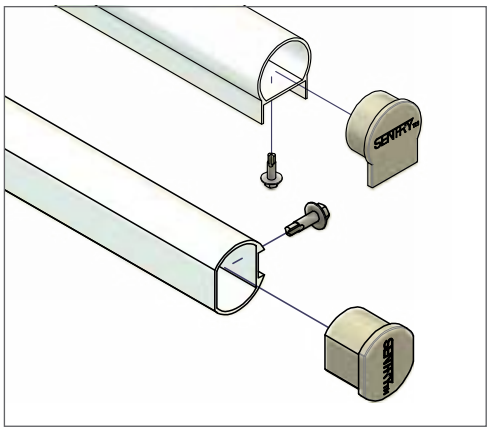
GUARDRAIL (TOP RAIL) ELBOW ATTACHMENT

- Elbow inserts into extrusion and is secured using 1 x 16mm Tek screw each side.
- Ensure hinge screw in elbow is tightened to provide rigidity.



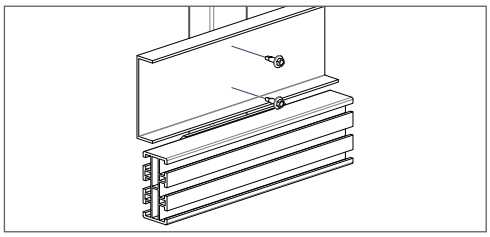
END CAP ATTACHMENT

- Insert end caps to extrusions and secure using 1 x 16mm Tek srew.

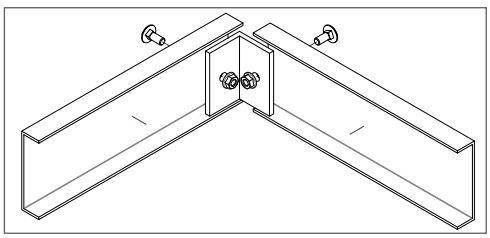


TOE BOARD ATTACHMENT & ASSEMBLY

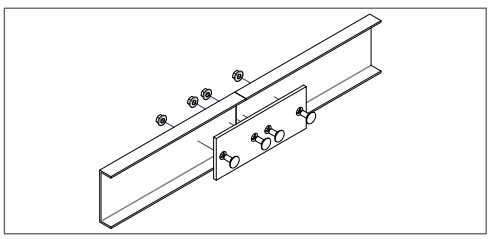
- Toe board attachment to guardrail post using 2 x 20mm Tek screw.



- Toe board corner connection using 2 x M8 x 35mm cup head bolts.

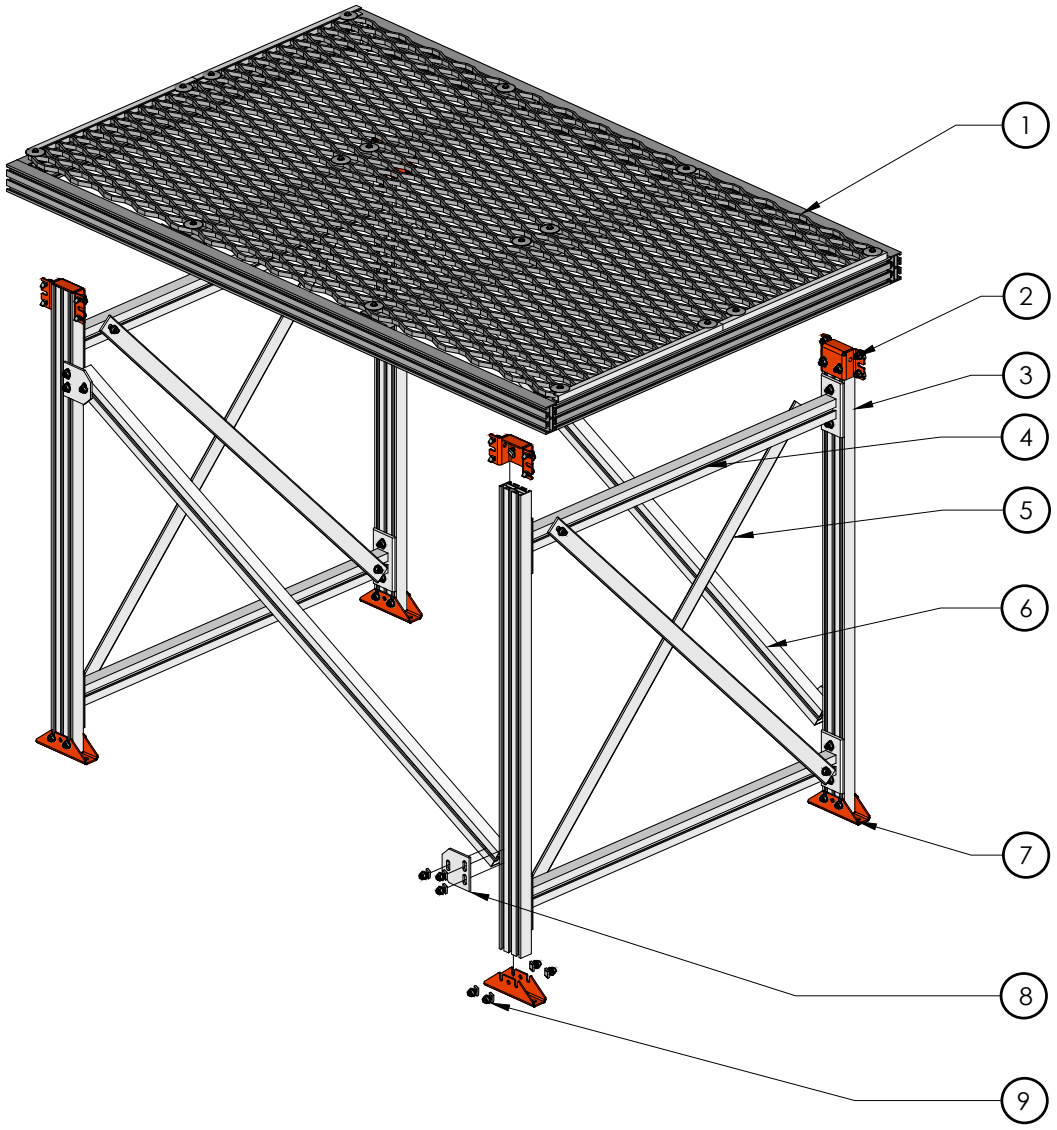


- Toe board mid span connection using 4 x M8 x 35mm cup head bolts.



