Aldeck

Aldeck Over Purlin Handrail Systems Installation Guide

Compliance Testing to
AS 1657-1992 and AS/NZS 4994.1:2009

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Aldeck

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Introduction

The Victorian occupational health and safety act 2004 requires for all people and organizations to ensure a safe and healthy work environment. The Occupational Health and safety (prevention of falls) National code of practice 2008 ,provides practical guidance to all duty holders related to fall hazards associated with construction work and requires all duty holders to identify all risks that involve the possibility of someone falling more than 2 metres and eliminate all such hazards ,so far as is reasonably practical.

It is also noted in the code that a fall from almost any height including falls from below 2m can result in serious injury or death .It is possible that a number of factors can combine to create a dangerous situation making the hazard identification and risk assessment process essential for work at any height.

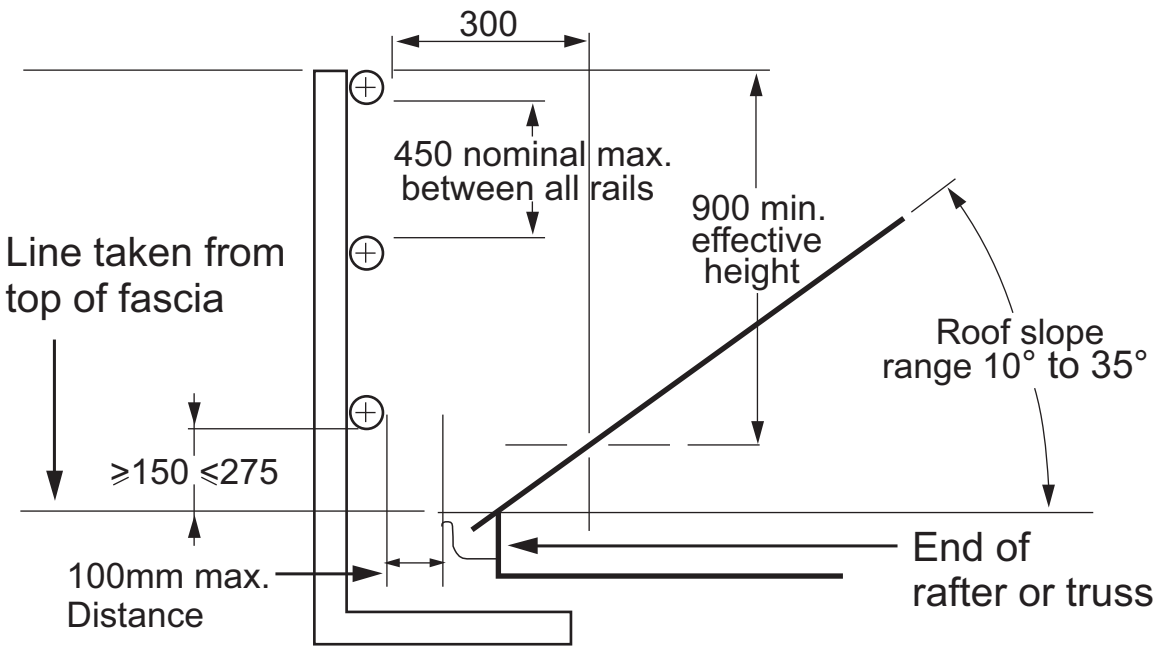
An employer's primary duty of care is to eliminate the risk of injury to an employee. The best way of achieving this is before work commences, identifying potential risks and applying risk control measures as set out in the hierarchy of control matrix of the prevention of falls compliance code. The use of perimeter guardrail is in the second highest control measure available, along with safety mesh and elevated work platforms. Only the possibility of carrying out work on the ground rates higher in the hierarchy than using a perimeter guardrail system. Aldecks handrail system can be used pre, during or post construction to minimize the risk of people falling from height. The Aldeck handrail system is fully tested and complies with AS 1657-1992 and AS/NZS 4994.1:2009

- The Aldeck handrail system should be erected and dismantled in accordance with legislation under the OH&S act. A thorough risk assessment should be conducted and a safe work procedure applied.
- The handrail system should only be installed, modified or dismantled by a component person familiar with the Aldeck safety rail system .
- Posts to be installed at a maximum of 3m
  Handrail heights are dictated by the Australian standard and are dependant on the roof pitch
  Roof pitches from the horizontal
  - 0 to 10 degrees handrail need to be not less than 900mm high
  - 10 to 35 degrees, the top rail shall be located at an effective height of not less than 900mm Above the point where a person could stand inside and adjacent to the edge protection on the sloping roof. This shall be not less than 300mm from the back of the fascia or outer edge of the truss or rafter where there is no fascia.
  - Where midrails are used, the nominal clear distance between rails shall not exceed 450mm. The nominal clear distance between a midrail and a toeboard or bottom rail shall not exceed 275mm.
  - Rails intersecting at corners of edge protection shall be securely connected to each other or to a post. The connection shall be one rail immediately above the other.
  - In any section of roof edge protection, the rails shall be nominally parallel.

Introduction cont.

