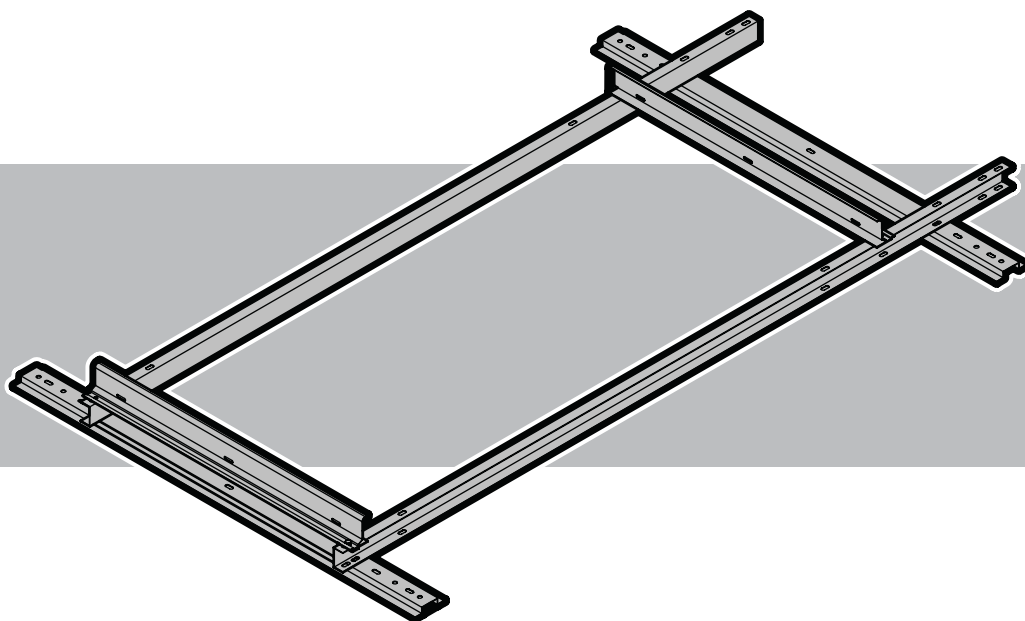




Installation Manual Cyclone Frames

For Rinnai Solar Hot Water Systems



This frame shall be installed in accordance with:

- Manufacturer's Installation Instructions
- Current AS/NZS 3500
- Local Regulations and Municipal Building Codes including local OH&S requirements

This frame must be installed, maintained and removed by an Authorised Person.

For continued safety of this frame it must be installed and maintained in accordance with the manufacturers instructions.

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GENERAL INFORMATION

REGULATIONS AND OCCUPATIONAL HEALTH AND SAFETY (OH&S)



Installation and commissioning must be performed by authorised persons.

Solar system frames must be installed in accordance with these instructions and all regulatory requirements which exist in your area including those in relation to manual lifting, working at heights and on roofs.

Australian State and Territories have a principal Occupational Health and Safety (OH&S) Act which contains requirements relating to the handling of large, bulky or awkward items and the prevention of falls from elevated surfaces. Persons installing solar hot water systems must be aware of their responsibilities and be adequately trained and qualified, in accordance with local OH&S requirements



This instruction **MUST BE** used in conjunction with both the “Installation Manual Roof Frames for use with Rinnai Solar Hot Water Systems” and “Operation / Installation Manual Commercial Solar Pre-Heat System” manuals also provided. All regulations and health and safety information contained in those manuals **MUST BE** followed.

SYSTEM LOCATION

Refer to the Operation / Installation Manual supplied with the hot water system for information on the location and orientation of the hot water system components.

DESIGN COMPLIANCE

When installed as specified in this manual and in accordance with the certified drawings as referenced in the applicable compliance certificate and regulations relevant to your local authority, these systems are suitable for use in cyclone areas defined by Wind Region C in AS/NZS 1170.2:2011.

Documentation is supplied with this manual that may be specifically relevant to your local authority.

Applicable certified drawings and compliance documents for systems to be installed in the Northern Territory may also be endorsed by the Northern Territory Building Advisory Committee and listed in the NT DTC manual. These can be found at <http://www.ntlis.nt.gov.au/deemedtocomply>.

INSTALLATION

- Assemble the frame as shown in the relevant diagram of pages 2 to 3. Pages 4 to 9 show the locations of the nuts, bolts and reinforcing plates that are used for the assembly.
- Attach the frame to the roof ensuring that the installation complies with the requirements on the relevant certified drawings.
- Attach collectors and cylinder as shown on pages 4 to 9.
- Complete installation and commissioning as described in either the “Close Coupled Operation / Installation Manual” or the “Split System Operation Installation Manual”

WIND AND CLIMATE DESIGN

When the Rinnai Cyclone Roof Mounting Frame is installed in accordance with this installation manual it is compliant with AS1170.2:2011, for mounting on internal roof zones.

This manual (including the drawings) cannot cover all types of buildings and eventualities. For buildings outside the limits stated on the drawings and in this manual contact a registered structural engineer for a custom design.

AS/NZS1170.2:2011 provides guidance on determining the wind pressures and zone dimensions applicable to your system install site, taking into account roof shape and geographic location.

AUSTRALIAN WIND REGIONS

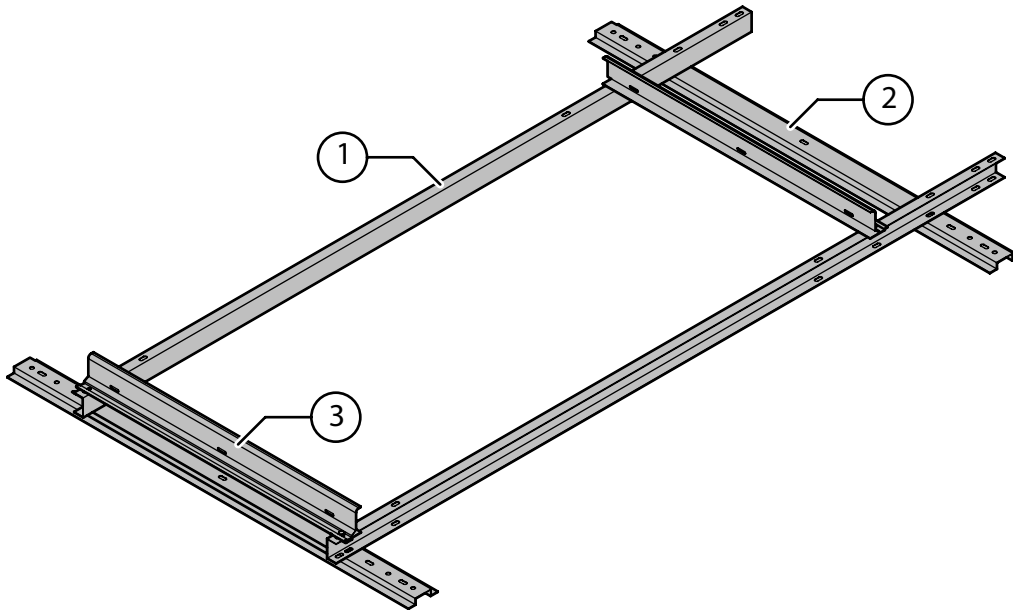


Indicative selection of towns in Regions A, B, C & D					
Region A	Region B		Region C		Region D
Callytharra Springs Gascoyne Junction Green Head Kununurra Lord Howe Island Morawa Toowoomba Wittanoom Bourke	Adelaide River Atherton Biloela Brisbane Christmas Island Collinsville Corindi Geraldton Ivanhoe	Kyogle Marble Bar Mullewa Norfolk Island Torres Strait Islands Wyndham	Borroloola Broome Bundaberg Burketown Cairns Cocos Islands Darwin Derby Karumba	Mackay Mareeba Millstream Moreton Nhulunbuy Normanton Rockhampton Townsville	Carnarvon Exmouth Karratha Onslow Port Hedland