POST SUPPORT ASSEMBLY

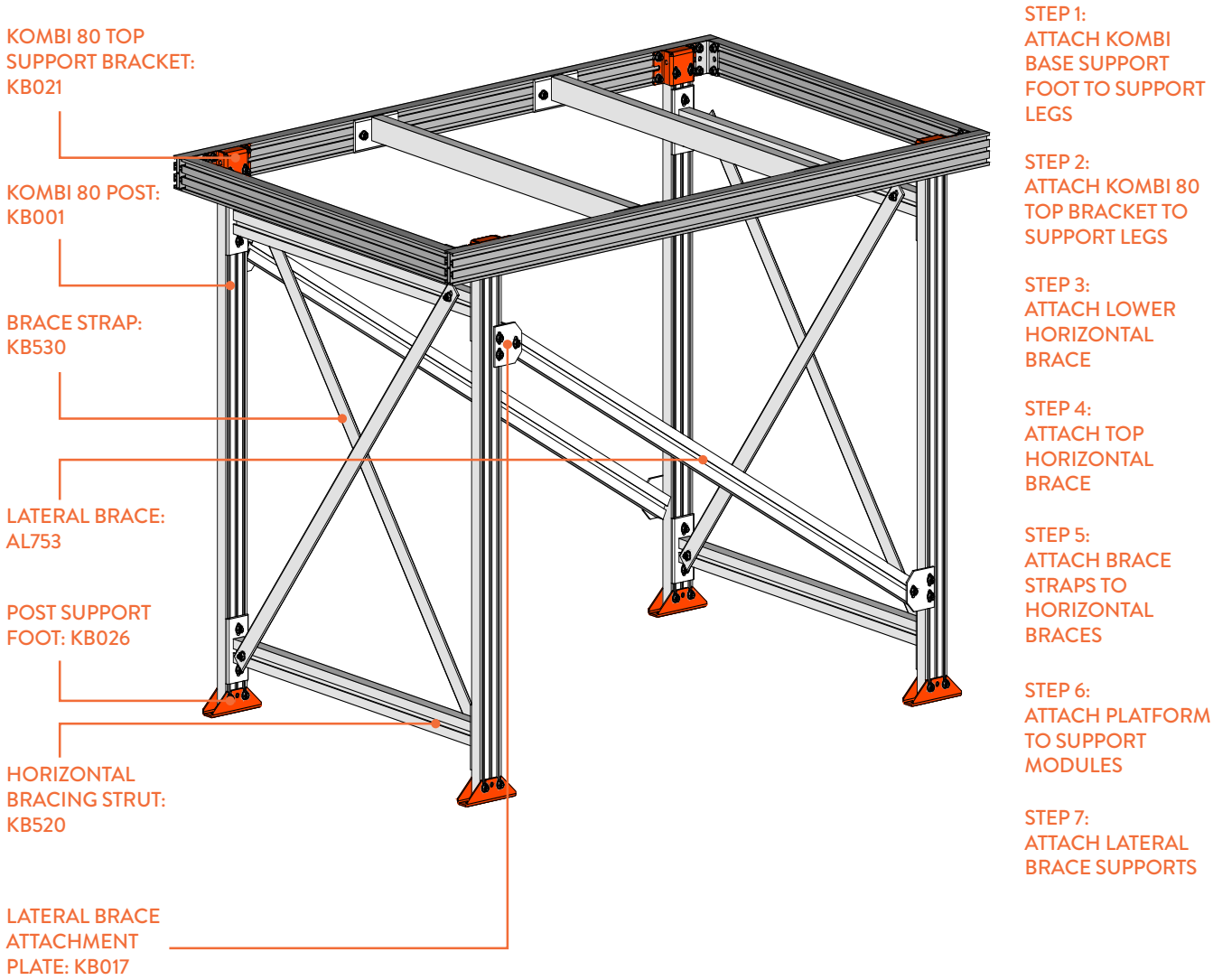
ITEM	PART NUMBER	DESCRIPTION	NOTES
1		Kombi Platform Assembly	Mesh fixed disc used to secure edge bar
2	KB021	Kombi 80 Top Support	
3	KB001	Kombi 80	
4	KB520	Kombi Horizontal Bracing Strut	
5	KB530	Kombi Bracing Strap Set	
6	AL753	Kombi 60	
7	KB026	Kombi 80 Base Support	
8	KB017	Kombi Lateral Brace Plate Kit	
9	KB005	Kombi T-Bolt	
10	KB026	Kombi 80 Post Base Support Kit	
11	KB092.80	Kombi 80 End Cap	



POST SUPPORT ASSEMBLY

POST SUPPORT MODULE

- KOMBI post support structure is designed to support a live load of 2.5 kPa (250kg/m^2).
- KOMBI supports are available in three standard widths 610mm, 915mm & 1220mm. Custom widths can be manufactured.



STEP 1:
ATTACH KOMBI BASE SUPPORT FOOT TO SUPPORT LEGS

STEP 2:
ATTACH KOMBI 80 TOP BRACKET TO SUPPORT LEGS

STEP 3:
ATTACH LOWER HORIZONTAL BRACE

STEP 4:
ATTACH TOP HORIZONTAL BRACE

STEP 5:
ATTACH BRACE STRAPS TO HORIZONTAL BRACES

STEP 6:
ATTACH PLATFORM TO SUPPORT MODULES

STEP 7:
ATTACH LATERAL BRACE SUPPORTS

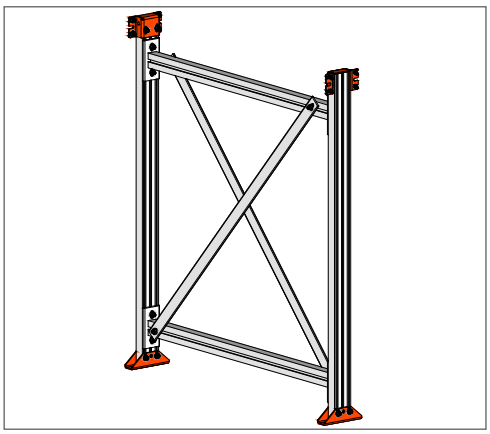
INSTALLATION REQUIREMENTS:

- See bracing configuration tables for set out of horizontal braces, bracing straps and lateral braces.
- Lower horizontal brace strut KB520 is set at 150mm above bottom of post.

VIEW PLATFORM/ SUPPORTS ASSEMBLY VIDEO

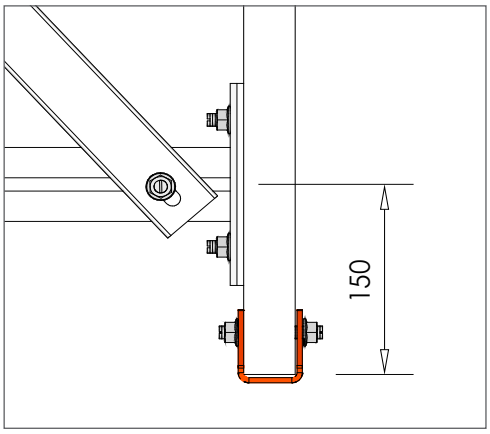
POST SUPPORT ASSEMBLY

POST SUPPORT MODULE



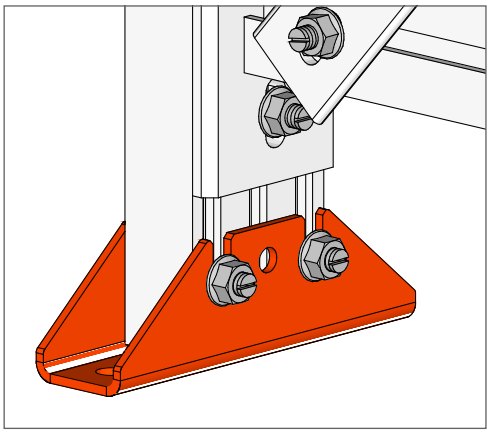
- Post support modules are available in the following sizes:
  - Width: 610mm, 915mm, 1220mm.
  - Height: 600mm to 6000mm in 200mm increments.
- A series of cross braces are required depending on height of platform - see bracing configuration table.
- Assemble complete post support module ready to mount to platform.

HORIZONTAL BRACE STRUT ASSEMBLY



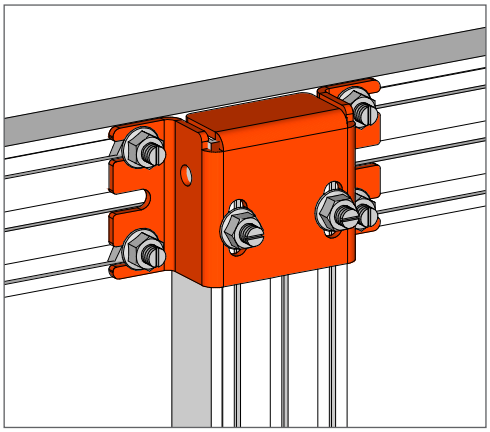
- Secure to post using 2 x KOMBI T-Bolts.
- Position lower horizontal brace 150mm above bottom of post.
- Position brace straps as close to post as possible for maximum platform stability.
- Secure brace strap using 1 x KOMBI T-Bolt.

POST SUPPORT FOOT ASSEMBLY



- Secure to post using 4 x KOMBI T-Bolts, two either side of foot.
- Support foot to be secured to ground structure in accordance with engineer's requirements.

POST TOP SUPPORT BRACKET ASSEMBLY

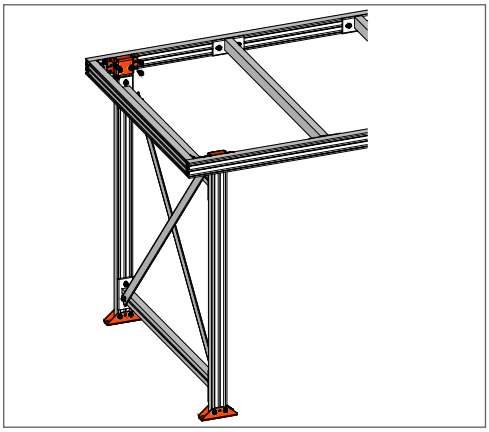


- KOMBI 80 top support bracket secured using 2 x KOMBI T-Bolts into post and 4 x KOMBI T-Bolts into platform.
- Should this bracket be required to support a suspended platform a clearance hole is to be drilled through the post extrusion using the bracket suspension hole. An M10 bolt is recommended for use.