- Where the slope of the roof exceeds 35 degrees, the roof according to the code of practice (prevention of falls 2008) is an inappropriate surface to stand on. Perimeter guard rails and catchment platforms are inappropriate measures to protect workers on a steeply sloping roof. In these circumstances, roof workers need a system to prevent sliding and to prevent falls from the perimeter ,comprising one or more of the following
  - Elevated work platform
  - A work positioning system ,such as a travel restraint or industrial rope system
  - A scaffold platform ,located at the roof edge
  - A roof ladder

FIGURE 1 EFFECTIVE HEIGHT OF A GUARDRAIL



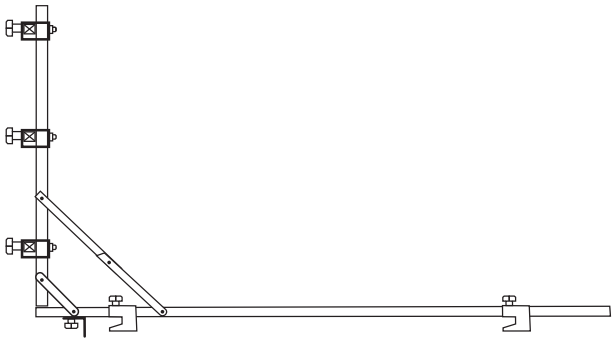
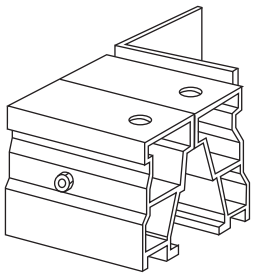
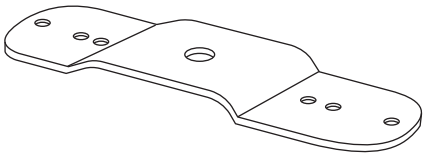
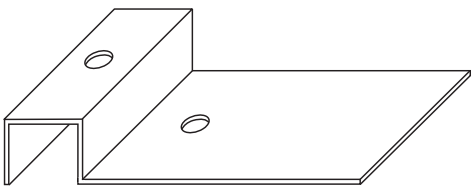
NOTE: Infill and toeboards are not shown for clarity.

DIMENSIONS IN MILLIMETRES

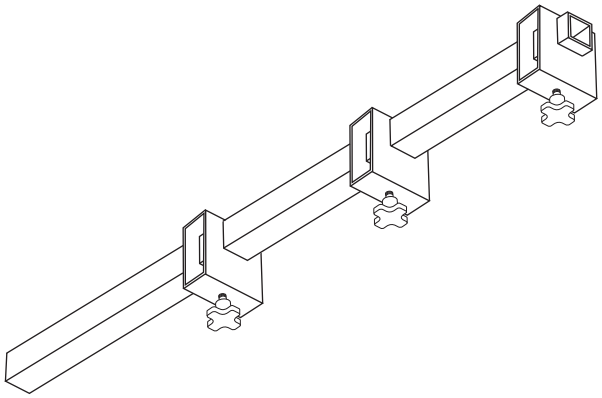
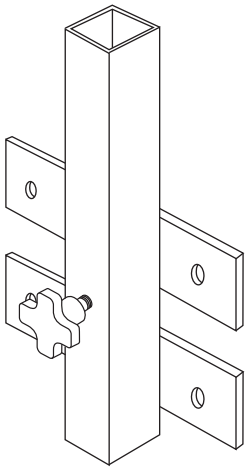
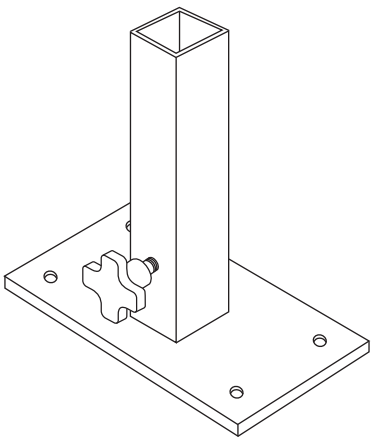
IMPORTANT

It is important that the structure to which the temporary edge protection is to be attached can support the forces that may be applied when the edge protection restrains a person from falling from the edge.

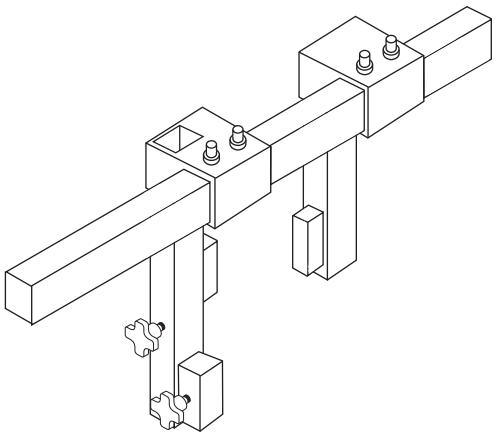
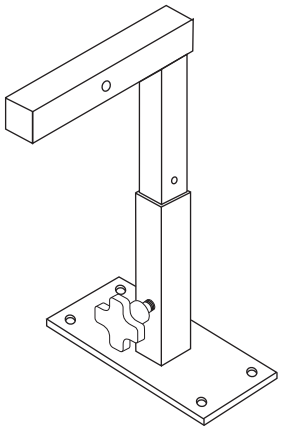
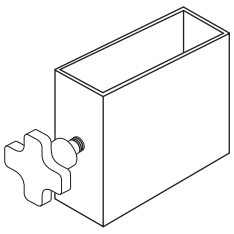
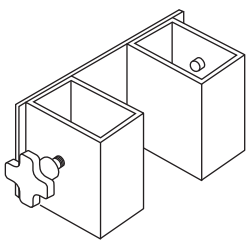
Aldeck Saftey Rail Components