TECHNICAL SUPPORT

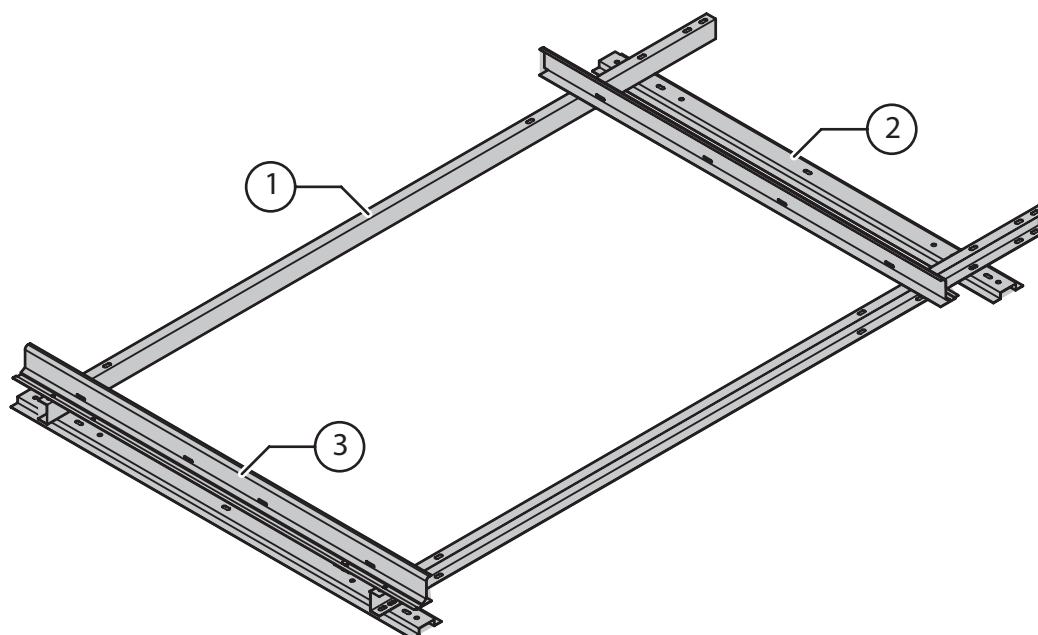
For further technical support, contact your local state Rinnai Technical Sales Managers in Queensland, Western Australia and South Australia (South Australia and the Northern Territory).

SINGLE COLLECTOR CYCLONE FRAME (CYCF1A)



Kit CYCF1A - 1 Collector Cyclone Frame

Item ID	Qty	Description	Part Number
1	2	Channel Section	14201201
2	2	Roof Mounting Rail (Top Hat)	14201097
3	2	Collector Mounting Bar	14201082
4	8	3/8 Bolt 19 mm	22601066
5	2	3/8 Bolt 25 mm	22601099
6	6	3/8 Nut	16801056
7	2	Reinforcement Plate	15201002
8	10	Plate Washer	15201001
9	4	Plate Washer Tapped	15201003
10	1	Installation Manual	15401102

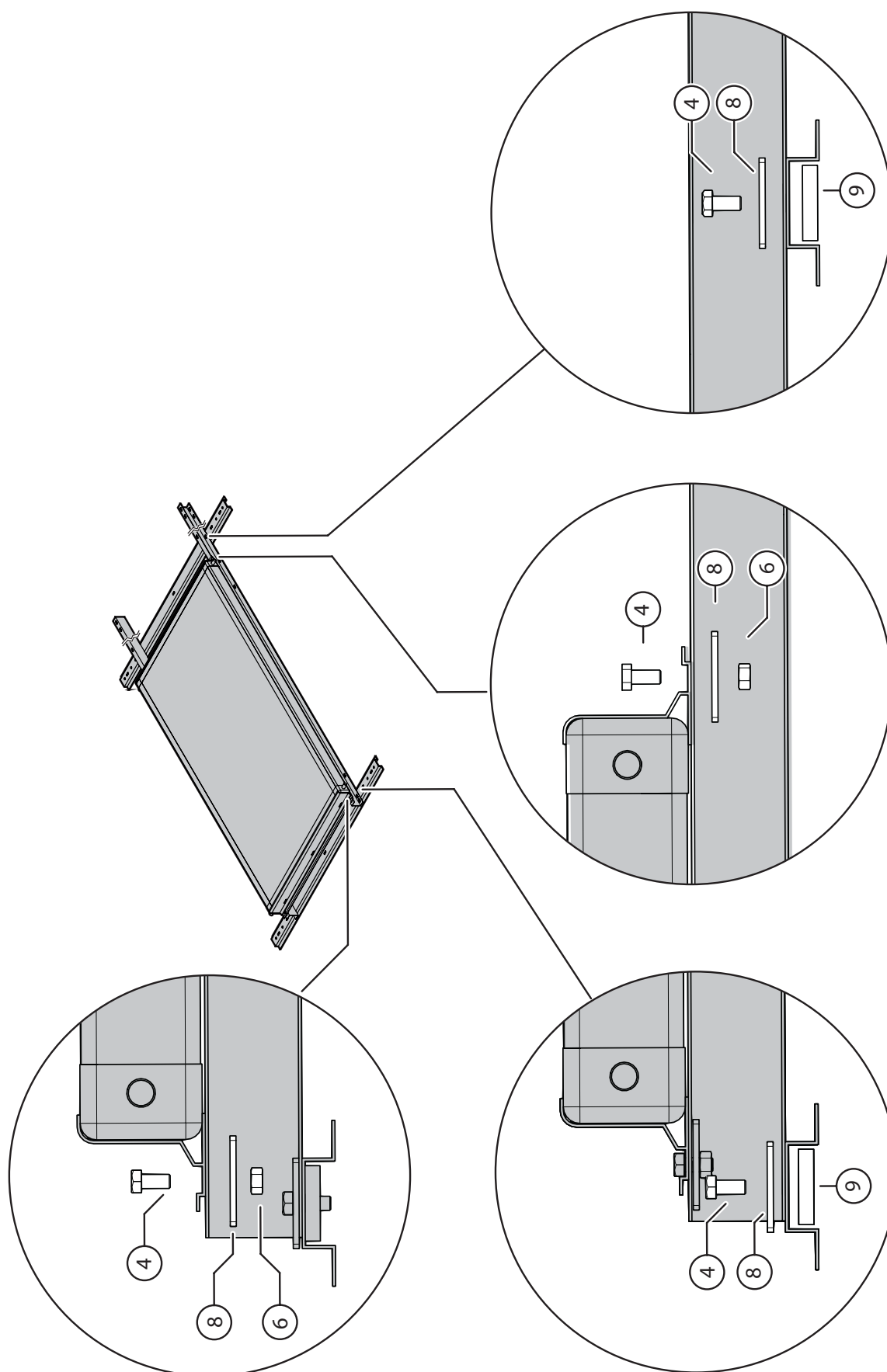
TWO COLLECTOR CYCLONE FRAME (CYCF2A)

