

**INSTALLATION MANUAL**

# MODULAR LADDER CAGE

RL424



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Kattsafe rung ladders provide safe and easy access to elevated areas such as roof tops, ceiling spaces and maintenance platforms.



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**Product brochure**  
Rung ladders



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**Installation manual**  
Modular ladder cage

Find all related products and resources on our website  
[kattsafe.com.au](http://kattsafe.com.au)

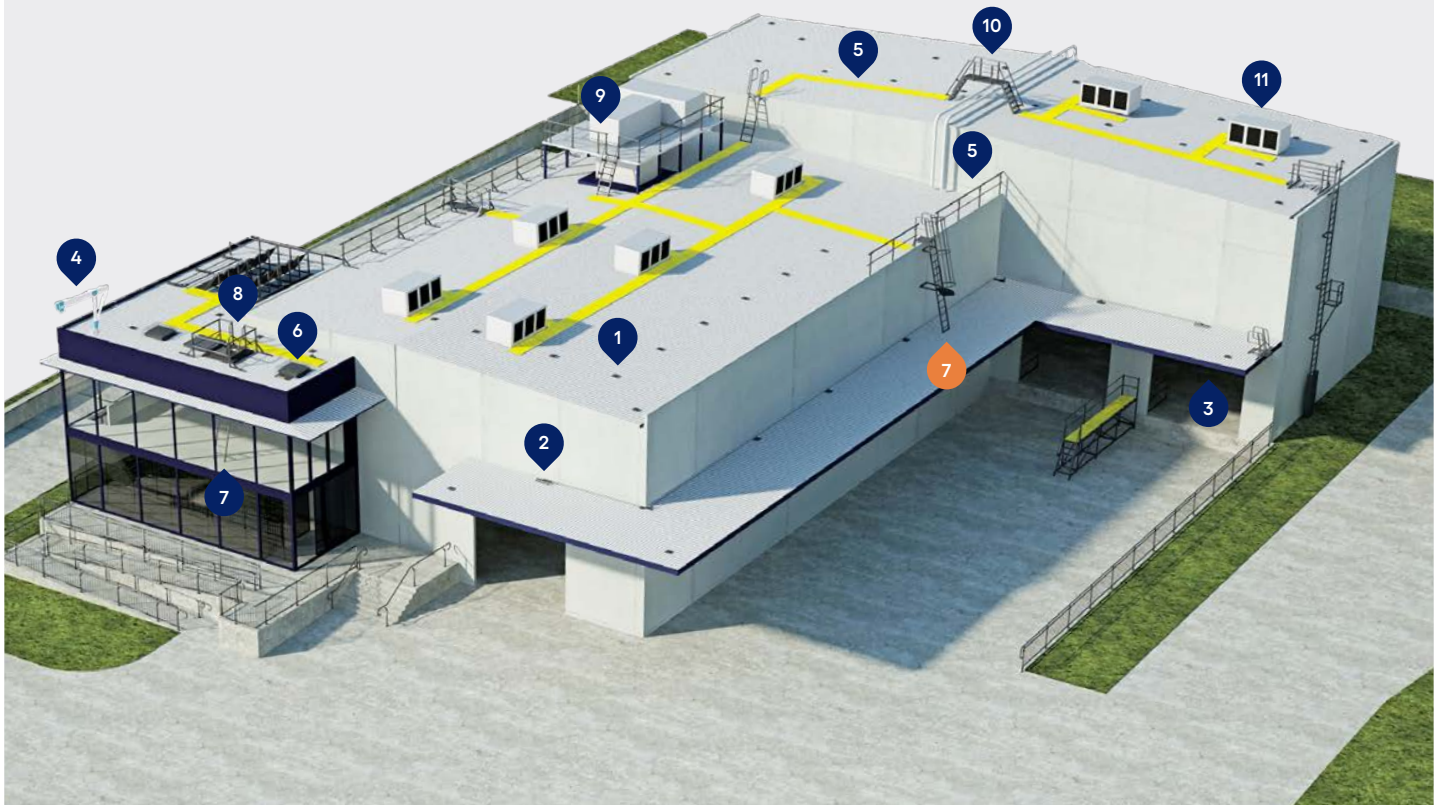
## Commercial building height access and fall protection requirements

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

The in-action model demonstrates access and fall protection requirements for a commercial building design. Kattsafe recommendations fulfill current workplace requirements for the safety of building maintenance subcontractors, employees and the general public.

For more information please contact Kattsafe.  
[kattsafe.com.au](http://kattsafe.com.au)

- 1 Anchor points
- 2 Static lines
- 3 Rigid rail
- 4 Davits and needles
- 5 Guardrail and walkway
- 6 Skylight protectors
- 7 Rung ladders
- 8 Access hatches
- 9 Platforms and stairs
- 10 Step ladders
- 11 HVAC platforms



# RUNG LADDERS

Rung ladders are a light weight high strength access solution designed to be customised on site to suit project specific requirements.



1

### Front and rear t-slot attachment on stile

Reducing cage and bracket interference providing unlimited adjustability.



4

### Adjustable height egress platform

For simple leveling and top rung compliance.



2

### T-bolt

M10 T-bolt fastener providing rapid installation to minimise any drilling required.