Part No.	Description	Picture / Diagram
1	**Perimeter Handrail System** **Application** Usually used to connect to the perimeter purlins on a roof structure.	 Standard fitted with 2 purlin Grabbers : Can be interchanged with part number 2, 3 or 4
2	**Deck Fixing Clamp** **Application** Used to secure Perimeter handrail to Roof Deck/ Replaces Purlin Grabber	
3	**5 Rib / Corrugated fixing bracket** **Application** Used to secure Perimeter handrail to Corrugated Roof sheets, **Fixings used:** 2 of part number F1/F2 (12 X Gauge Roof Screw)	
4	**All purpose Fixing Bracket** **Application** Used to secure Perimeter handrail to Any surface **Fixings used:** 1 of part number F1/F2 (12 X Gauge Roof Screw)	

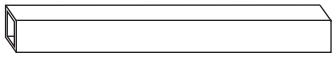
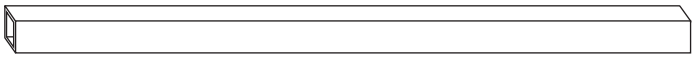
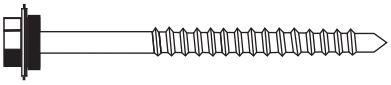
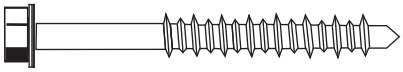
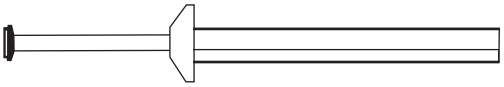
Aldeck Saftey Rail Components

Part No.	Description	Picture / Diagram
5	**Handrail Post** **Application** Handrail post assembly for post brackets 6,7,8 & 9	
6	**Gable End Bracket** **Application** Usually used at the end of the roof from the gutter to the ridge line	
7	**Bolt on Bracket** **Application** Usually used on top of a concrete panel or on top of a heavy steel member **Fixings used:** **Steel** Minimum 4 of part number F1 (12 Gauge Roof Screw) **Timber** Minimum 4 of part number F2 (12 Gauge Roof Screw) **Concrete** Minimum 4 of part number F3 (12 Gauge Concrete Screw) **or** Minimum 4 of part number F4 (12x35 mm Metal Drive Anchor)	

Aldeck | Saftey Rail Components

Part No.	Description	Picture / Diagram
8	**Clamp On Bracket** **Application** Usually used on top of a tilt up panel wall or light weight structure **Fixings** Not required	
9	**Adjustable offset Bracket** **Application** Used with Single handrail Post part no. 5, Fitted where the need to offset post or handrail is required	
24	**Handrail Joiners** **Application** Used to join handrail. Required every 4.6 metres	
25	**Adjustable Handrail Corner** **Application** Corners or change of direction etc	

Aldeck Saftey Rail Components

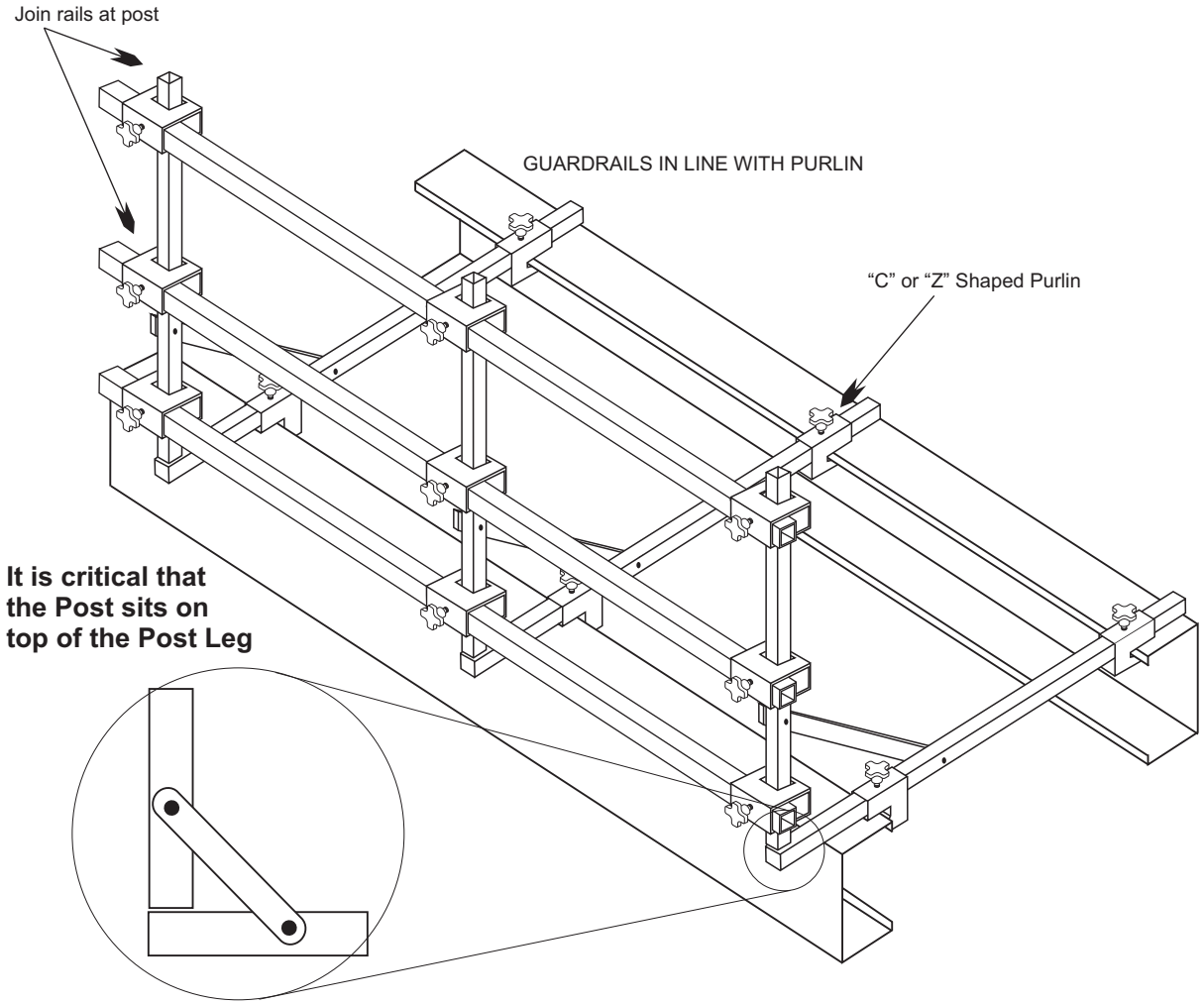
Part No.	Description	Picture / Diagram
26	**Handrail** **2400 MM Length**	 Used for corners and change in direction
27	**Handrail** **4600 MM Length**	 Most common rail used
F 1	**Screw 12 Gauge Steel** Steel 35 mm or 45 mm	
F 2	**Screw 12 Gauge Timber** Timber 50mm or 65 mm	
F 3	**Screw 12 Gauge Concrete** Concrete 6.5mm x 55mm Confixx Concrete Screws	 **Use of 5mm Masonry Drill Needed to Install**
F 4	**Metal Drive Anchor** Plug - Concrete - 6mm x 50 mm Min 4 per bracket	 **Use of 6.5mm Masonry Drill Needed to Install**