POST SUPPORT ASSEMBLY

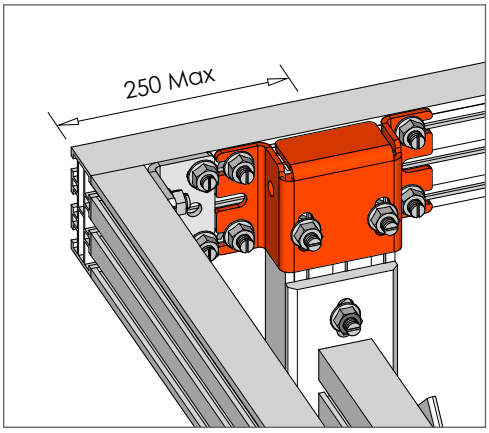
POST SUPPORT TO PLATFORM ASSEMBLY

- Attach assembled post support module to platform.
- For smaller platforms, invert platform and drop support module into platform.
- Secure post support bracket to platform using 4 x KOMBI T-Bolts.



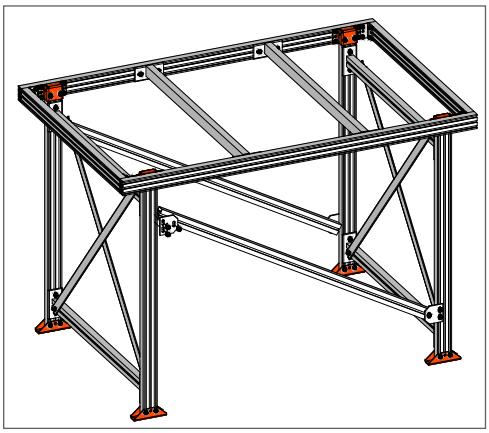
POST SUPPORT MODULE POSITIONING

- Position post support module as close as possible to corner bracket but no more than 250mm from centre of post to outside edge of platform.



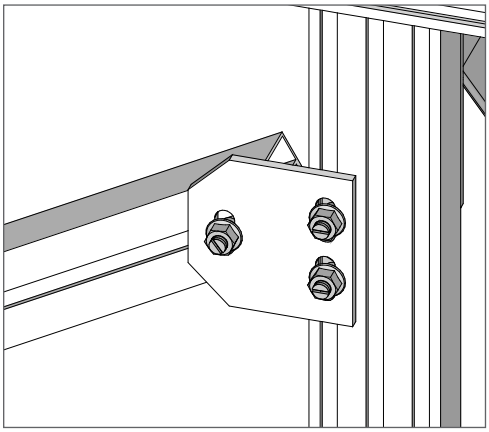
POST SUPPORT LATERAL BRACING ASSEMBLY

- The KOMBI lateral brace provides platform stability



LATERAL BRACE ATTACHMENT

- Attach lateral brace to connector plate using 1 x KOMBI T-Bolt.
- Secure lateral brace to post using 2 x KOMBI T-Bolts.
- See lateral brace configuration table for brace set out.

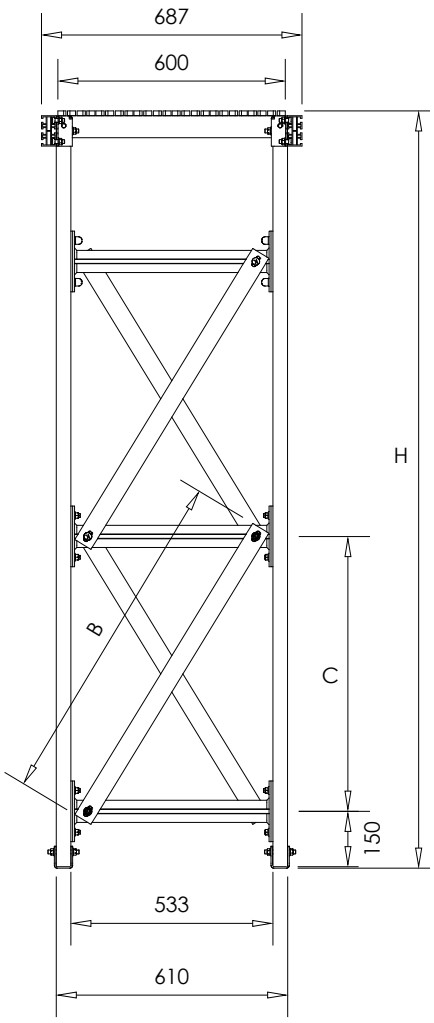


POST SUPPORT BRACING LAYOUT

600 SERIES BRACING LAYOUT

- Step 1: Identify correct post height.
- Step 2: Determine correct post support kit and required quantity.
- Step 3: Assemble post support bracing as per table below.

H Platform Height	Post Support Kit	B Bracing Strap Length (mm)	C Centre to Centre Dimension	Brace Quantity
0-600	KB5206.600	Not Required	Not Required	-
600-800	KB5206.800	Not Required	Not Required	-
800-1000	KB5206.1000	Not Required	Not Required	-
1000-1200	KB5206.1200	900	750	-
1200-1400	KB5206.1400	1000	850	1
1400-1600	KB5206.1600	1100	970	1
1600-1800	KB5206.1800	1300	1230	1
1800-2000	KB5206.2000	900	720	2
2000-2200	KB5206.2200	900	820	2
2200-2400	KB5206.2400	1000	880	2
2400-2600	KB5206.2600	1100	1020	2
2600-2800	KB5206.2800	1200	1090	2
2800-3000	KB5206.3000	900	790	3
3000-3200	KB5206.3200	1000	880	3
3200-3400	KB5206.3400	1100	950	3
3400-3600	KB5206.3600	1100	1015	3
3600-3800	KB5206.3800	1200	1080	3
3800-4000	KB5206.4000	1000	860	3
4000-4200	KB5206.4200	1000	910	4
4200-4400	KB5206.4400	1200	960	4
4400-4600	KB5206.4600	1100	1025	4
4600-4800	KB5206.4800	1200	1060	4
4800-5000	KB5206.5000	1300	1110	4
5000-5200	KB5206.5200	1300	1160	4
5200-5400	KB5206.5400	1300	1230	4
5400-5600	KB5206.5600	1400	1260	4
5600-5800	KB5206.5800	1400	1310	4
5800-6000	KB5206.6000	1200	1090	5

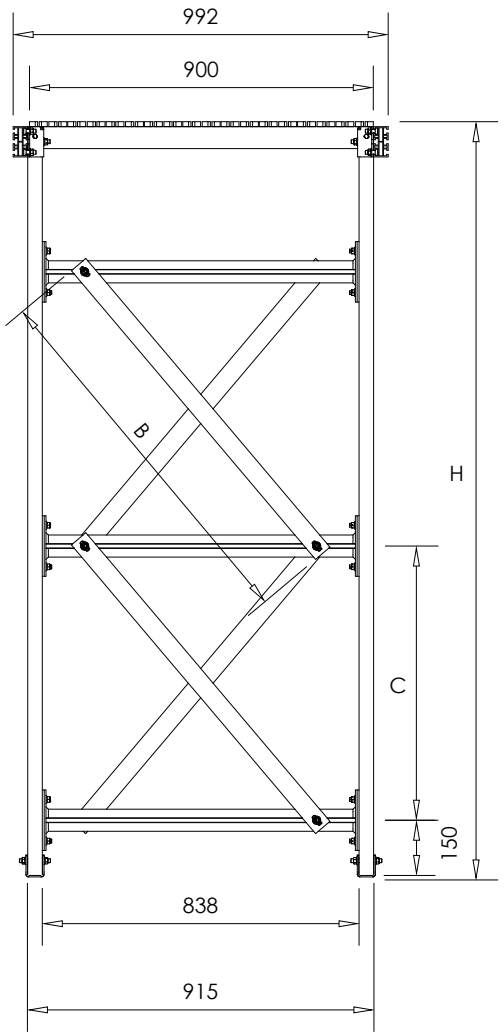


POST SUPPORT BRACING LAYOUT

900 SERIES BRACING LAYOUT

- Step 1: Identify correct post height.
- Step 2: Determine correct post support kit and required quantity.
- Step 3: Assemble post support bracing as per table below.