5

### Modular cage

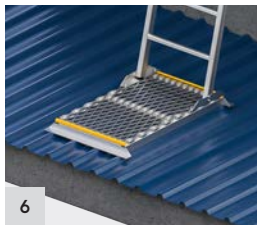
Adjustable cage length with T-bolt attachment to ladder.



3

### Modular landing

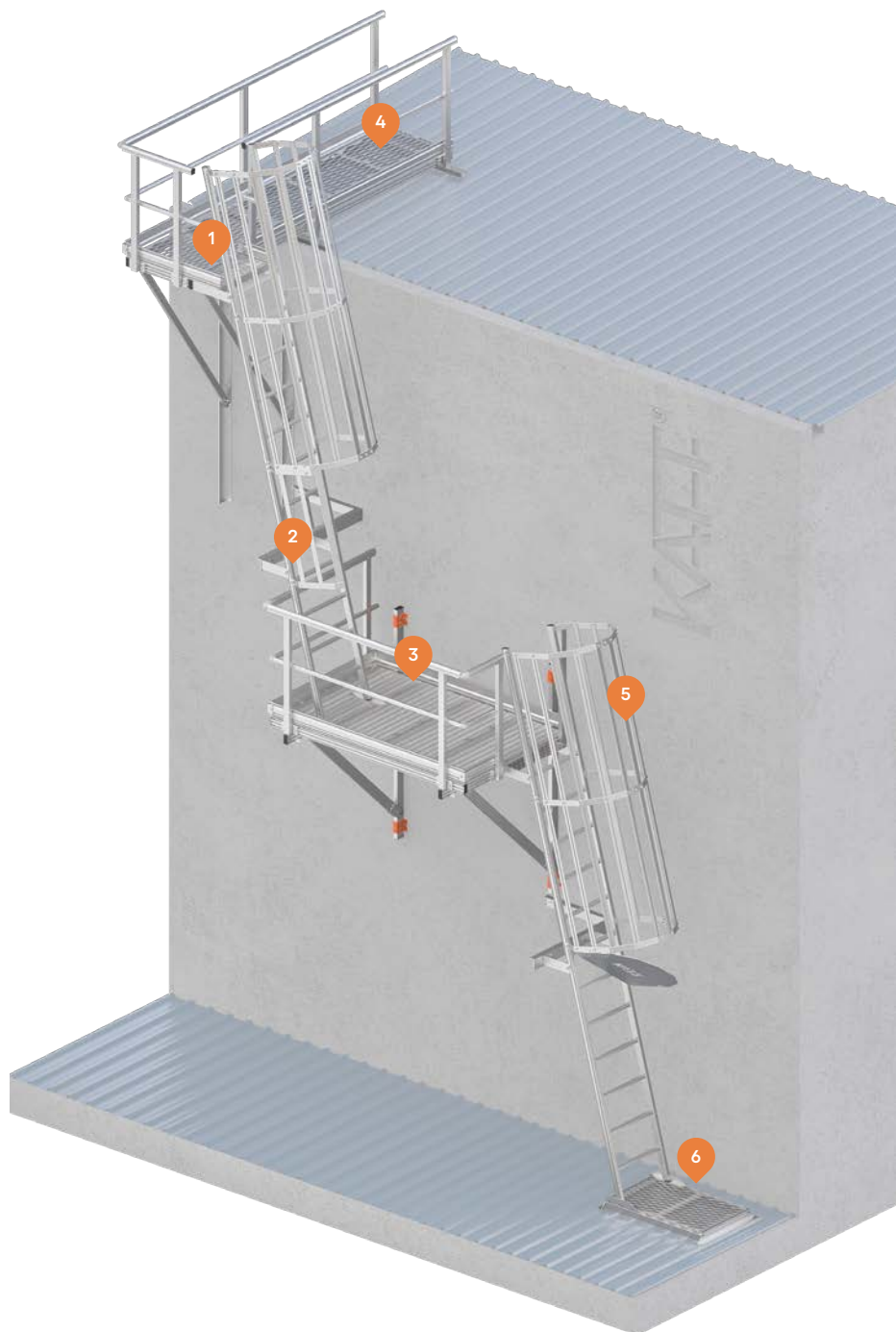
Supplied with AS1657 compliant mini mesh with ability to mount to concrete or metal cladding.



6

### Ladder support landing

Prefabricated unit for simple installation.



# LADDER CONFIGURATIONS

## Angled caged rung ladder

Primary access to ceilings and main roof areas up to 6.0m, and access between varying roof levels above 3.5m




## Vertical caged rung ladder

Primary access to ceilings and main roof areas up to 6.0m, without the need for a fall arrest system.