INSTALLATION GUIDE

Perimeter Handrail

Aldeck

BEFORE ATTEMPTING INSTALLATION OF HANDRAIL, PLEASE ENSURE YOU HAVE READ THE COMPLETE INSTALLATION GUIDE.



- Maximum post spacing is 3 metres
- When installing or dismantling, this work must be in accordance with state legislation under the OH&S act.

Aldeck | Perimeter Handrail

Is usually used to connect to the perimeter purlins on a roof structure.

Installation Procedure

1. Place perimeter handrail post on top of purlins usually starting approximately 1.5m in from the corner.

2. Fix posts to roof structure using one of the 4 methods shown in Figure 1.

3. When fixings are required, only use fixings as per recommended on Page 7 (F1-F4)

4. Insert rails into posts and tighten into position using locking nuts on posts.
Join rails between posts via use of handrail joiner (Part No. 24) or corner bracket (Part No. 25).

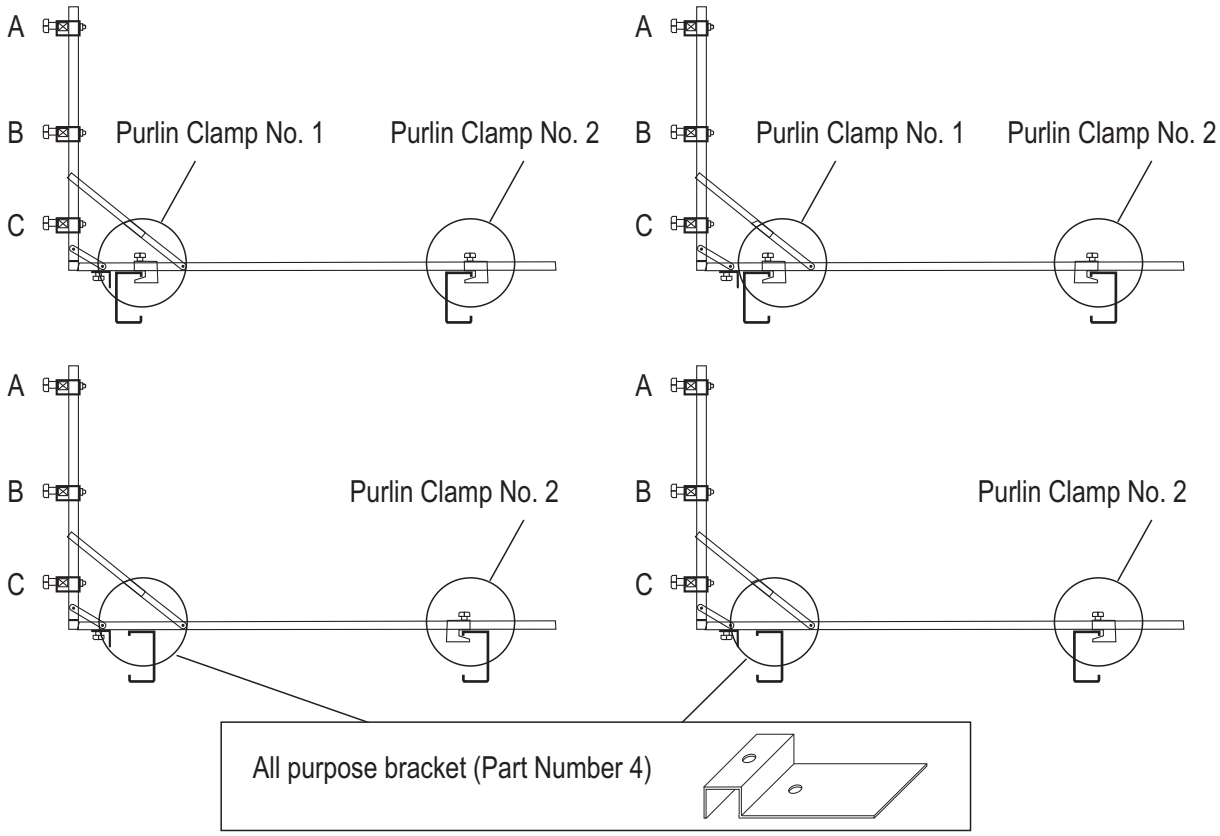
5. Repeat Steps 1 to 4 until complete.