H Platform Height	Post Support Kit	B Bracing Strap Length (mm)	C Centre to Centre Dimension	Brace Quantity
0-600	KB5209.600	Not Required	Not Required	-
600-800	KB5209.800	Not Required	Not Required	-
800-1000	KB5209.1000	Not Required	Not Required	-
1000-1200	KB5209.1200	1000	710	1
1200-1400	KB5209.1400	1100	850	1
1400-1600	KB5209.1600	1200	1050	1
1600-1800	KB5209.1800	1500	1250	1
1800-2000	KB5209.2000	1000	725	2
2000-2200	KB5209.2200	1100	825	2
2200-2400	KB5209.2400	1200	925	2
2400-2600	KB5209.2600	1300	1025	2
2600-2800	KB5209.2800	1300	1125	2
2800-3000	KB5209.3000	1400	1225	2
3000-3200	KB5209.3200	1500	1325	2
3200-3400	KB5209.3400	1200	950	3
3400-3600	KB5209.3600	1200	1015	3
3600-3800	KB5209.3800	1300	1080	3
3800-4000	KB5209.4000	1400	1150	3
4000-4200	KB5209.4200	1400	1215	3
4200-4400	KB5209.4400	1500	1300	3
4400-4600	KB5209.4600	1500	1300	3
4600-4800	KB5209.4800	1200	1025	4
4800-5000	KB5209.5000	1400	1110	4
5000-5200	KB5209.5200	1400	1160	4
5200-5400	KB5209.5400	1400	1210	4
5400-5600	KB5209.5600	1400	1210	4
5600-5800	KB5209.5800	1500	1300	4
5800-6000	KB5209.6000	1500	1360	4

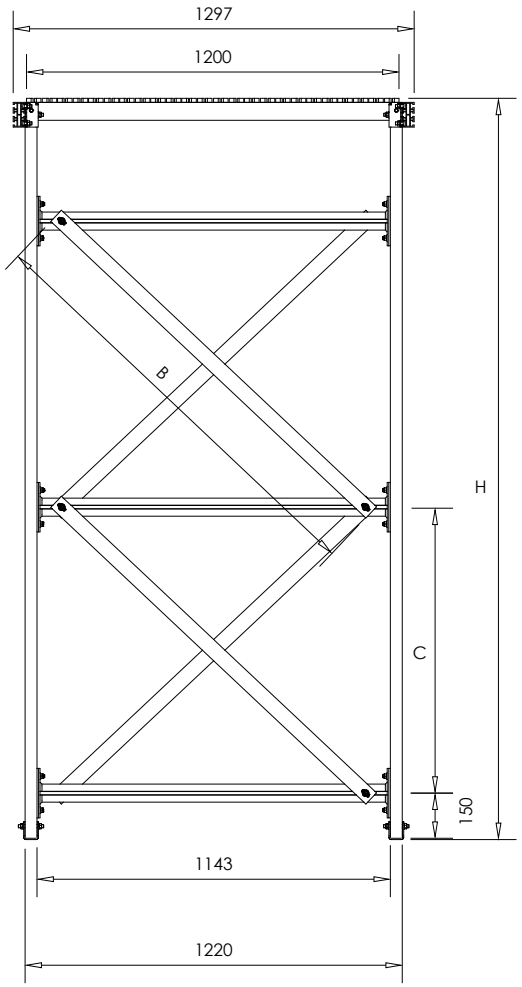


POST SUPPORT BRACING LAYOUT

1200 SERIES BRACING LAYOUT

- Step 1: Identify correct post height.
- Step 2: Determine correct post support kit and required quantity.
- Step 3: Assemble post support bracing as per table below.

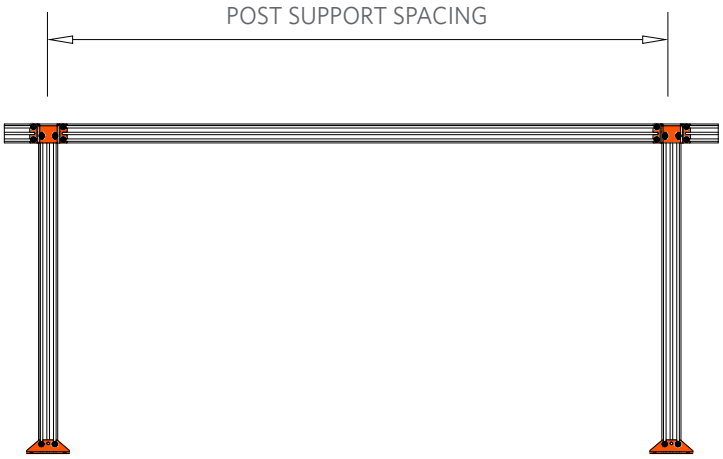
H Platform Height	Post Support Kit	B Bracing Strap Length (mm)	C Centre to Centre Dimension	Brace Quantity
0-600	KB5212.600	Not Required	Not Required	-
600-800	KB5212.800	Not Required	Not Required	-
800-1000	KB5212.1000	Not Required	Not Required	-
1000-1200	KB5212.1200	1200	650	1
1200-1400	KB5212.1400	1200	850	1
1400-1600	KB5212.1600	1500	1050	1
1600-1800	KB5212.1800	1500	1250	1
1800-2000	KB5212.2000	1800	1450	1
2000-2200	KB5212.2200	1300	825	2
2200-2400	KB5212.2400	1400	925	2
2400-2600	KB5212.2600	1500	1025	2
2600-2800	KB5212.2800	1500	1125	2
2800-3000	KB5212.3000	1500	1225	2
3000-3200	KB5212.3200	1600	1325	2
3200-3400	KB5212.3400	1800	1425	2
3400-3600	KB5212.3600	1500	1015	3
3600-3800	KB5212.3800	1500	1080	3
3800-4000	KB5212.4000	1500	1150	3
4000-4200	KB5212.4200	1500	1215	3
4200-4400	KB5212.4400	1500	1280	3
4400-4600	KB5212.4600	1600	1350	3
4600-4800	KB5212.4800	1800	1415	4
4800-5000	KB5212.5000	1800	1480	4
5000-5200	KB5212.5200	1800	1550	4
5200-5400	KB5212.5400	1500	1210	4
5400-5600	KB5212.5600	1500	1260	4
5600-5800	KB5212.5800	1600	1310	4
5800-6000	KB5212.6000	1500	1090	4

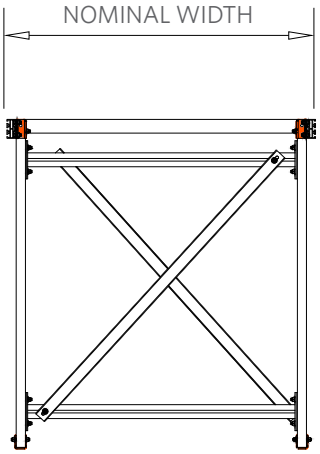


POST SUPPORT LAYOUT

POST SUPPORT SPACING

- KOMBI platforms are designed to support a live load of 2.5kPa (250kg/m^2)
- Calculations assume maximum flooring mass of 12kg/m2 (weight of guardrail and aluminum deck).
- Allowance for floor vibration has not been taken into account in design.
- Platform deflection has been based on two variables, frequent access (less deflection) and infrequent access (greater deflection). Table below shows post spacings based on above.
- Lateral bracing is required as per configuration table.