# MODULAR LADDER CAGE CONFIGURATIONS

Code	Cage type	Cage length (mm)	To suit ladder height (vertical) (mm)	No. of hoops	Weight
RL424M.1000		1000	1000 - 2200	2	9.5kg
RL424M.2000		2000	2000 - 3200	3	19.0kg
RL424M.3000		3000	3000 - 4200	3	28.5kg
RL424M.4000		4000	4000 - 5200	4	38.0kg
LD424M.5000		5000	5000 - 6000	4	47.5kg

# TOOLS AND EQUIPMENT

Impact driver with 13mm socket



Cordless drill



6mm & 10mm metal drill bit



Drop saw



Pitch meter



Gesipa riveter



Tape measure



Marking pen



# INSTALLATION REQUIREMENTS

## Must be read prior to installation

1. This system must only be installed by competent persons trained in the selection, use and maintenance of fall arrest systems who hold a current Kattsafe approved installer certificate.
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 this system is attached must be approved by a structural engineer unless it is clear to a competent person as to the suitability of connection to 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 OH&S 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 be authorised and accredited by Kattsafe and possess valid industry licenses, be appropriately trained, and comply with all relevant OH&S 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. Any re-routing of electrical and/or other services must be carried out by qualified or authorised personnel.
10. Appropriate temporary access and safety equipment must be used during installation, such as platform ladders or scaffolding and fall protection anchorage points.
11. In case of emergency access and fall protection systems must be installed by a minimum of two persons.
12. Do not tamper with, modify or remove any part this system unless authorised by the manufacturer.
13. 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
  - Harness gear requirements and system compatibility
  - Maximum designed load ratings
  - Installer/Certifier contact details
14. Documentation confirming correct use and maintenance of the system and equipment must be provided to the workplace manager on completion of installation.



**Kattsafe 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 Kattsafe 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.**

**Kattsafe accepts no direct or indirect responsibility and/or consequential liability whatever, for any products and systems incorrectly installed or certified. Kattsafe 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.**



# SYSTEM LIMITATIONS

## Must be read prior to installation

1. Minimum structural requirements for attachment of rung ladders:
  - Steel purlin 100 x 1.5mm base metal thickness
  - Timber batten 70 x 35 F7 structural grade
  - Composite panel 75mm attached using through bolt system
2. Rung ladders are for single person use only rated to 150kg.
3. The preferred slope of rung ladders is 75°. Ladders positioned at 90° are permissible only if angled ladders are not practicable.
4. An enclosed cage is the preferred method of fall protection for angled rung ladders above 3500mm.
5. Rung ladders cannot be submerged in saline or any acidic liquids.
6. Ladder landings must be provided at the base and top of ladders if entry and exit surface is uneven or not level.
7. This system, under normal use and environment, has a life expectancy of up to 10 years. A manufacturer's assessment and certification to confirm suitability for an additional 5 years use is recommended. This will depend on location, usage and scheduled maintenance as per manufacturer and legislative requirements.
8. Do not tamper with or make alterations to system components without manufacturer's consent.
9. This system is not to be used for tethering or lifting machinery or equipment.
10. The safety system must be recertified by a competent height safety inspector as recommended:
  - Non corrosive/mild environment – 12 monthly
  - Corrosive/harsh environment – 6 monthly (more frequent inspection may be required).



**Kattsafe recommends that persons using fall arrest systems 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 height safety inspector.**

# DESIGN & LAYOUT

## Must be read prior to installation

1. The hierarchy of risk control must be followed at all times.



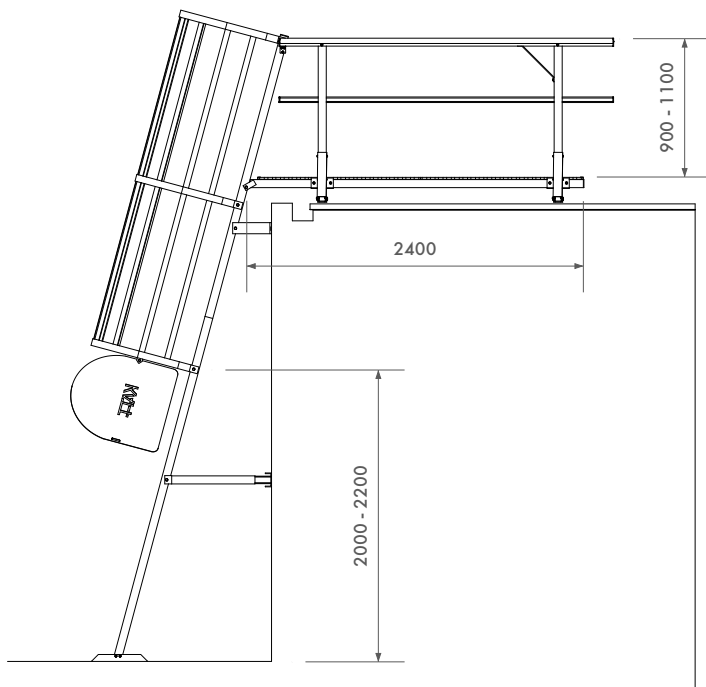
It is important to note that the lower the hierarchy of control, the greater the skill of the operator required and therefore is least preferred compared with a higher hierarchy requiring minimal operator skill and less risk of operator injury as a result of incompetence.

2. Professional guidance on the design and set out of this system should be obtained prior to installation.
3. Certain environments produce acidic atmospheric conditions which are detrimental to steel structures and surfaces. Any acidic environment must be assessed and certified by persons prior to installation of this system.
4. A cage fall protection system must start 2000mm - 2200mm from the lower ladder landing.