- Maximum post spacing is 3 metres
- Installers and dismantlers must install in accordance with State Legislation under the OH&S Act.

Aldeck | Purlin configuration

FIGURE 1

There are 4 main purlin configurations to consider when installing the perimeter handrail system.



NB. Purlin Clamps are reversible and can be turned around if necessary to suit different purlin configurations- ie. Z purlins.
To do this simply undo the fibre locking nut, reverse the purlin clamp and re insert fibre locking nut.

Aldeck | Laying of Roof Sheets

1. Once structure has been handrailed out, roof sheets can be loaded up and roof laying can commence.

2. When a roofer comes to the point where a post leg is in the way of fixing a roof sheet, you lift up the post leg by undoing the purlin fixing, as in figure 3 below. This will leave space to allow the roof sheets to be placed into position and fixed to roof structure as per manufacturer's recommendation.

3. Once roof sheet is secured, lower post leg back down to the roof sheet and secure post leg to the roof sheet by changing over the rear purlin clamp with Part No. 2 or Part No. 4 as per Figures 4 or 5 on page 12. THERE IS NO NEED TO SECURE FRONT CLAMP TO THE ROOF SHEET.

NB The purlin clamp that is no longer required should remain on the post leg in a loose position to prevent lose of clamp as per figure 3

- Continue this process until roof has been completed.
- Only one post leg can be released at any one time.

FIGURE 2

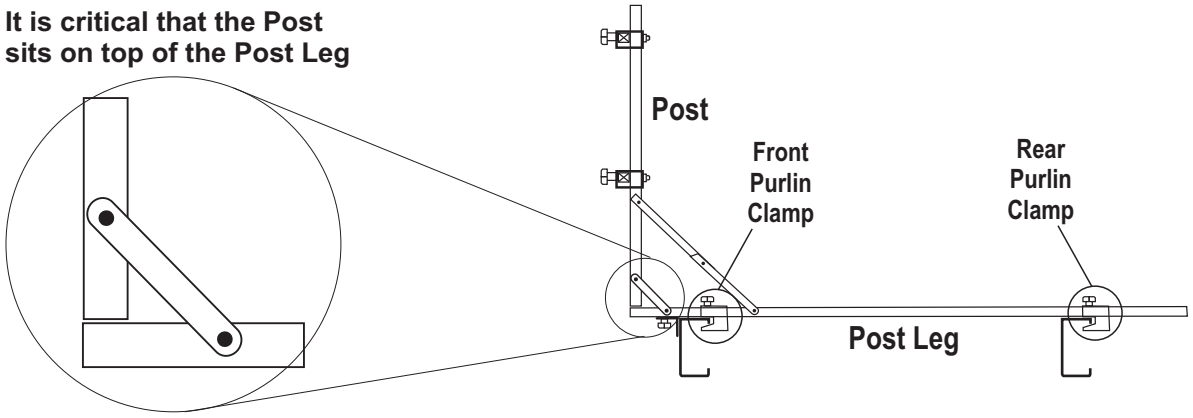
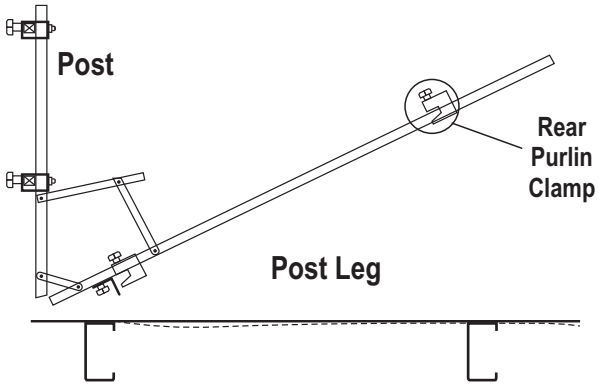


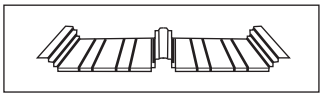
FIGURE 3



Aldeck | Clip Deck Type Roof

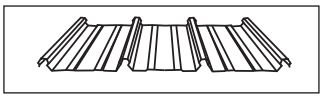
If using a clip deck style roof sheet (as per Figure 4 below) a clamping bracket (part Number 2) will be required to secure the post leg to the rib of the roof sheet. Follow instructions on page 10.

FIGURE 4

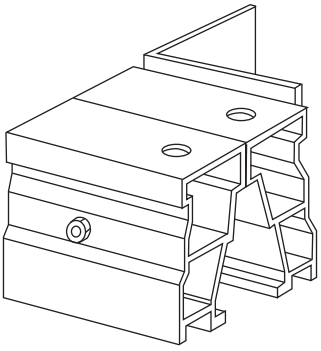


Klip-Lok HI-TEN

King Clip



Speed Deck Ultra



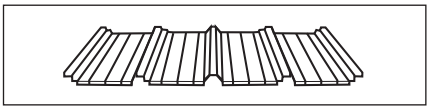
Part number 2.