Kit CYCF2A - 2 Collector Cyclone Frame

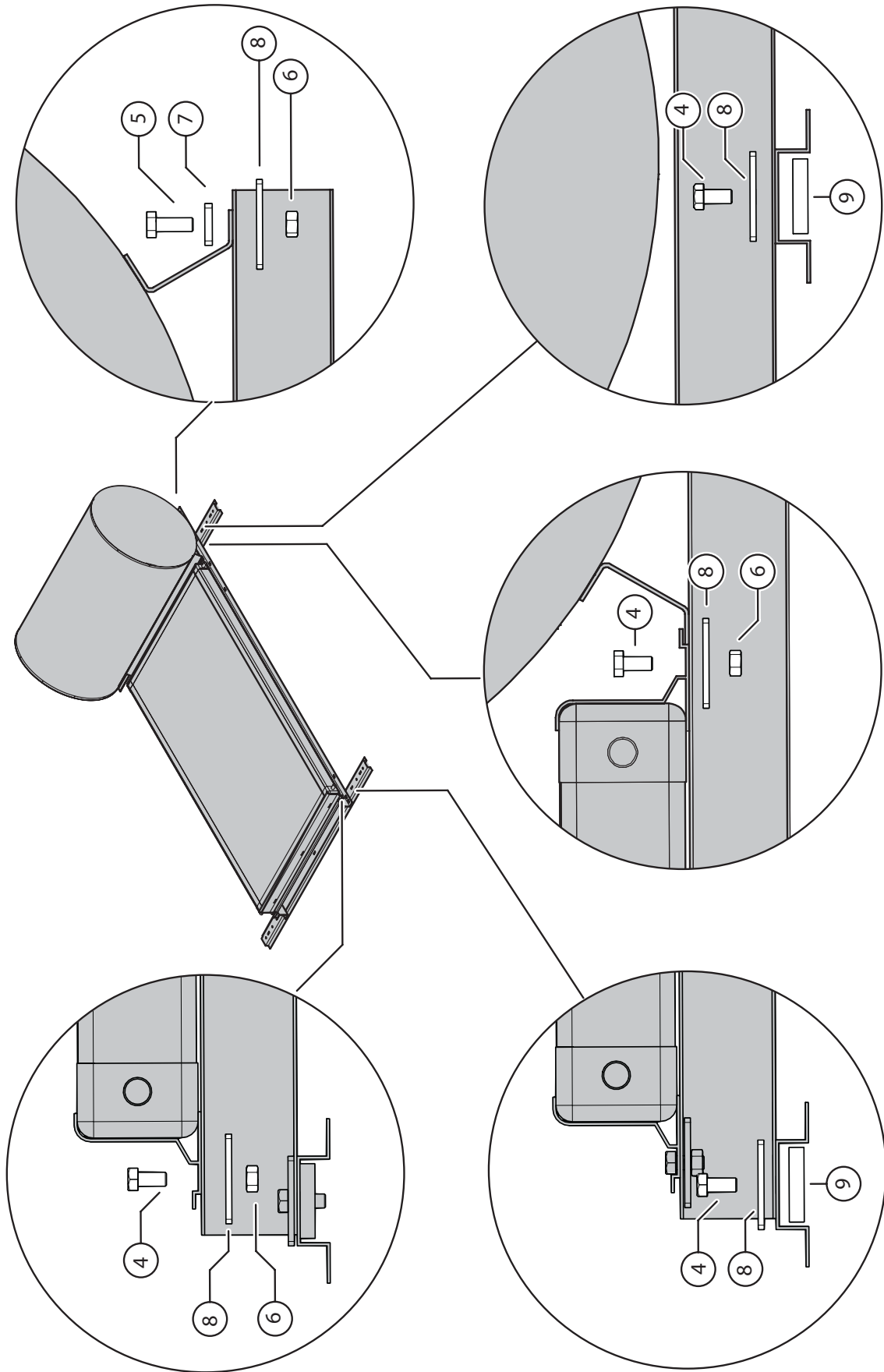
Item ID	Qty	Description	Part Number
1	2	Channel Section	14201201
2	2	Roof Mounting Rail (Top Hat)	14201097
3	2	Collector Mounting Bar	14201083
4	8	3/8 Bolt 19 mm	22601066
5	2	3/8 Bolt 25 mm	22601099
6	6	3/8 Nut	16801056
7	2	Reinforcement Plate	15201002
8	10	Plate Washer	15201001
9	4	Plate Washer Tapped	15201003
10	1	Installation Manual	15401102