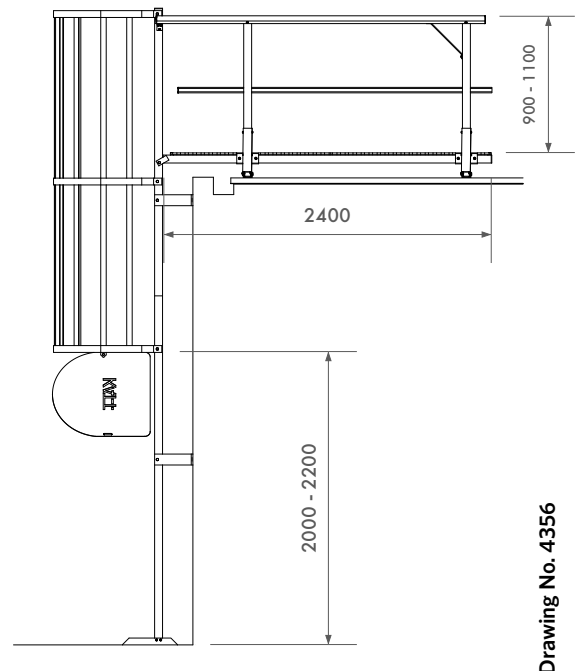
5. The cage is to extend a minimum of 900mm above the top exit point of the ladder.
6. For maximum fall protection effectiveness, a cage fall protection system needs to be installed at 75°.
7. A caged fall protection system mounted at 90° provides very limited fall protection. A ladder fall arrest system is recommended in conjunction with the ladder cage in this situation.
8. A rung ladder requires a lock off gate to prevent unauthorised entry.



This document does not in any way replace the full Australian Standard document AS/NZS 1657-2018 which should be read and properly understood prior to installation of this system.



Preferred option



Least preferred option

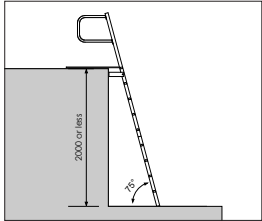


Vertical ladders should only be used if an angled ladder is not practicable.

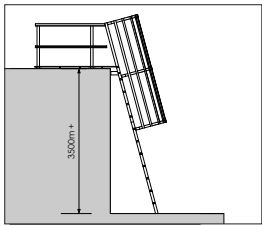


A ladder fall arrest system is recommended in conjunction with this cage.

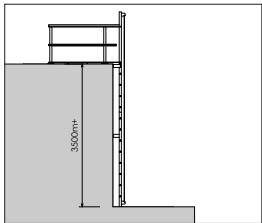
# AUSTRALIAN STANDARDS SUMMARY



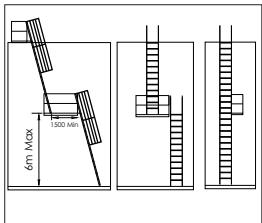
**Figure 1**  
Rung type ladder 70° - 90°  
Preferred angle - 75°  
Application suitable for heights 2.0m or less.



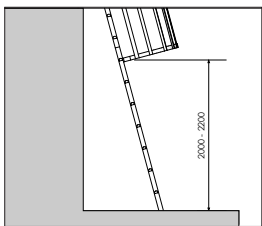
**Figure 2**  
For ladders over 3.5m, fall protection is recommended. Angled ladders - cage protection is preferred. 2.0m lead-on kit required if over 2.0m in height.



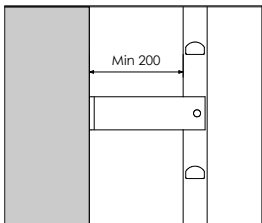
**Figure 3**  
For ladders over 3.5m, fall protection is required. Vertical ladders, harness based fall arrest system is preferred. Note: This system must only be used if angled ladder system is not practicable. User competency training is required.



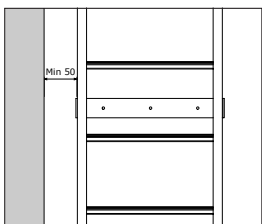
**Figure 4**  
For ladders over 6m, a change in direction platform is required. Vertical ladders, a rest platform is required at max 6m intervals.



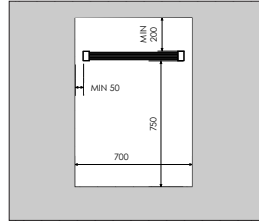
**Figure 5**  
Ladder cage must be 2000-2200mm from base of ladder.



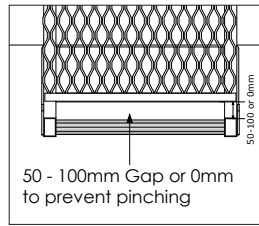
**Figure 6**  
Minimum 200mm clearance required from back of rung to wall.



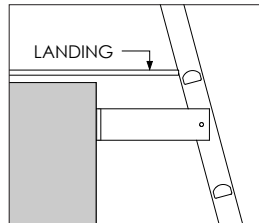
**Figure 7**  
There shall be a minimum of 50mm hand clearance on the sides of the ladder except at the points where the brackets are attached to the ladder.



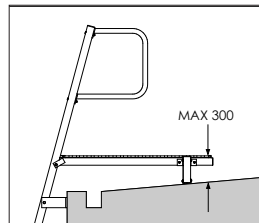
**Figure 8**  
There must be a minimum of 200mm clearance behind the ladder (except for top rung). There must be 750mm clearance in front of the ladder and 700mm minimum width clearance.