Aldeck | Pierce Fixed Roof Sheets

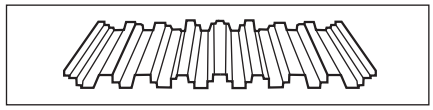
If using a pierce fixed roof sheet such as corrugated iron or Trimdeck, an all purpose clamping bracket (Part number 3) is used to secure the post leg to the roof sheet. Unlock the locking nut and move the purlin clamp number 2 forward and replace with roof clamping bracket Part number 3 or 4.
The bracket/Fixing plate is then fitted over the coach bolt left in the slot of the support bar and tightened.
Suitable 12 gauge tek screws are used to fix the bracket which holds the perimeter handrail in place.
The screws are fixed through the crest of the roof sheet and into the purlin.

FIGURE 5

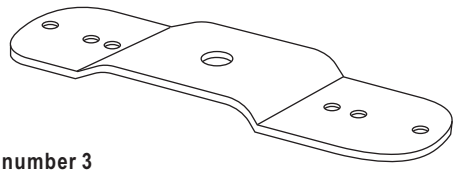
Custom ORB



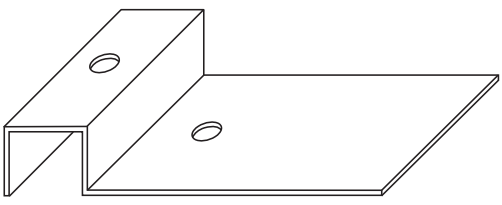
Trimdeck HI-TEN



Spandek HI-TEN



Part number 3



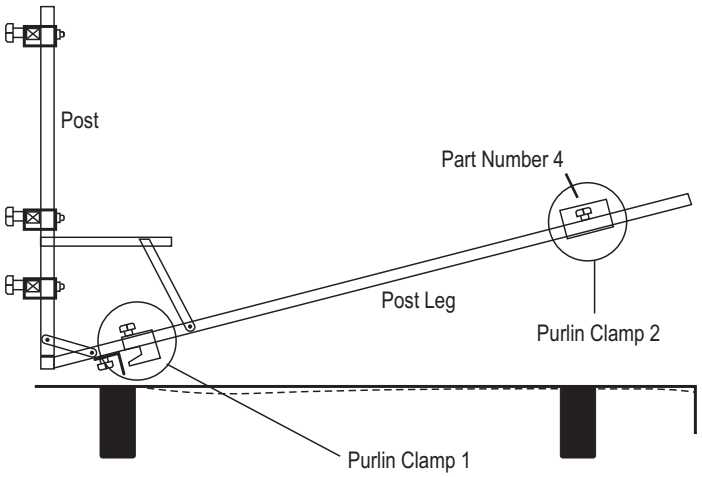
Part number 4

Aldeck | Timber Rafters

If using timber rafters instead of Steel Purlins a clamping bracket (All Purpose Fixing Bracket: part Number 4) is used to secure the post leg to the top of rafters.

- Unlock the locking nut and move the purlin clamp number 2 forward and replace with all purpose bracket part number 4.
- The bracket/Fixing plate is then fitted over the couch bolt left in the slot of the post leg and tightened. Suitable screws Part Number F2-(12 Gauge x 55mm long Timber screws are used to fix the bracket which holds the safety support frame. 30 mm minimum penetration into the timber by the screw is required.
- Rails can now be inserted in to post sections. Simply undo locking nut, slide in safety rail and screw up locking nut to hold rail in place. Safety rails are joined at every intersection with handrail joiner (part number 24) or adjustable handrail corner (part number 25) where there is a change of direction in handrail.

  - Maximum post spacing is 3 metres
  - When installing or dismantling, this work must be in accordance with state legislation under the OH&S act.



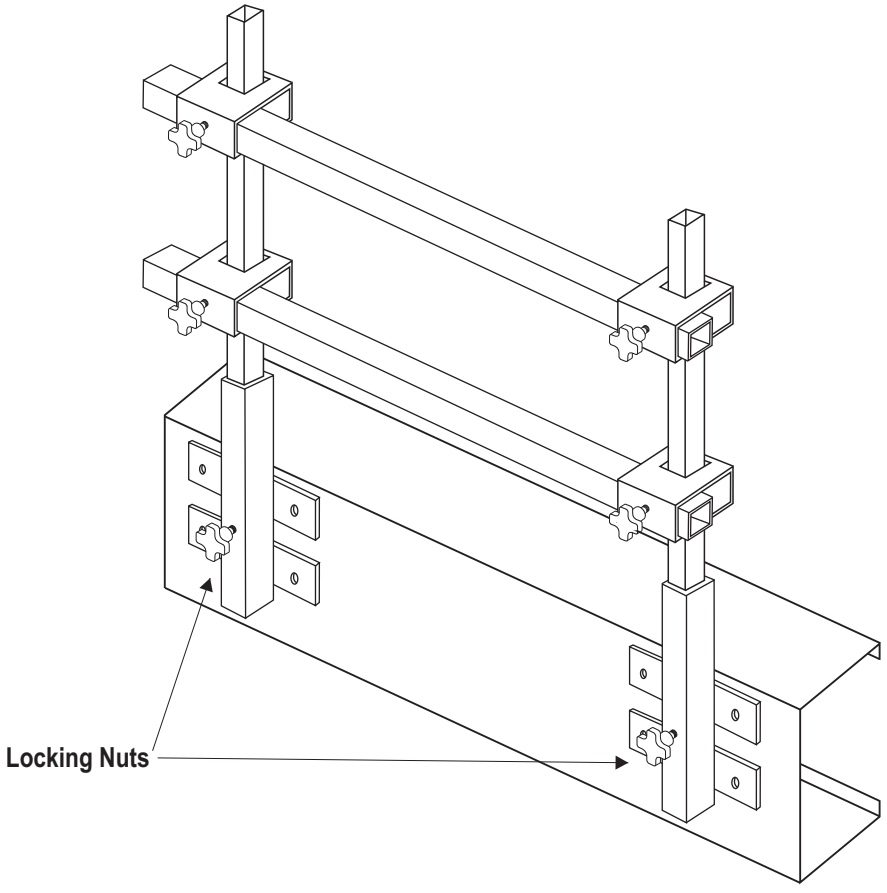
Aldeck | Gable End Application

Gable end brackets are usually used at the end of the roof from the gutter to the ridge line. They can also be incorporated against the inside face of a concrete panel, light weight structure or even along the gutter line attached to purlins if rigidity of purlins allows .