INSTALLATION DIAGRAMS

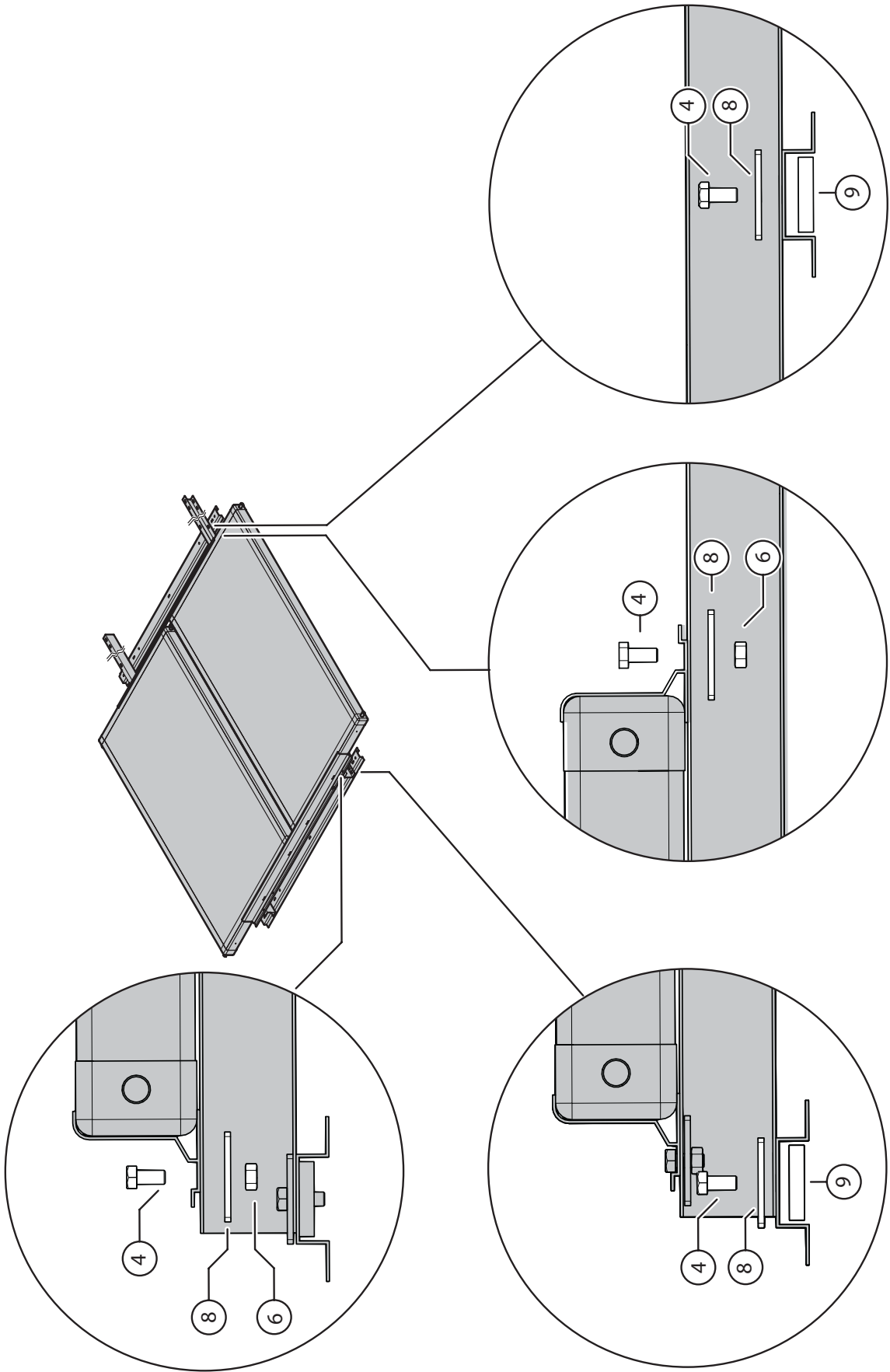
SINGLE COLLECTOR SPLIT SYSTEM



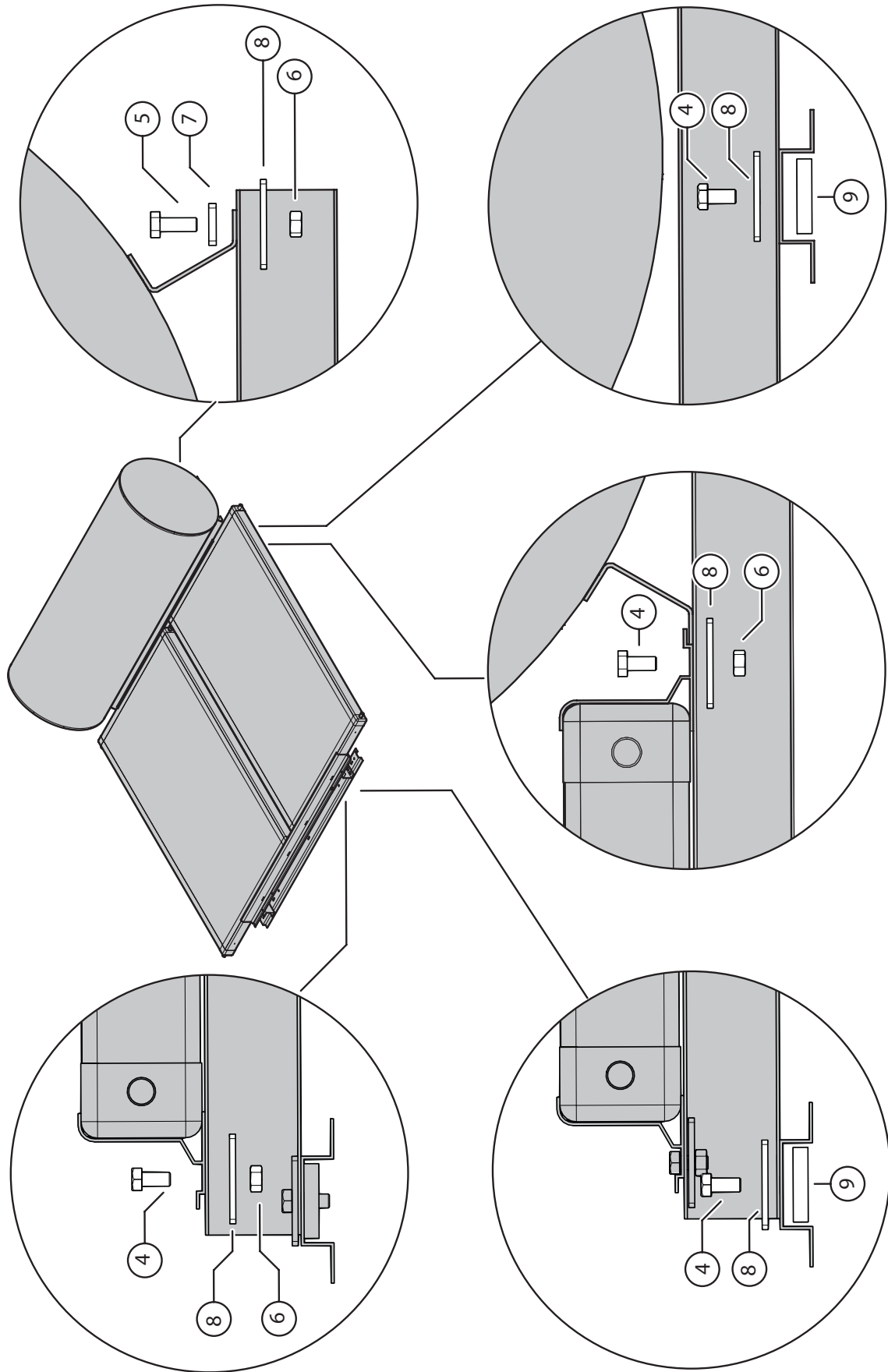
SINGLE COLLECTOR CLOSE COUPLED SYSTEM



TWO COLLECTOR SPLIT SYSTEM

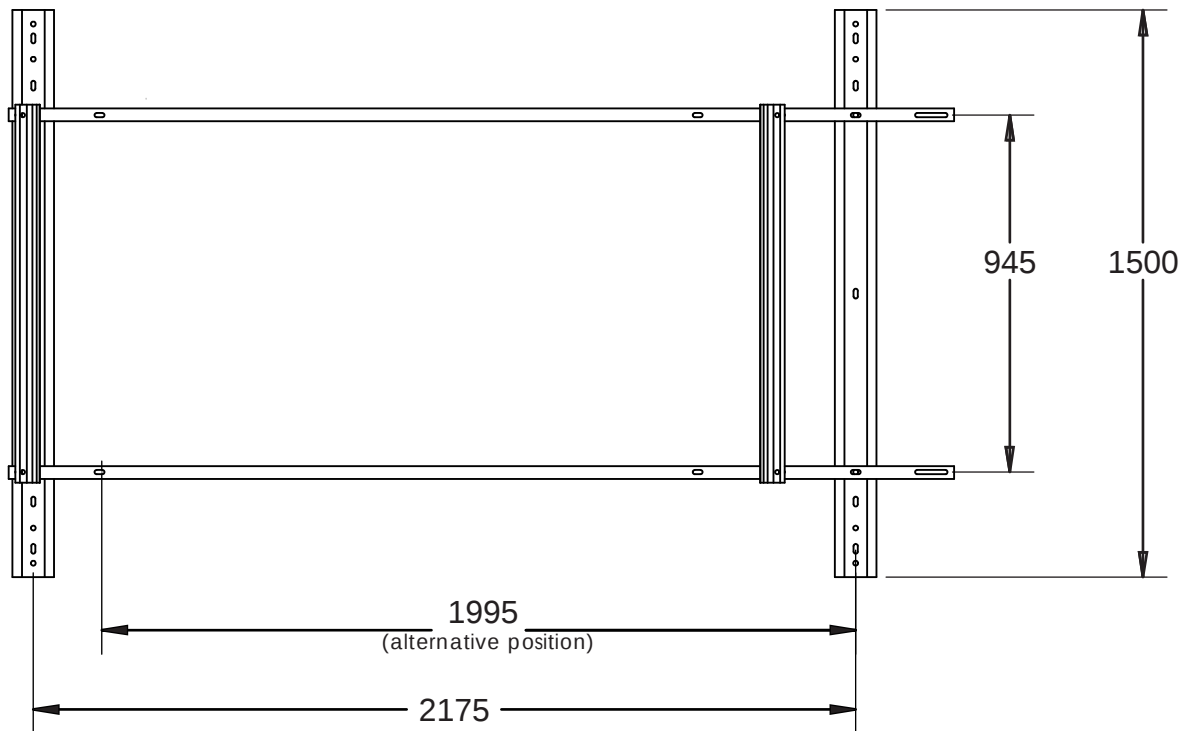


TWO COLLECTOR CLOSE COUPLED SYSTEM

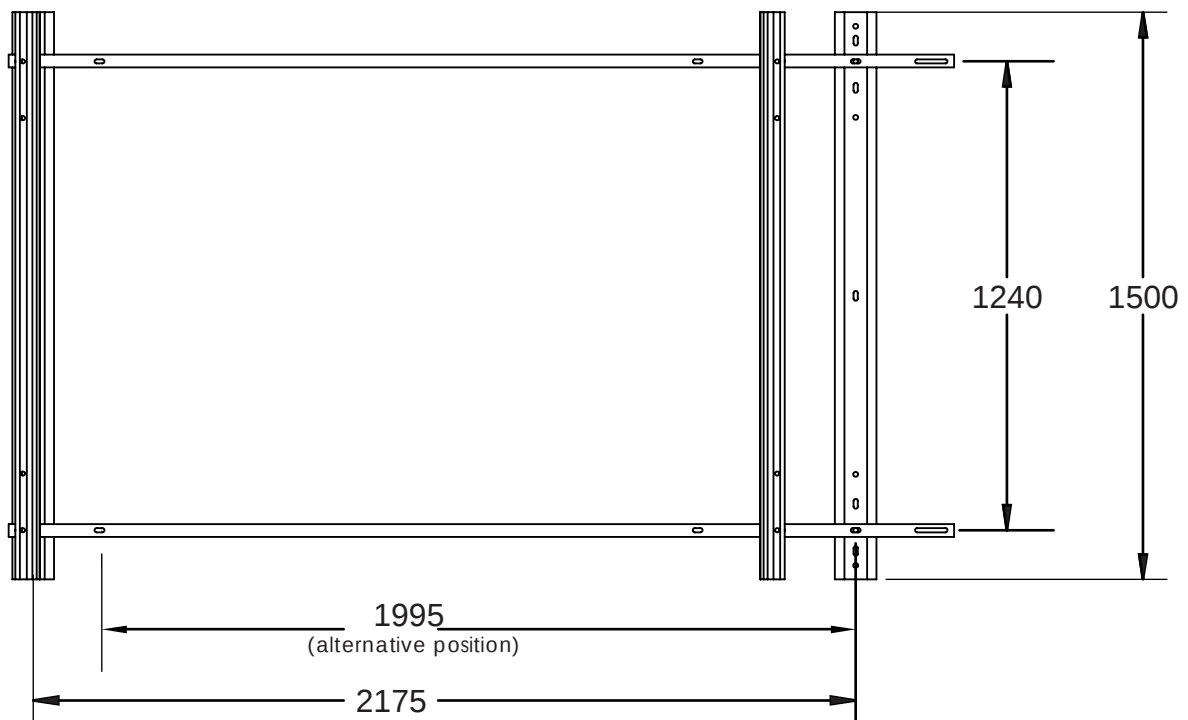


DIMENSIONS

SINGLE COLLECTOR CYCLONE FRAME



TWO COLLECTOR CYCLONE FRAME



CERTIFICATE FOR QUEENSLAND

Compliance Certificate for building Design or Specification

15

NOTE

This is to be used for the purposes of section 10 of the *Building Act 1975* and/or section 46 of the *Building Regulation 2006*.

RESTRICTION: A building certifier (class B) can only give a compliance certificate about whether building work complies with the BCA or a provision of the QDC. A building certifier (Class B) can not give a certificate regarding QDC boundary clearance and site cover provisions.

1. Property description

This section need only be completed if details of street address and property description are applicable.

EG. In the case of (standard/generic) pool design/shell manufacture and/or patio and carport systems this section may not be applicable.

The description must identify all land the subject of the application.

The lot & plan details (eg. SP / RP) are shown on title documents or a rates notice.

If the plan is not registered by title, provide previous lot and plan details.

Street address (include no., street, suburb / locality & postcode)

	Postcode
--	----------

Lot & plan details (attach list if necessary)

--

In which local government area is the land situated?

--

2. Description of component/s certified

Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.

Structural fixing of Rinnai Solar Collectors to domestic roofs.