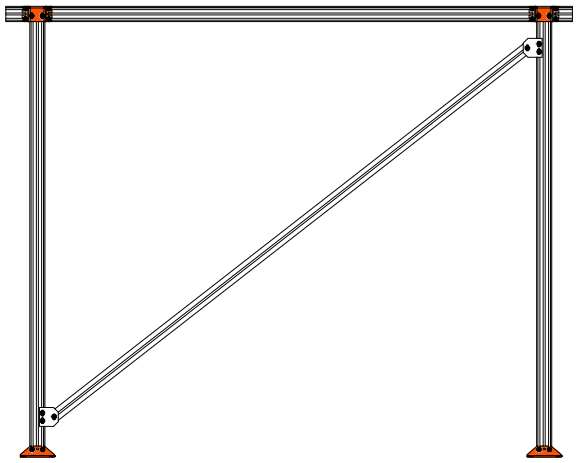
NOMINAL WIDTH	POST SUPPORT SPACING - To support 2.5kPa (AS/NZS 1657)
USING KOMBI 80MM PLATFORM BEAM	
600 SERIES (W) PLATFORM	3300mm Max Post Support Spacing
900 SERIES (W) PLATFORM	2700mm Max Post Support Spacing
1200 SERIES (W) PLATFORM	2500mm Max Post Support Spacing
USING KOMBI 180 PLATFORM BEAM	
600 SERIES (W) PLATFORM	6000mm Max Post Support Spacing
900 SERIES (W) PLATFORM	5500mm Max Post Support Spacing
1200 SERIES (W) PLATFORM	5100mm Max Post Support Spacing

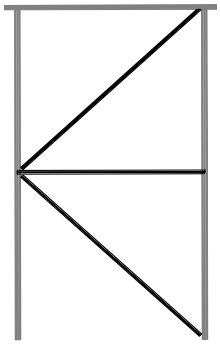
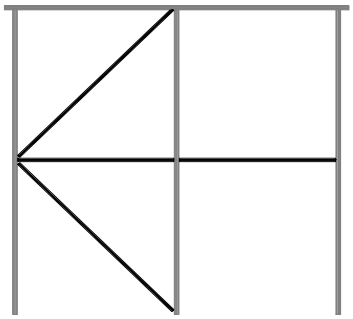
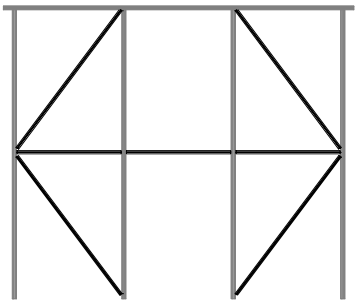
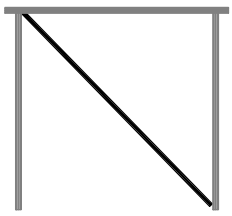
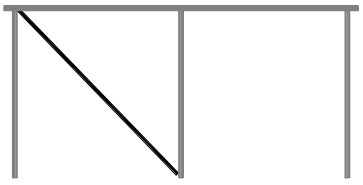
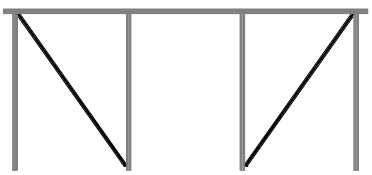
NOTE: Deflections limited to L/100

LATERAL BRACE LAYOUT

LATERAL BRACE INSTALLATION

- KOMBI platform propriety design allows freestanding platform of up to 6000mm.
- Platforms above 3000mm require a horizontal brace midspan of the post in all bays.
- For longer platforms exceeding triple span, up to 30m, lateral bracing is required in the first and last bay only.
- For longer platforms from 30m - 50m, lateral bracing is required in the first, centre and last bay only.

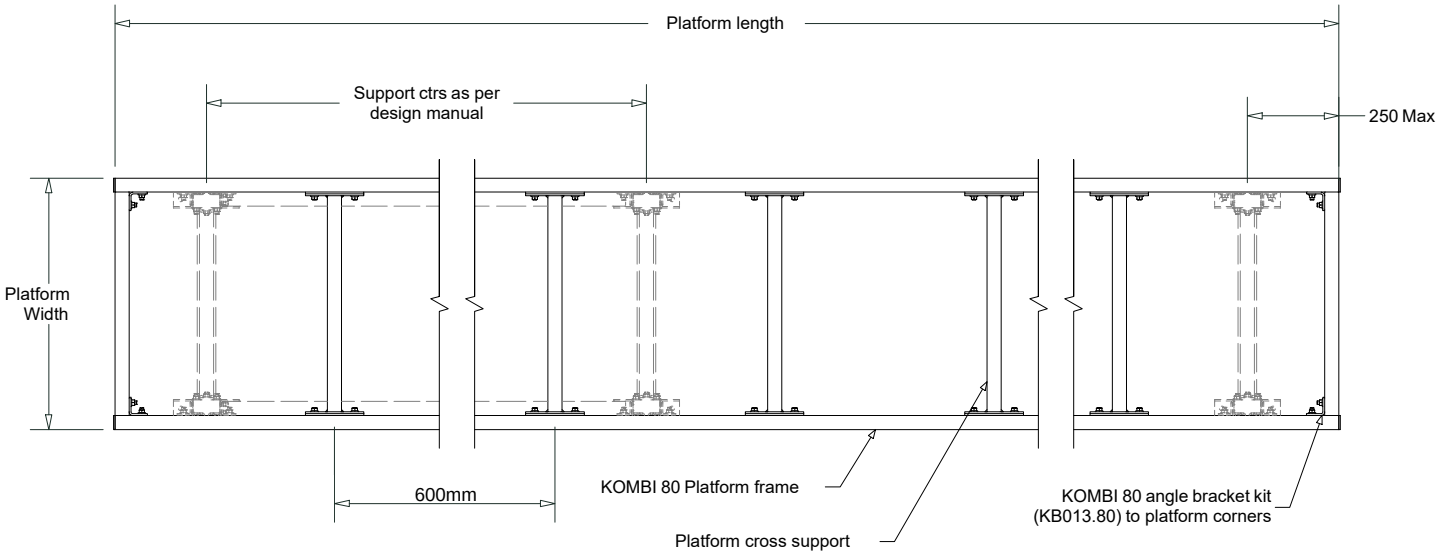


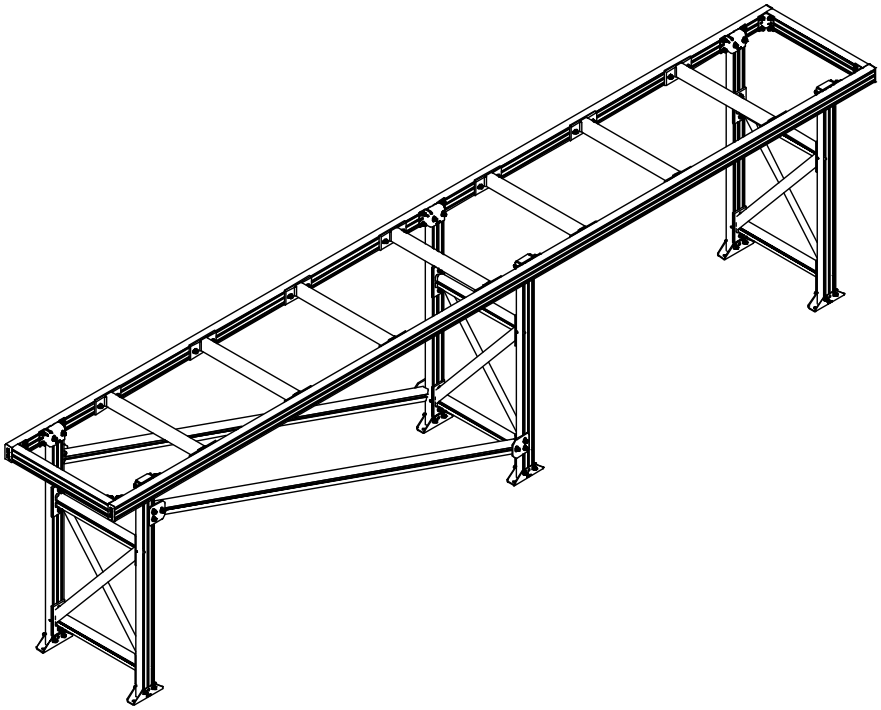
		SPAN		
		SINGLE SPAN	DOUBLE SPAN	TRIPLE SPAN OR MORE
PLATFORM HEIGHT (MM)	3000 - 6000mm			
	1000 - 3000mm			
	0 - 1000mm	 No bracing required	 No bracing required	 No bracing required

PLATFORM CONFIGURATION

PLATFORM SET OUT GUIDELINES

- Platform cross supports positioned at 600mm centres.
- Post supports positioned as close to end of platform as possible, (250mm max from outside edge of platform to centre of post).