Installation Procedure

1. Place gable end bracket into position usually about 1.5m in from corner
2. Screw or plug bracket into place using recommended fixings (F1- F4)
   4 Fixings are required per bracket.
3. Insert post into bracket and lock post in by tightening locking nut on bracket .
4. Insert rails into posts and tighten into position using lock nut on posts. Join rails between posts via use of handrail joiner (part no. 24) or corner bracket (part no. 25)
5. Repeat steps 1 to 4 till complete

- Maximum post spacing is 3 metres
- When installing or dismantling, this work must be in accordance with state legislation under the OH&S act.



Aldeck | Clamp on Bracket

Clamp on brackets are usually used on top of a tilt up panel wall or light weight structure

Installation Procedure

1. Place clamp on bracket into position usually about 1.5m in from corner

2. Slide the post support in if necessary till both sides of the bracket are firm to the wall and re-tension.

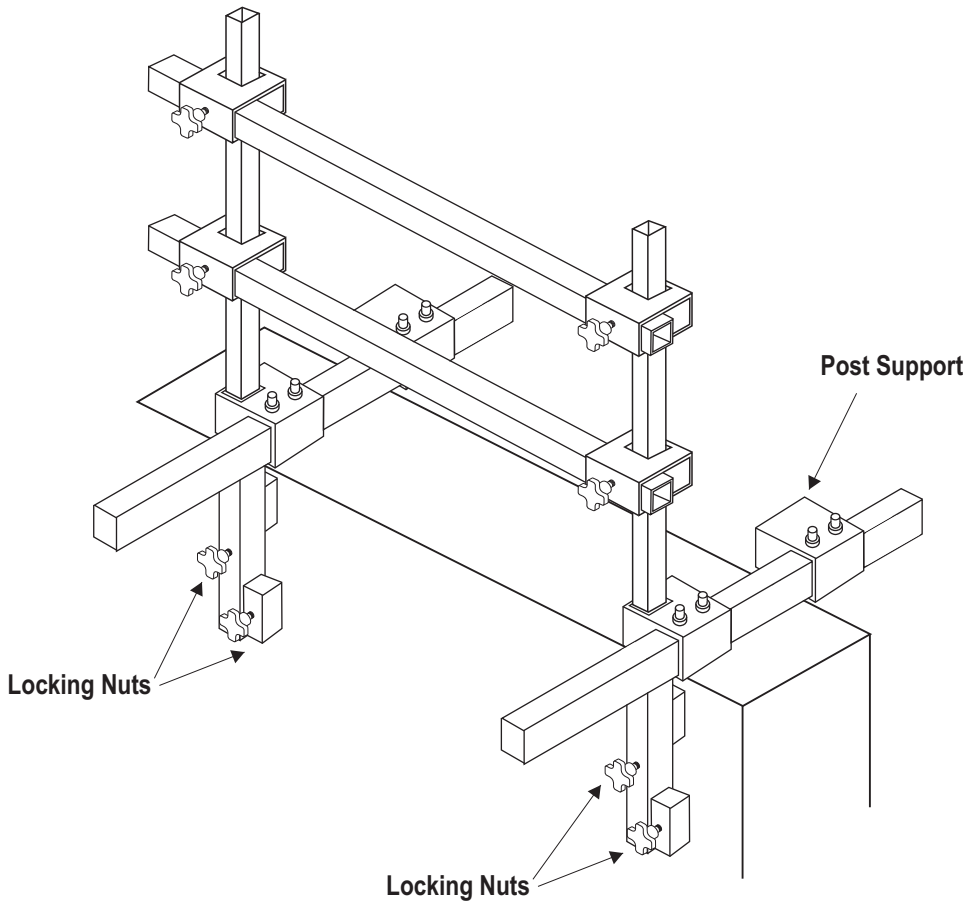
3. Tension further to the wall by screwing in locking nut located on front half of bracket .

4. Insert post into bracket and lock post in by tightening locking nut on bracket.

5. Insert rails into posts and tighten into position using lock nuts on posts. Join rails between posts via use of handrail joiner (part no. 24) or corner bracket (part no. 25)

6. Repeat steps 1 to 5 till complete

- Maximum post spacing is 3 metres
- When installing or dismantling, this work must be in accordance with state legislation under the OH&S act.