A set of generic drawings have been produced covering wind loading conditions for region C across Australia.

Drawings enable the installing Contractor to select the required structural fixing detail based on base structure. Building height limited to 10m

3. Basis of certification

Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications, were relied upon.

Design carried out to the following Australian Standards

AS1170.0:2002

AS1170.1:2002

AS1170.2:2011

AS3600:2009

AS4100:1998

--

LOCAL GOVERNMENT USE ONLY

Date received		Reference Number/s		Approved form 15 Version 2 11/11
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Form 15 continued

4. Reference documentation

Clearly identify any relevant documentation, e.g. numbered structural engineering plans.

12ME0541/S004 Revision C1	12ME0541/S005 Revision C1
12ME0541/S006 Revision C1	12ME0541/S007 Revision C1
12ME0541/S008 Revision C1	12ME0541/S009 Revision C1
12ME0541/S010 Revision C1	12ME0541/S011 Revision C1

5. Building certifier reference number

Building certifier reference number

6. Competent person details

A competent person for building work, means a person who is assessed by the building certifier for the work as competent to practise in an aspect of the building and specification design, of the building work because of the individual's skill, experience and qualifications in the aspect. The competent person must also be registered or licensed under a law applying in the State to practice the aspect.

If no relevant law requires the individual to be licensed or registered to be able to give the help, the certifier must assess the individual as having appropriate experience, qualifications or skills to be able to give the help.

If the chief executive issues any guidelines for assessing a competent person, the building certifier must use the guidelines when assessing the person.