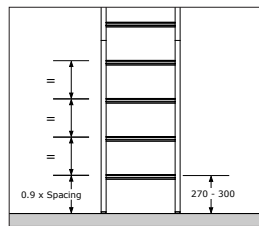
**Figure 9**  
When walkway or landing is installed, there shall be a 50 - 100mm gap or no gap.  
(Diagram shows no gap)



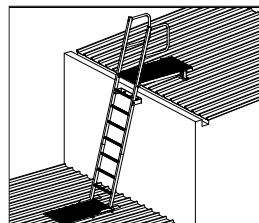
**Figure 10**  
Top of rung must be level with landing (for any ladder).



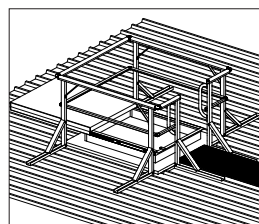
**Figure 11**  
Difference in height no more than 300mm (single step) or 450mm with an additional intermediate step.



**Figure 12**  
All rung spacing to be equal. Distance from base landing to 1st rung can be 270 - 300mm.



**Figure 13**  
Top and lower landings required if roof pitch is not level or is an uneven surface.  
- Top landing requires levelling after 3° in both directions.  
- Lower landing requires levelling after 7° across slope but 3° inline.



**Figure 14**  
Guardrail protection is required on at least 3 sides of a roof access hatch.


# INSTALLATION PROCEDURE

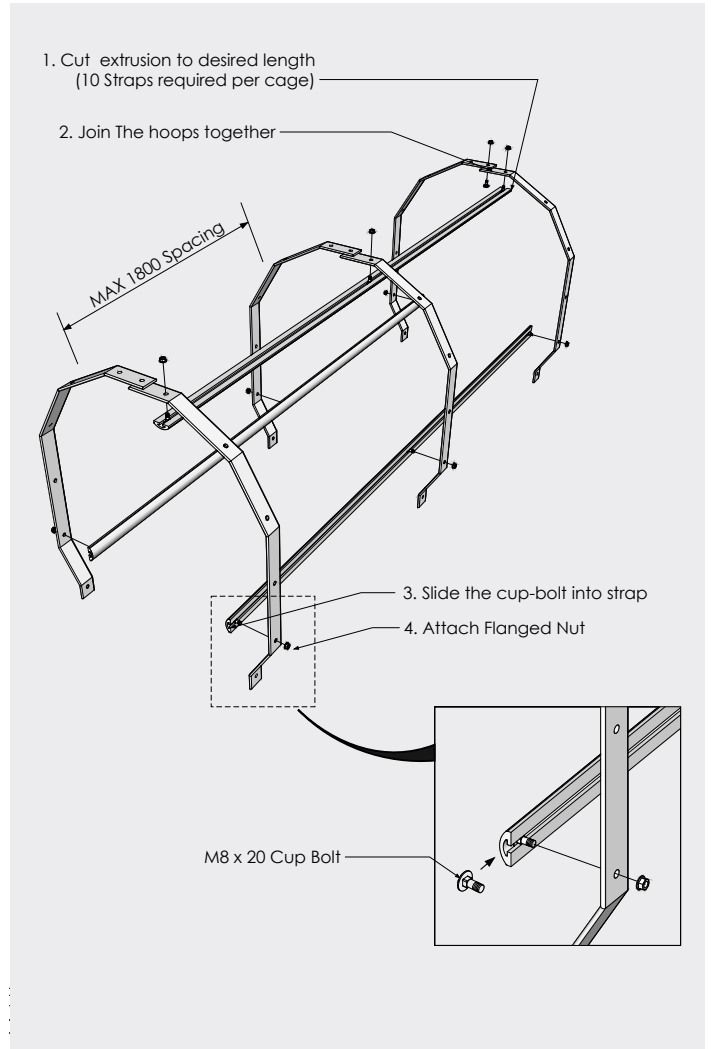
## Pre installation check

Prior to installation the condition of the fixed ladder and structure to which it is attached must be checked for suitability.

The cage entry height must be measured carefully as it must be within 2.0 - 2.2 metres from the lower landing (see diagram).


The checklist will assist with critical assessment criteria.

 Do not proceed with installation of this system if any of the checking criteria does not meet the required standards. Seek advice from the manufacturer regarding other options.



## Step 1


Assemble top, lower and intermediate cage hoops using 1 M8 x 25 cup head bolt and nut set for each hoop.

 Ensure dome head is placed on the inside of the cage to avoid any injuries to users.



## Step 2

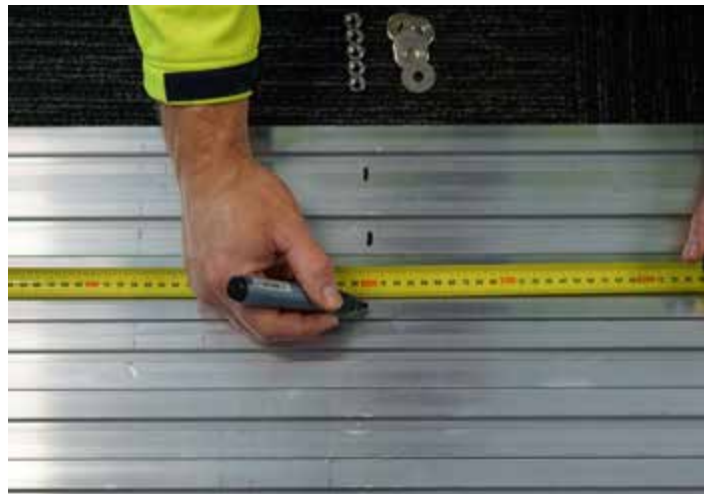
Measure the required length of the cage and cut all 10 straps to the required length. It is important to carefully remove any sharp edges using a metal file.