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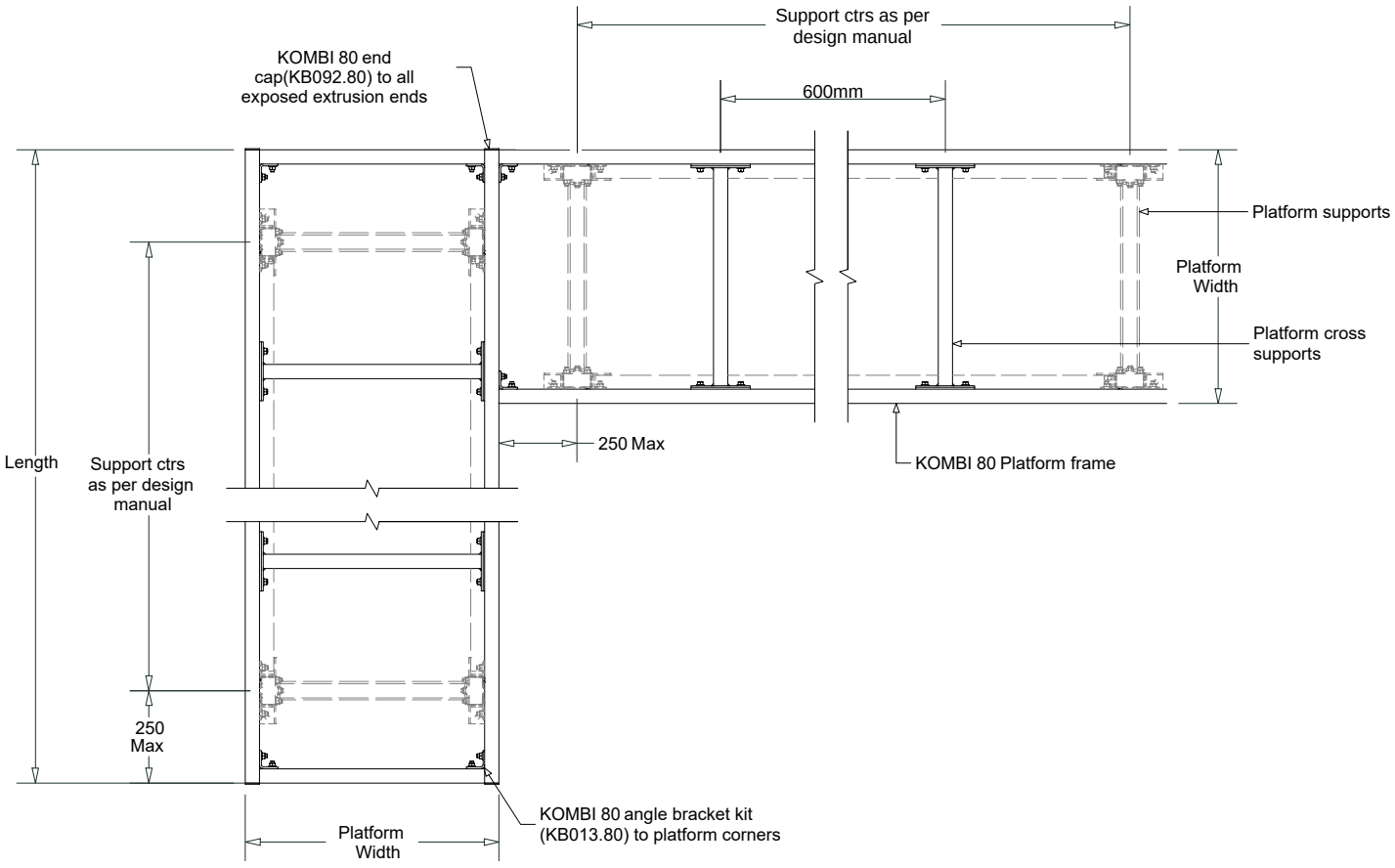