Name (in full)

Joseph Bruno

Company name (if applicable)

Irwinconsult

Contact person

Phone no. business hours

+61 3 9622 9700

Mobile no.

Fax no.

Email address

Postal address

Level 3, 289 Wellington Parade South

East Melbourne, VIC

Postcode 3002

Licence or registration number (if applicable)

RPEQ09894

7. Signature of competent person

This certificate must be signed by the individual assessed by the building certifier as competent.

Signature



Date

5-7-2013

The *Building Act 1975* is administered by
the Department of Local Government and Planning





1. FOR THE FIXING DETAILS TO METAL CLAD ROOFS REFER TO SHEETS 2 AND 3
2. FOR THE FIXING DETAILS TO CONCRETE OR TILED ROOFS REFER TO SHEETS 2 AND 4
3. FIXINGS FOR PROPRIETARY TOP HAT (B) TO BE LOCATED ON THE NEAREST CRESTS EACH SIDE OF CHANNEL SECTION (A) ON THE CENTRE LINE OF TOP HAT SECTION (B)
4. ALL BOLTS, WASHERS AND SCREWS TO BE GALVANIZED OR CLASS 4 FINISH
5. TRUSS TOP CHORDS OR RAFTERS TO BE 1200 MM CENTRES

CONSTRUCTION ISSUE

[illegible]

METAL CLAD ROOF

SECTION A-A
NTS
S004

TILED ROOF

SECTION A-A
NTS
S004

PRODUCT NAME
RINNAI SOLAR WATER HEATERS

PRODUCT DESCRIPTION
SPLIT SOLAR HOT WATER SYSTEM
1 OR 2 SP200A COLLECTORS

DESIGN CRITERIA
BASIC WIND DESIGN CRITERIA
1. AS/NZS 1170.2:2011, REGION C (UP TO 10m HIGH) $V_{w0} > 10$
2. TERRAIN CATEGORY 2, $C_{pe} = -1.7$
3. REGIONAL WIND SPEED $V_{w0} = 70\text{m/s}$
4. DESIGN WIND SPEED $V_{w0} = 70\text{m/s}$
5. DESIGN WIND PRESSURE = 5kPa

WEIGHT OF TOTAL SYSTEM
1 COLLECTOR 2 COLLECTORS
EMPTY -33kg -69kg
FULL -34.5kg -70.5kg

LIMITATIONS
1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (K_z IN SECTION 5.4.4 OF AS/NZS 1170.2:2011)
2. BUILDING HEIGHT $< 10\text{m}$ (MEASURED FROM FINISHED FLOOR LEVEL TO THE TOP OF BUILDING)
3. DEPTH OF BUILDING $< 2\text{m}$ (MEASURED FROM FINISHED FLOOR LEVEL TO THE TOP OF BUILDING)
4. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH
5. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE
6. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS & COLLECTORS
7. (TOTAL 68.8kg FOR THE 2 COLLECTOR SYSTEMS)
8. DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS
9. MAX ROOF SLOPE = 25deg FOR METAL DECK = 17.5deg FOR TILED ROOF

FIGURE 1.

CHANNEL SECTION 64 x 36 x 2 GRADE 300 (PART No. 142.01.201)
TOP HAT SECTION 110 x 20 x 2.0 (PART No. 142.01.097)
3/8" WHITWORTH x 20mm LONG BOLT, NUT, AND 10 PLATE WASHER
COLLECTOR MOUNTING BAR 1.5m (PART No. 142.01.083)
COLLECTOR (1025 x 1935 EACH) (PART No. 188.01.740)
75 x 50 HARDWOOD (F17) BATTEN OR 40 x 0.75 DOUBLED UP STEEL BATTENS UNDER TOP HAT
(B), CONTINUOUS OVER 3 TRUSSES MIN.
1. FIXING PROPRIETARY STEEL TOP HAT (B), TO TIMBER ROOF BATTENS, USE 7 NUMBER 14-10 x 90 TYPE 17 SCREWS, CLASS 4 FINISH, EQUALLY SPACED FIXED THROUGH CREST OF ROOF DECK.
2. FIXING PROPRIETARY STEEL TOP HAT (B), TO DOUBLED-UP 40 x 0.75mm TOP HAT BATTENS, USE 7 NUMBER 14-10 x 78 TEK SCREWS, EQUALLY SPACED FIXED THROUGH CREST OF ROOF DECK.
125 x 38 H.W. (F14) TIMBER SUPPORT, REFER TO DETAILS ON SHEET 4, APPLICABLE ONLY FOR TILED ROOF ONLY.
125 x 38 H.W. (F17) STRENGTHENER FIXED TO TOP CHORD, CONNECT BETWEEN TWO NODE POINTS ON TRUSS. FIX WITH 75 x 2.8 (GALV) NAILS AT 300 MAX CTRS STAGGERED (REFER TO FIGURE 1). MAX DISTANCE BETWEEN NODE POINTS TO BE 1500mm.
M12 GALV. THREADED ROD WITH BOLT CONNECTION REFER TO CLEAR OF ROOF INSTALLATION DETAIL ON SHEET 4. APPLICABLE FOR TILED ROOF ONLY.
REINFORCEMENT PLATE (PART No. 152.01.002)
PLATE WASHER TAPPED (PART No. 152.01.003)

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mib@irwinconsult.com.au ABN 59 050 214 894