 Ensure cage length allows for 2.0-2.2m space between lower landing and cage and a minimum of 1000mm extension above the roof landing.



## Step 3

Line up all the straps on one end with the bolt slot facing upwards and mark the location of the intermediate hoop bolt positions on all 10 straps.




## Step 4

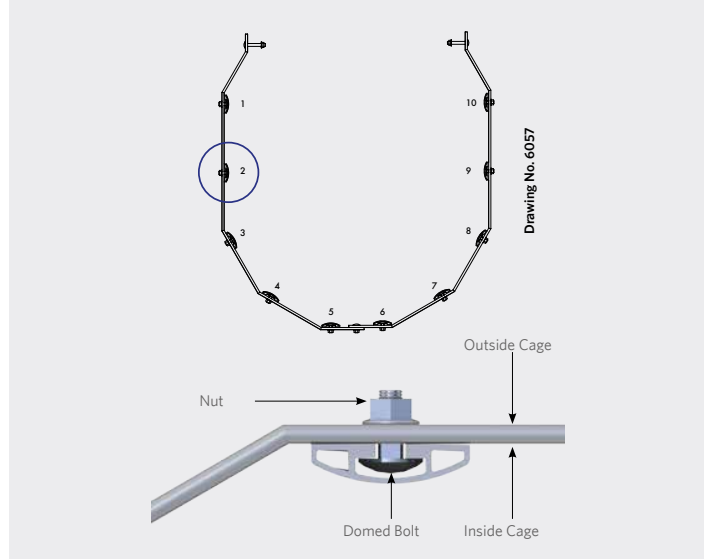
- Insert the intermediate hoop strap fixing bolts into all 10 straps to the locations marked.
- Then insert a strap fixing bolt to either end of all straps for connection to the top and bottom hoop.



### Step 5

Attach number 2 strap to top hoop first.  
Use battery operated impact driver to secure firmly.

 Ensure the strap rounded face is attached on the inside of the cage hoop.



### Step 6

Attach number 2 strap to intermediate cage hoop.



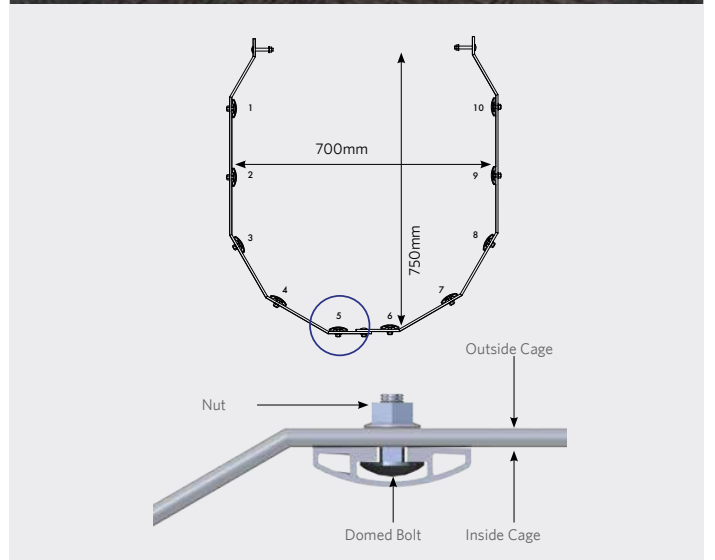
### Step 7

Attach number 2 strap to lower end cage hoop.



### Step 8

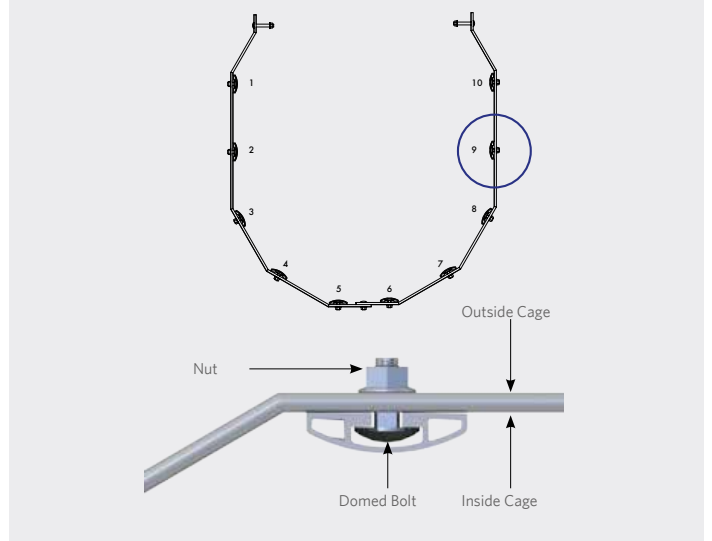
Attach number 5 strap to intermediate and end cage hoops.