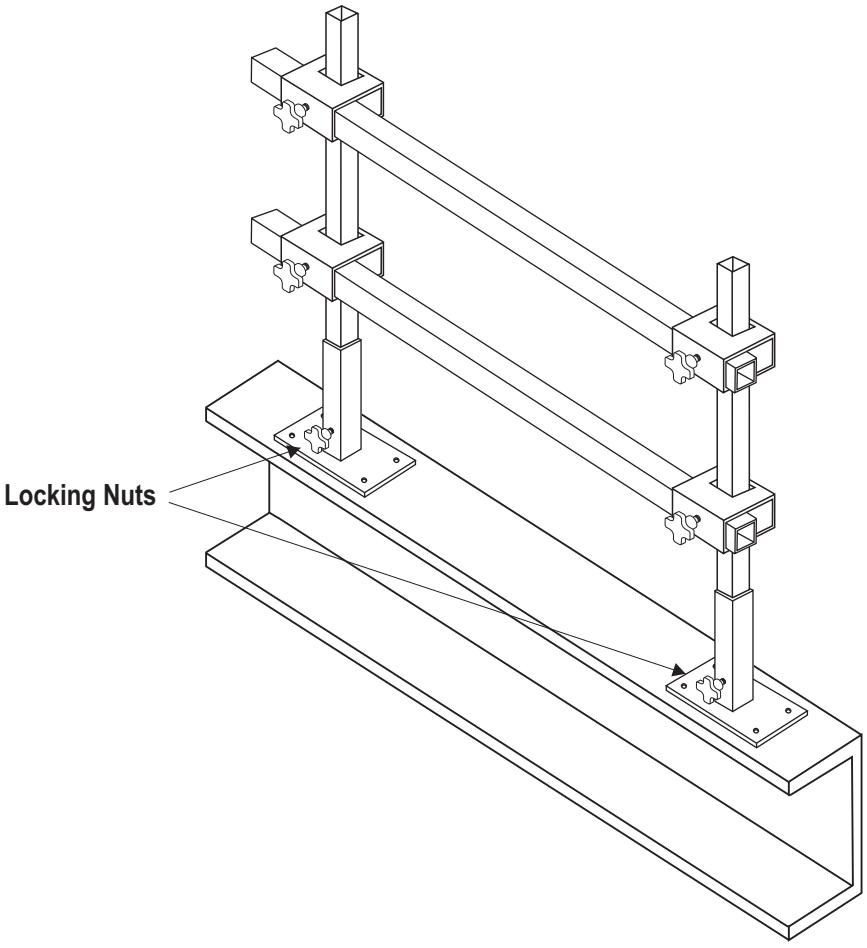
Aldeck | Bolt on Bracket

Bolt on brackets are usually used on top of a concrete panel or on top of a heavy steel member. If structure is rigid enough bolt on brackets can also be used fixed directly to purlins

Installation Procedure

1. Place bracket into position usually about 1.5metre in from corner
2. Screw or plug bracket into place using recommended fixings (F1 – F4)
   4 Fixings are required per bracket.
3. Insert post into bracket and lock post in by tightening locking nut on bracket
4. Insert rails into posts and tighten into position using locking nuts on posts. Join rails between posts via use of handrail joiner (part no. 24) or corner bracket (part no. 25)
5. Repeat steps 1 to 4 till complete

- Maximum post spacing is 3 metres
- When installing or dismantling, this work must be in accordance with state legislation under the OH&S act.



How to use Matrix

Step 1: Select Application.
Step 2: Choose preferred system option if available over alternative system.
Step 3: Select System component to use.
Step 4: Select Accessories required.
Step 5: Select Fixings used to secure system in place.

Always use authorised Aldeck Safety System Installer to install, modify or dismantle.

Part No.	Preferred System	Perimeter Guardrail-Purlins in Line	Perimeter Guardrail-Timber Rafter	Perimeter Guardrail-Deck Profile Roof Surface	5 Rib / Corrugated Roof Surface	Parapet Wall-	Perimeter Gutter application	Gable End Purlin	Gable End Roof Deck Profile	Concrete surface-Non Roofing Application
	Application									
1	Perimeter Handrail	✓	✓	✓	✓	✗	✗	✓	✓	✗
2	Deck Fixing Clamp	✗	✗	✓	✗	✗	✗	✗	✓	✗
3	5 Rib / Corrugated Fixing Bracket	✗	✗	✗	✓	✗	✗	✗	✗	✗
4	All Purpose Fixing Bracket for Perimeter Handrailing	✓	✓	○	✓	✗	✗	✗	✗	✗
Part No.	**Alternative System**									
5	Hand Rail Post	○	○	✗	○	✓	✓	✓	✓	✓
6	Gable End Post Bracket	✗	✗	✗	✗	✗	✗	✓	✓	○
7	Bolt on Post Bracket	✓	✓	✗	✗	✓	✓	✓	✗	✓
8	Clamp on Post Bracket	✗	✗	✗	✗	✓	✗	✗	✗	✓
Part No.	**System Components**									
24	Handrail Joiner	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	Adjustable Corner Handrail Joiner	✓	✓	✓	✓	✓	✓	✓	✓	✓
26	Handrails 2.400 mm	✓	✓	✓	✓	✓	✓	✓	✓	✓
27	Handrails 4.600 mm	✓	✓	✓	✓	✓	✓	✓	✓	✓
Part No.	**Fixings and Drill Bits**									
F1	Screw - 12 Gauge - Steel - Min 1 per fixing	✓	✗	✗	✓	✗	✓	✓	✓	✗
F2	Screw - 12 Gauge x 55mm - Timber - Min 1 per fixing	✗	✓	✗	✓	✗	✓	✗	✗	✗
F3	Screw - 12 Gauge - Concrete - Min 1 per fixing	✗	✗	✗	✗	✓	✗	✗	✗	✓
F4	Plug-Concrete- 6.5mm x 50 mm - Min 2 Per fixing	✗	✗	✗	✗	✓	✗	✗	✗	✓
F5	Drill Bits			✗						

Legend	Description
○	Optional
✗	Not used
✓	Used