Project
SOLAR COLLECTOR ROOF
MOUNTING FRAME RAIL FIXINGS

Client
RINNAI AUSTRALIA

Drawing Title
DOMESTIC SPLIT SOLAR HOT WATER SYSTEM
SP200A-SHEET 2

Date
As indicated

Drawn
BD

Checked
EB

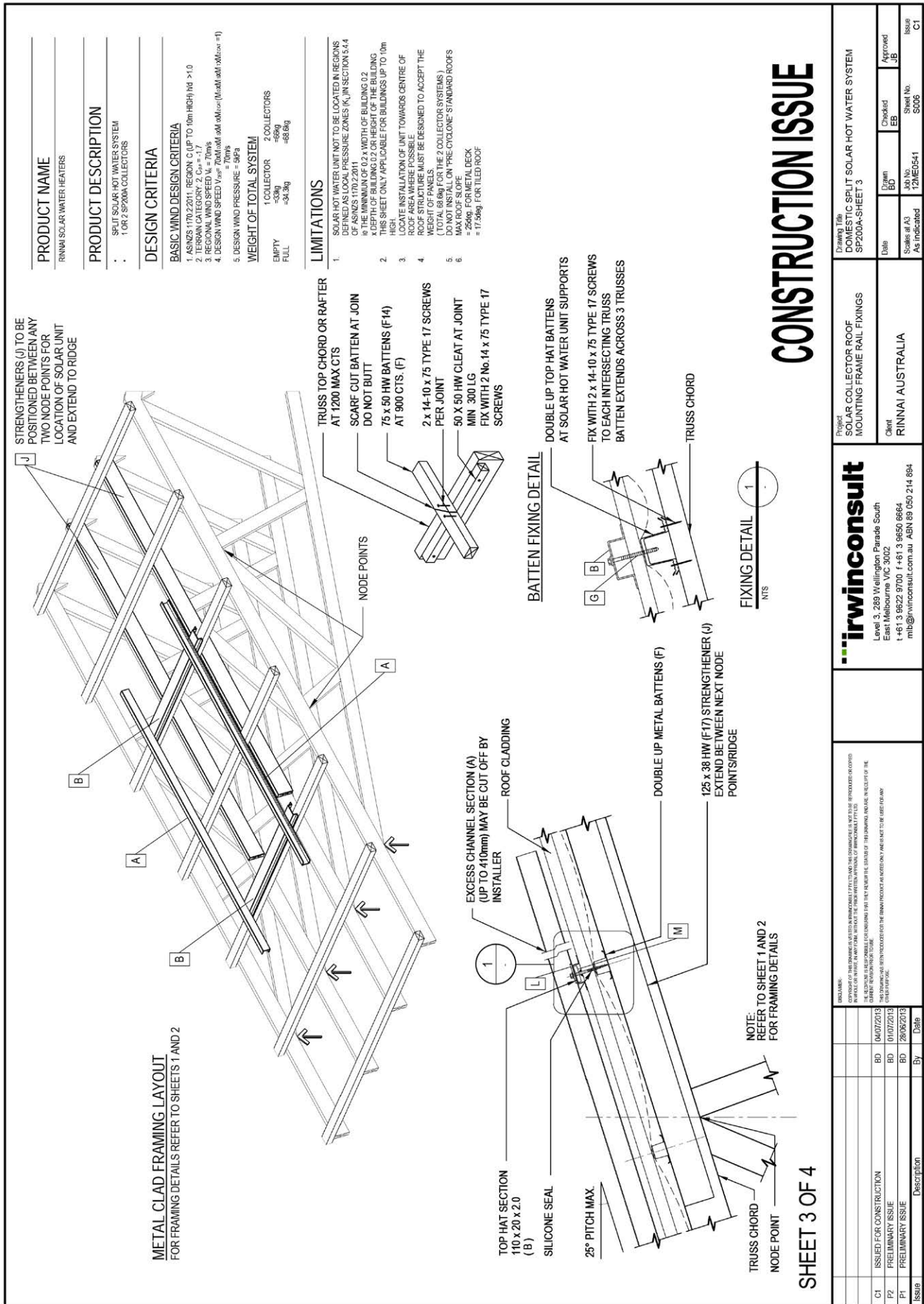
Approved
JB

Job No.
12ME0541

Sheet No.
S005

Issue
C1

CONSTRUCTION ISSUE



PRODUCT NAME
RINNAI SOLAR WATER HEATERS

PRODUCT DESCRIPTION
• SPLIT SOLAR HOT WATER SYSTEM
• 1 OR 2 SP200A COLLECTORS

DESIGN CRITERIA

BASIC WIND DESIGN CRITERIA

1. AS/NZS 1170:2011 REGION C (UP TO 10m HIGH) $W_d > 1.0$
2. REGIONAL WIND SPEED $V_d = 70 \text{ m/s}$
3. REGIONAL WIND SPEED $V_d = 70 \text{ m/s}$
4. DESIGN WIND SPEED $V_{ref} = 70 \text{ m/s}$ (at 10m) (at 10m) (at 10m) (at 10m)
5. DESIGN WIND PRESSURE = 5 kPa

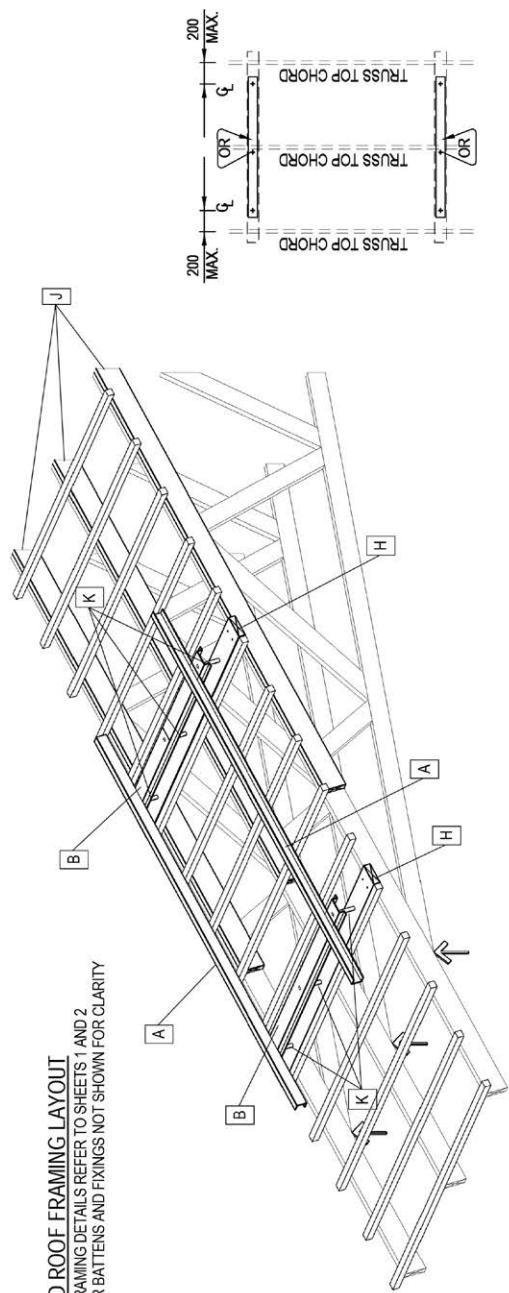
WEIGHT OF TOTAL SYSTEM

1 COLLECTOR
Empty: -34.3 kg
Full: $+68.6 \text{ kg}$

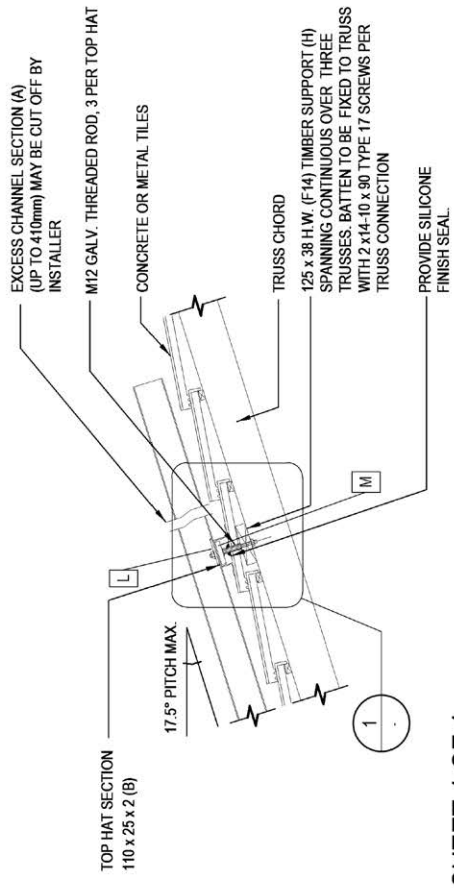
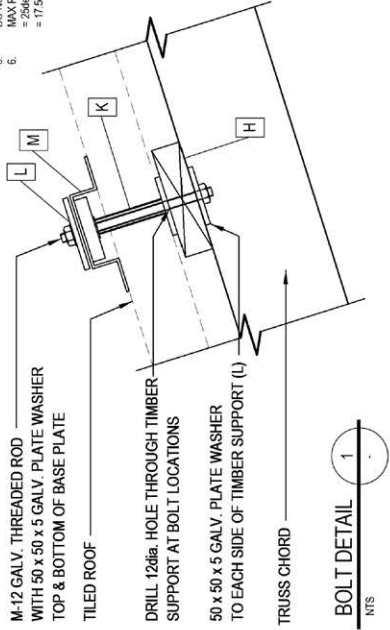
2 COLLECTORS
Empty: -68.6 kg
Full: $+137.2 \text{ kg}$