### Step 9

Attach number 9 strap to intermediate and end cage hoops.

⚠ Ensure the strap rounded face is attached on the inside of the cage hoop.



### Step 10

Assemble balance of straps to intermediate and end cage hoops.





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## Step 12

- Once all straps are connected to the ends and intermediate cage hoops, the system is ready to be attached to the ladder.
- Drill a 10mm hole through the ladder stile.
- Insert 1 M8 x 55 domed bolt and nut set through the ladder stile into each hoop attachment location.
- Insert plastic end caps into the ends of the cage straps.



# CAGE GATE INSTALLATION PROCEDURE

## Step 1

Attach stainless steel hinges to pre drilled cage gate using 6 x 5mm bulb type rivets.

## Step 2

Locate the cage gate in the closed position and mark the hinge fixing holes on the cage hoop. Drill using a 6mm metal drill bit.

## Step 3

Attach the gate to the cage hoop using 6 x 5mm bulb type rivets.

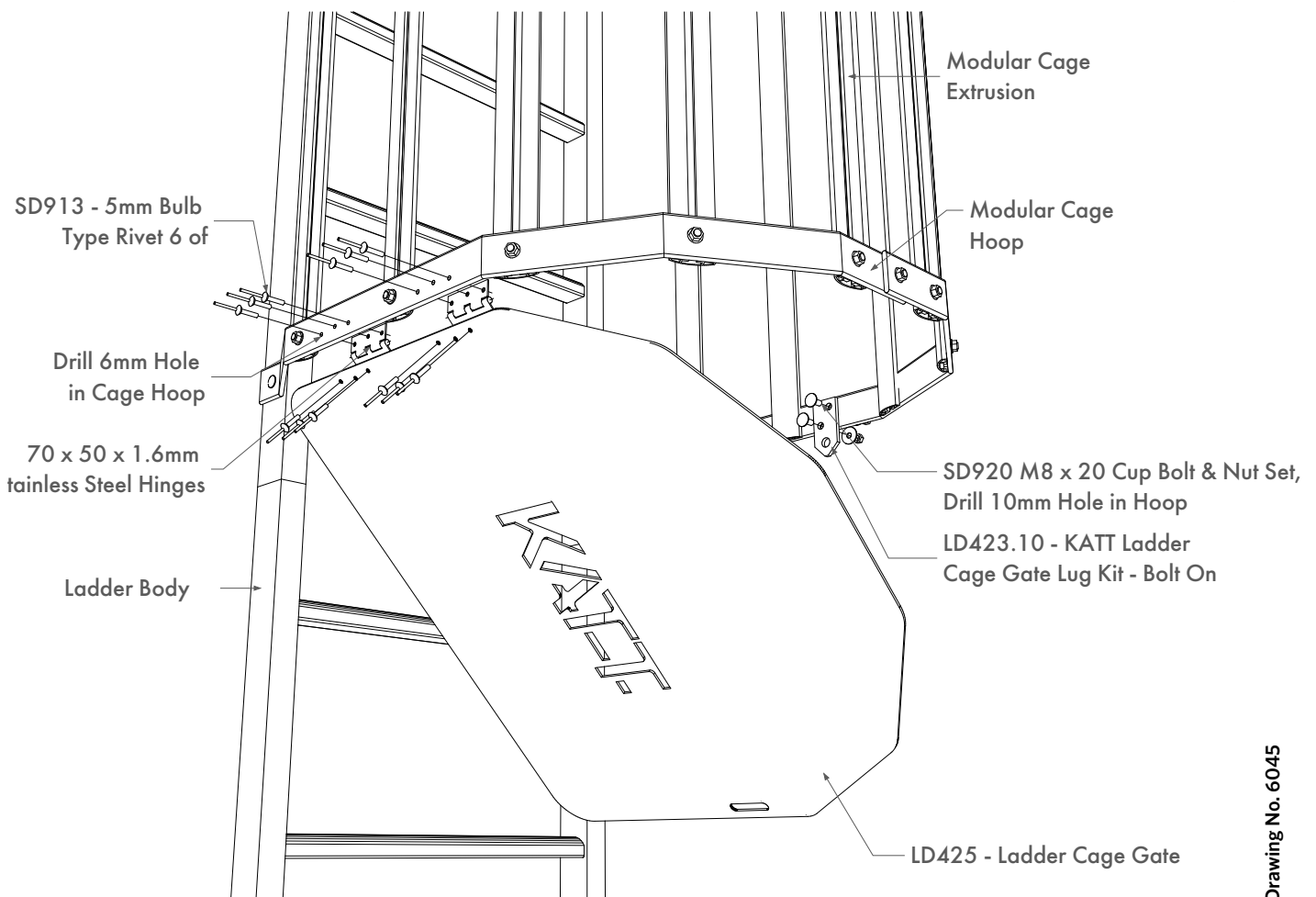
## Step 4

Close the cage gate and now position the locking lug to suit the slot in the cage gate. Mark the fixing holes in the cage hoop and drill using a 10mm drill bit.