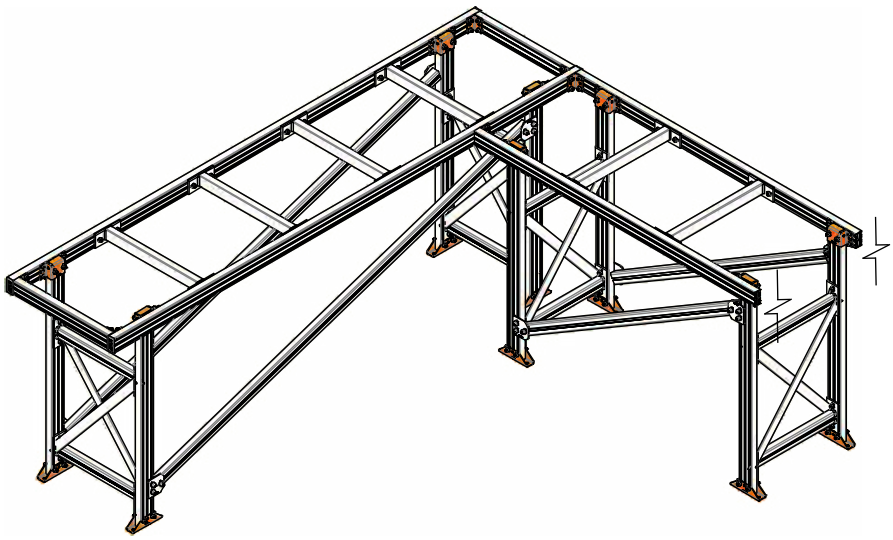

PLATFORM CONFIGURATION

PLATFORM SET OUT GUIDELINES

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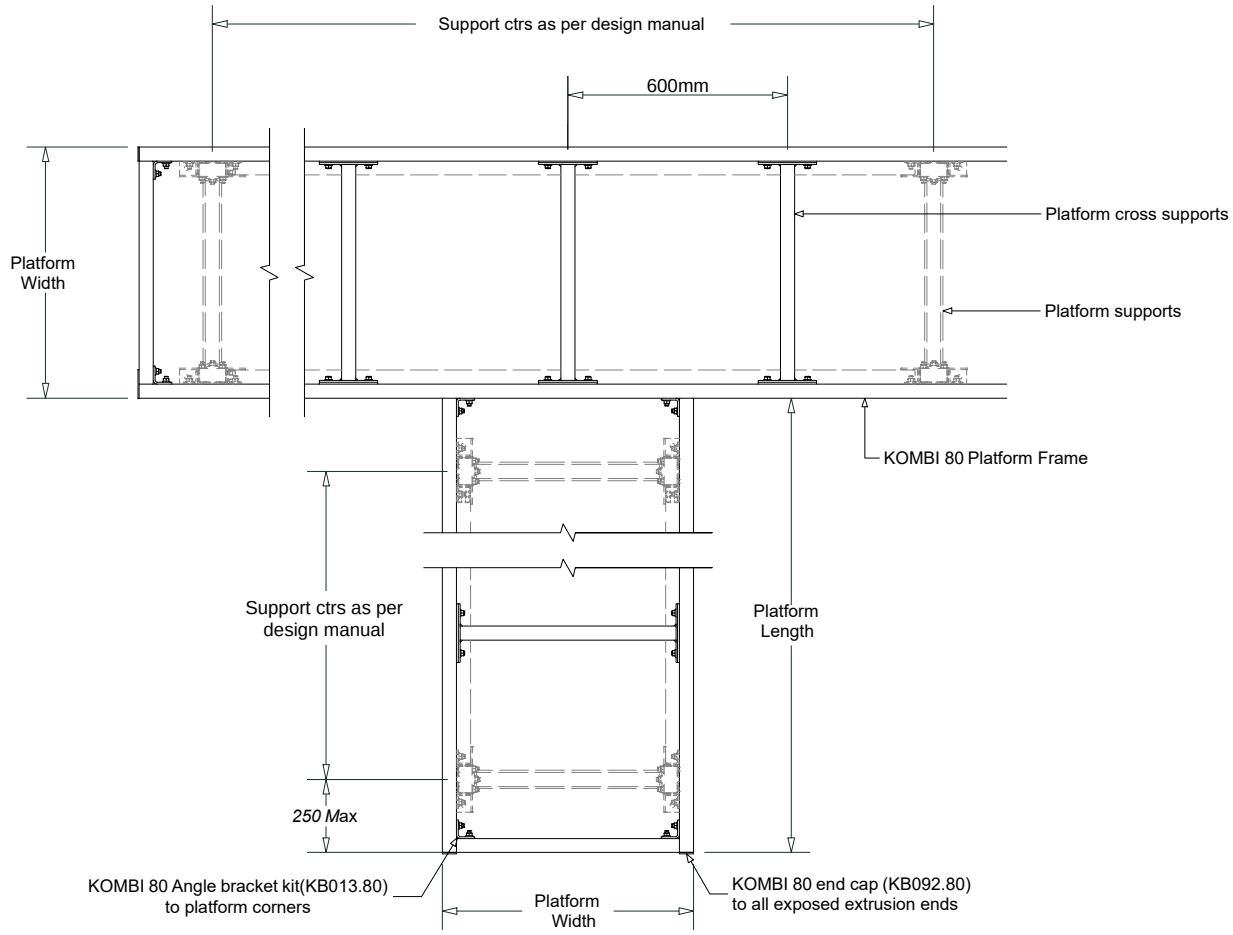
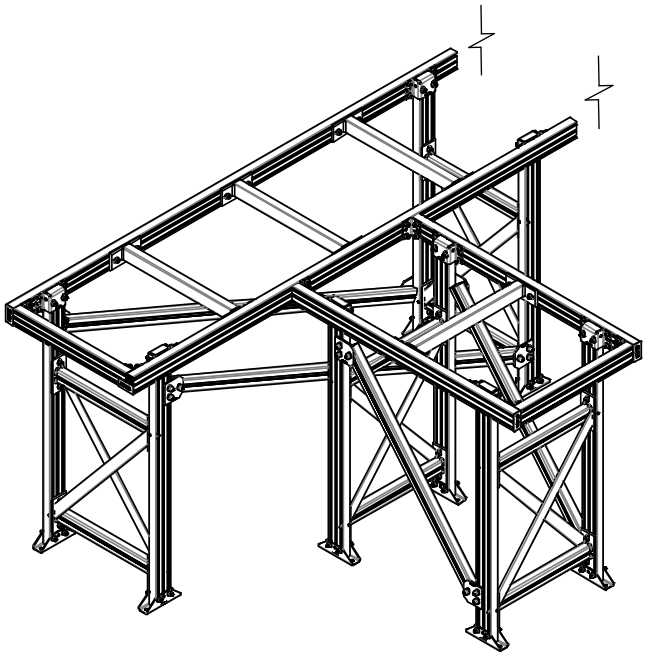
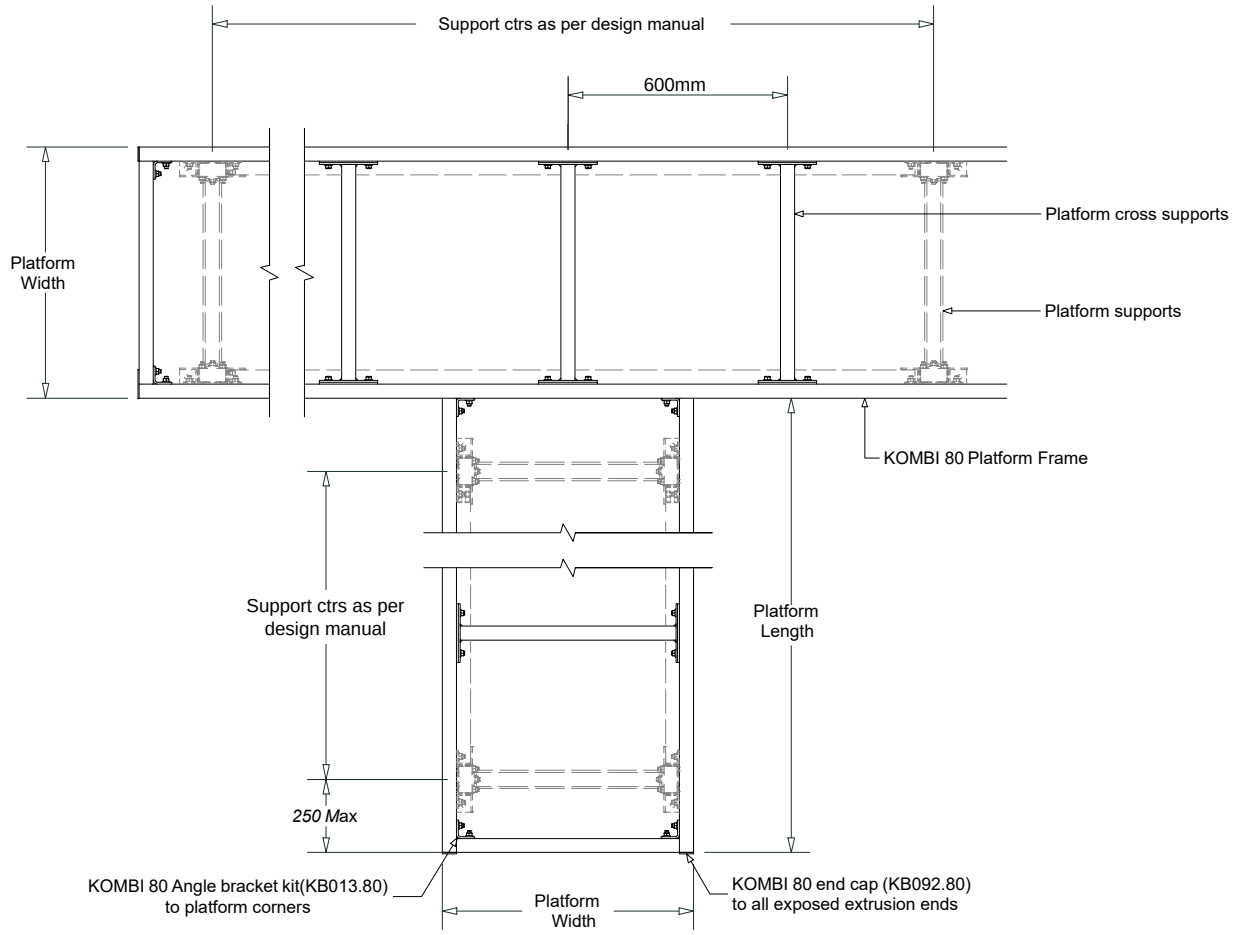


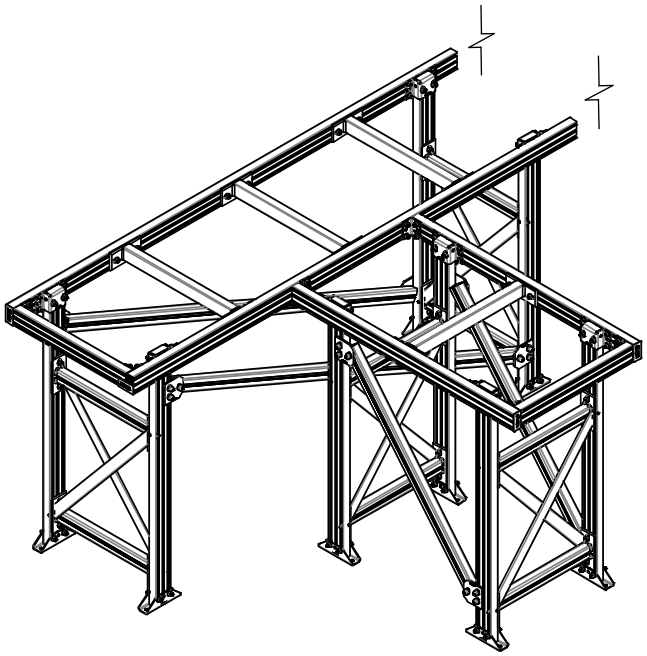


PLATFORM CONFIGURATION

PLATFORM SET OUT GUIDELINES

- Platform cross supports positioned at 600mm centres.
- Post supports positioned as close to end of platform as possible, (250mm max from outside edge of platform to centre of post).





TECHNICAL STATEMENT

CRITERIA	DATA	NOTES
ALUMINIUM EXTRUSION		
KOMBI 180	Aluminium Grade 6005A-T5	
KOMBI 80	Aluminium Grade 6005A-T5	
KOMBI 60	Aluminium Grade 6106-T6	
Bracing Straps	Aluminium Grade 6106-T6	
Walkway Mesh	Aluminium Grade 6106-T6	
Handrail	Aluminium Grade 6106-T6	
Kneerail	Aluminium Grade 6106-T6	
Toe Board	Aluminium Grade 6106-T6	
Stainless Steel Brackets	Stainless Steel Grade 316	
Aluminium Brackets	Aluminium Grade 5083-T5	
PLATFORM LOADINGS		
Live Load	2.5kPa	In accordance with AS 1657:2018.
Concentrated Loading	1.1kN	Applied through 100 x 100 pad at any point.
Mesh Slip Rating	R11	
Max Free Standing Height	6000mm	Subject to Sayfa technical advice.
Platform Support Spans	KOMBI 80 SERIES 600 Series (W) Platform - 3300mm max spacing 900 Series (W) Platform - 2700mm max spacing 1200 Series (W) Platform - 2500mm max spacing KOMBI 180 SERIES 600 Series (W) Platform - 6000mm max spacing 900 Series (W) Platform - 5500mm max spacing 1200 Series (W) Platform - 5100mm max spacing	Deflection limited to the span length divided by 100.
Platform Mesh Openings	Personnel access under platform.	Where personnel is required to access underneath platform narrow mesh (GW334) must be used.
STAIR LOADINGS		
Live Load	2.5kPa	Applied to tread and landing.
Deflection	L/100 or 40mm	Whichever is the lesser.
Tread Loadings	2.2kN per lineal metre or a concentrated loading of 1.5kN.	In accordance with AS 1657:2018 Section 7.1.1.
Max Stair Treads	17 treads, 18 risers	In accordance with AS 1657:2018.
Stair Widths	Max 1500mm wide	
Stair Angles	26 degrees to 44 degrees	Ideal angle is 40 degrees. Angle can be increased to reduce footprint.
Stair Risers	Riser - $130 \leq R \leq 225$ Going - $215 \leq G \leq 355$ Combination = $540 \leq (2R + G) \leq 225$	All risers and goings in the same flight of stairs shall be of uniform dimensions within a tolerance of $\pm$ 5mm.
Limitations Of Use	Not suitable for BCA / NCC stair design.	

TECHNICAL STATEMENT

CRITERIA	DATA	NOTES
DESIGN WIND CRITERIA		
Region	A1	
Regional Gust Wind Speed	V100 = 41m/s	
Terrain Category	2	
Topographical Multiplier	MT = 1.0	
Terrain/Height Multiplier	Mzcat = 0.96	
Shielding Factor	MS = 1.0	
FASTENERS		
Material	Stainless Steel 316	
KOMBI T-Bolt Fixing	M10 x 25mm, 316 SS	
KOMBI Nut Torque	60Nm	
HANDRAIL		
Platform Guardrail Post Spacing	2000mm Max	
Max Handrail Height	1000mm	Typically 987mm standard from deck to top of handrail
Kneerail Height Below Top Rail	450mm from top of kneerail to underside of kneerail.	
Platform Toe Board	Use KOMBI GW320 100mm high	Required if an object could fall from a platform or landing onto an area to which access by persons is available.
Limitations Of Use	Not suitable for BCA / NCC stair design.	
DISSIMILAR METALS		
Aluminium To Concrete	To be painted with a bitumen paint.	
Aluminium To Roof Deck	Shall be separated with EPDM tape.	
Aluminium to Stainless Steel	Brackets to be powder coated or EPDM separated.	Note this does not apply to fasteners. Ref AS/NZS 1664.1:1997 Section 5.1
WEIGHT		
Walkway Mesh 13mm x 600mm Wide	6.5kg / m2	
KOMBI 80 Extrusion	Approx 2.8kg / m	
KOMBI 180 Extrusion	Approx 4.2kg / m	
KOMBI Platform including Walkway Mesh	Approx 18kg / m2 Excluding Handrails	This is an approximate weight only. Depending on different combinations this can vary.

MAINTENANCE

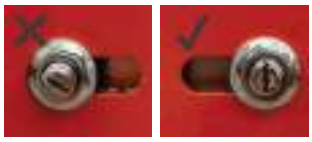
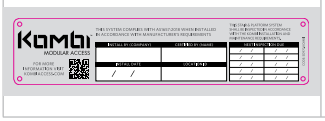
The KOMBI system requires very little maintenance, however installed systems should be inspected at 12 monthly intervals using the checklist below.

This checklist outlines the key checking criteria required to ensure the safe on-going use of this system. Any other items of concern not shown on the checklist, must be in the noted in the maintenance report and brought to the attention of the person in control of the workplace.

Items marked **YES** means they conform with the required checking criteria and are suitable for normal use until the next inspection. System data plates must be updated showing current check date and next check date.

Items marked **NO** means they do not conform to the required checking criteria. These items must have the required corrective actions put in place. The maintenance report must clearly document all non-conformance criteria.

SYSTEM MAINTENANCE CHECKLIST

COMPONENT	INSPECTION CRITERIA	PASS Y / N	CORRECTIVE ACTION	COMPLETION DATE
	1. No signs of deformation, deterioration or damage to platform, post support, stair and gaurdrail modules.			
	2. All system connections in place and secure.			
	3. System is being used for its intended pupose and is not supporting an undesigned load.			
	4. All bolts are in place and secure. Ensure that slots on all bolts are perpendicular to the extrusion slot and tightned to 60 NM.			
	5. There is no build up of soil or contaminants at the base of the system or any part of it in water.			
	6. Handrail components and connection to structure secure.			
	7. Walkway surface and steps clear of all debris or build up of any dirt or grime.			
	8. System data label attached and clearly visible - All data filled out including last and next inspection date.			

NOTES

REF:		COMMENTS:

TECHNICAL SPECIFICATION

SYSTEM CODE	**KOMBI SUPPORT STRUCTURE, PLATFORM & STAIR SYSTEM** **KB6000**
TECHNICAL DATA	**MATERIALS** - Manufactured from high grade structural aluminium - KOMBI fixing brackets, joining plates and support feet manufactured from profiled stainless steel plate powder coated burnt orange - KOMBI T-Bolt manufactured from stainless steel **DIMENSIONS** - KOMBI 80 extrusion: 80 x 38mm - KOMBI 180 extrusion: 180 x 32mm - Platform support extrusion: 58 x 58mm - Stair tread: 250 x 40mm - Handrail post extrusion: 58 x 58mm - Aluminium expanded mesh: 600 x 13mm **FIXINGS** - KOMBI T-Bolt: M10 x 25 - Tek screw: 12g stainless steel **WEIGHT** - KOMBI 80 extrusion: 2.6kg/m - KOMBI 180 extrusion: 4.0kg/m - KOMBI platform deck (aluminium mesh only - 600mm wide): 4.2kg/m^2 - KOMBI stair tread: 3.9kg/m **WORKING LOAD LIMIT** - KOMBI platforms are designed to AS1657-2018 (Platform live load limit 2.5kPa) - KOMBI stairs are designed to AS1657-2018 (Stair live load limit 2.5kPa) - Platform deflection is limited to L/100 - Deflection based on a uniformly distributed load combination of dead load + 0.7 live load.
COMPLIANCE	KOMBI modular access systems are designed to comply with requirements of Australian Standards AS 1657:2018 and relevant statutory OHS codes of practice and guidelines.
TESTING	Testing and performance based on requirements of Australian Standard AS 1657:2018 and AS/NZS 1170 under live load conditions.
PRODUCT WARRANTY	10 years from date of purchase subject to correct configuration and installation. Use and maintenance to be in accordance with manufacturer's specifications and recommendations.
INSPECTION AND MAINTENANCE	Inspection required every 12 months by competent person in accordance with manufacturer's specifications and requirements of Australian Standards AS 1657:2018.
IMPORTANT NOTE	Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

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THE SAYFA GROUP

WE SAVE LIVES!

This is our Mission, and it drives our Vision to BRING EVERY WORKER HOME SAFELY.

SAYFA GROUP leads the industry in the design, installation and management of access, fall protection and ground safety systems. As an Australian owned company, we engineer and rigorously test our proprietary systems to exceed national and international standards. Simple installation and easy to use systems are our key drivers for ensuring maximum effectiveness, improved safety and compliance with Occupational Health and Safety standards in the workplace.

OUR VALUES

We are governed by the following principles in everything we do:

A – Accountability / Totally responsible and answerable for our actions.

L – Loyalty / Steadfast and dependable based on our values in our dealings with one another.

I – Integrity / Honest and sincere, we do what we say, on time every time.

V – Value Driven / Increase what's of value in view of a win win plan for all.

E – Enthusiastic / Motivated and inspired to continuously perform better.

COMMITMENT

We are passionate about our work with every product a testament to our commitment of world class safety, quality and performance. Our obligation is to live up to our own high standards as well as those of our customers and stakeholders ensuring total peace of mind.

ISO 9001:2015

SAYFA GROUP