## Step 5


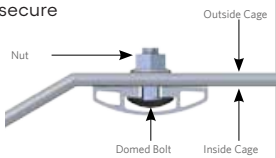

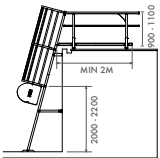

Attach the cage gate lug using 2 M8 x 20mm cup bolts.

⚠ Ensure the domed head of the cup bolt is facing the inside of the cage to avoid injury to users.



Drawing No. 6045

# INSTALLATION CRITERIA

Component	Installation criteria
<p>Wall cladding/structure condition</p> 	<p>Cladding in good condition.</p> <p>Structure in good condition.</p> <p>No rust or corrosion visible on cladding/structure.</p> <p>Concrete in good condition.</p> <p>Blockwork/brickwork in good condition.</p> <p>Structure suitable for required loads (150kg).</p>
<p>Cage assembly bolts secure</p> 	<p>Qty 10, M8 x 20 cup bolts attaching cage straps to hoops secure.</p> <p>Qty 1, M8 x 20 cup bolts securing 2 sections of cage secure.</p>
<p>Cage system to ladder secure</p>	<p>M8 x 55 cup bolts secure ( 1 per cage hoop attachment arm).</p>
<p>Cage gate to cage secure</p> 	<p>Qty 6, 5mm bulb type rivets secure.</p> <p>Cage gate locking tab secure.</p>
<p>Regulatory heights and dimensions checked</p> 	<p>2000 to 2200 mm clearance from lower landing to cage entry.</p> <p>900mm extension above ladder exit platform.</p>
<p>System signage in place</p> 	<p>System data label attached and clearly visible - All data filled out including last and next maintenance date.</p>

# TECHNICAL SPECIFICATION

## Modular ladder cage

Kattsafe rung ladders for safe access to rooftops, ceiling spaces and elevated areas for maintenance. System design, supply, layout, installation and certification by a Kattsafe approved installer, as per the manufacturer's installation instructions and current standards.

## Materials

All components and accessories manufactured from high grade structural aluminium with options for powder coating.

## Dimensions

- Overall ladder width: 605mm
- Distance between stiles: 525mm
- Rung diameter: 45 x 32mm (profiled)
- Rung spacing: 300mm
- Stile extension above landing surface: 900mm to 1100mm
- Minimum clearance behind ladder: 200mm (vertical position)
- Maximum distance between rest platforms: 6.0m
- Cage opening: 700mm x 750mm

## Weight

- Ladder body sections: 2.9kg/m (excludes fixing brackets and fixings)
- Cage sections: 8.3kg/m

## Fixings (refer to installation manual)

- Structural steel fixing: M10 Bolt set
- Concrete fixing: M10 Mechanical concrete anchor
- Metal purlin fixing: 14G Tek screw

## Rating

- Recommended for single person use - 150kg rated.
- Industrial rated, suited to high frequency usage.
- Ladder rung grip profile rated to R10.
- Support structure integrity, suitability and fixing method to be assessed and determined by an engineer unless it is clear to a competent person prior to installation.
- Vertical line fall arrester must be only used with the fall arrest device and harness system incorporation front chest attachment and energy absorber as per AS/NZS1891.1:2009 (part 4).

## Compliance

Kattsafe rung ladders are designed to conform with requirements of the Australian & New Zealand Standards AS 1657:2018, AS/NZS 5532:2013 AS/NZS/ISO22846, AS/NZS1891 and relevant codes of practices and guidelines.

## Testing

Testing and performance based on requirements of Australian Standard AS1657:2018.

## Product warranty

10 years from date of purchase subject to correct installation. Use and maintenance to be in accordance with manufacturer's specifications and recommendations. (This excludes wearing parts).

## Inspection and maintenance

Inspection and certification required every 12 months by competent person in accordance with manufacturer's specifications and requirements of Australian Standards AS/NZS 1891 and AS/NZS 5532. (Refer to installation manual.)

## 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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# WARRANTY INFORMATION

Warranty period on this system:  
10 years from date of purchase

**Should you have a warranty claim as a result of a defect the following procedure must be followed:**

Identify the following information:

- The product/system name and code number.
- The date of purchase/installation.
- Installation company details.
- The installation identification number.
- The name of the company using this system.
- A description of the defect/warranty claim.
- The periodic system maintenance report.

Forward the above information to [sales@kattsafe.com.au](mailto:sales@kattsafe.com.au) or contact technical helpline, 1300 301 755.

## Terms and conditions

All warranty claims must be made in writing within 14 days of the appearance of the defect.

Incorrect installation or work done by a non accredited Kattsafe system installer will void all warranty rights.

Systems that have been installed using non proprietary equipment will void all warranties.

System roof/cladding and concrete penetration seals are not covered in this warranty.

Systems/components that have not been maintained in accordance with manufacturer's/legislative requirements will void warranty.

Systems used by incompetent persons or use with non compatible accessories ie. harness gear, lanyards, travellers, fall arrestors etc. will void warranty.

Systems/components used for purposes other than their intended use will void warranty.

General wear and tear is expected and will depend on the frequency of use and is not covered by warranty.



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**Product brochure**  
Rung ladders



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**Installation manual**  
Modular ladder cage



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**QMS Certification**  
ISO 9001:2015

Find all related products and resources on our website.  
[kattsafe.com.au](http://kattsafe.com.au)

# Kattsafe

Height access  
and fall protection

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