LIMITATIONS

1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS OF HIGH SOLAR RADIATION PRESSURE ZONES (K₁ IN SECTION 5.4.4 OF AS/NZS 1170:2011)
2. MINIMUM OF 0.2 x WIDTH OF BUILDING
3. DEPTH OF BUILDING 0.2 OR HEIGHT OF THE BUILDING
4. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH
5. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF
6. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS (TOTAL 68.6kg FOR THE 2 COLLECTOR SYSTEMS)
7. DO NOT INSTALL ON "PRE-CYCLONE" STANDARD ROOFS
8. MAX ROOF SLOPE = 17.5° (PITCH MAX)
9. MAX ROOF SLOPE = 17.5° (PITCH MAX)
10. MAX ROOF SLOPE = 17.5° (PITCH MAX)



BOLT POSITIONING
TOTAL BOLT CONNECTION = 6



CONSTRUCTION ISSUE

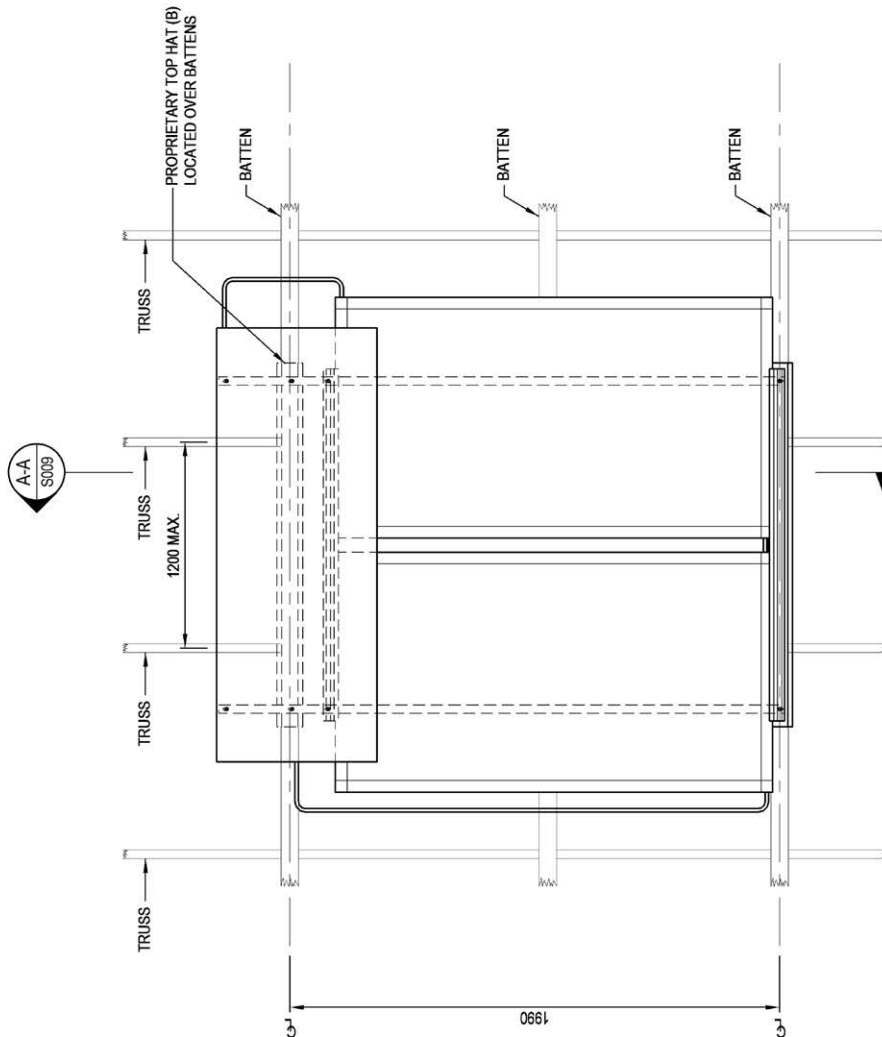
irwinconsult Level 3, 289 Wellington Parade South East Melbourne, VIC 3002 t +61 3 9522 9700 f +61 3 9550 6664 info@irwinconsult.com.au ABN 59 050 214 894		Project: SOLAR COLLECTOR ROOF MOUNTING FRAME RAIL FIXINGS SP200A-SHEET 4	Drawing Title: DOMESTIC SPLIT SOLAR HOT WATER SYSTEM SP200A-SHEET 4
Issue C1	Description ISSUED FOR CONSTRUCTION PRELIMINARY ISSUE PRELIMINARY ISSUE	By BD BD BD	Date 04/07/2013 01/07/2013 26/06/2013
Client: RINNAI AUSTRALIA	As indicated	Job No. 12ME0541	Sheet No. S007
Checked EB	Approved JB	Issue C1	Issue C1

CLOSE COUPLED SYSTEM

PRODUCT NAME
RINNAI SOLAR WATER HEATERS
PRODUCT DESCRIPTION
CCSG AND CCSG 200 AND 300 L
DESIGN CRITERIA
BASIC WIND DESIGN CRITERIA
1. AS/NZS 1170.2:2011, REGION: C (UP TO 10m HIGH) $V_{w,d} > 1.0$
2. TERRAIN CATEGORY: 2, $C_{pe} = 1.7$
3. REGIONAL WIND SPEED $V_{w,r} = 70 \text{ m/s}$
4. DESIGN WIND SPEED $V_{w,d} = 70 \text{ m/s}$ $V_{w,d} = 70 \text{ m/s}$ $V_{w,d} = 70 \text{ m/s}$ $V_{w,d} = 70 \text{ m/s}$
5. DESIGN WIND PRESSURE = 30 Pa
WEIGHT OF TOTAL SYSTEM
1 COLLECTOR EMPTY = 117kg FULL = 319kg
2 COLLECTORS EMPTY = 174kg FULL = 507kg

LIMITATIONS

- SOLAR HOT WATER UNIT NOT TO BE LOCATED IN EXPOSED AREAS OR EXPOSED ZONES (K₁ IN SECTION 6.4 OF AS/NZS 1170.2:2011) @ THE MINIMUM OF 0.2 x WIDTH OF BUILDING 0.2 x DEPTH OF BUILDING 0.2 OR HEIGHT OF THE BUILDING
- THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH
- DO NOT INSTALL ON PRE-CAST CONCRETE ROOFS
- DO NOT INSTALL ON PRE-CAST CONCRETE ROOFS
- DO NOT INSTALL ON PRE-CAST CONCRETE ROOFS
- DO NOT INSTALL ON PRE-CAST CONCRETE ROOFS



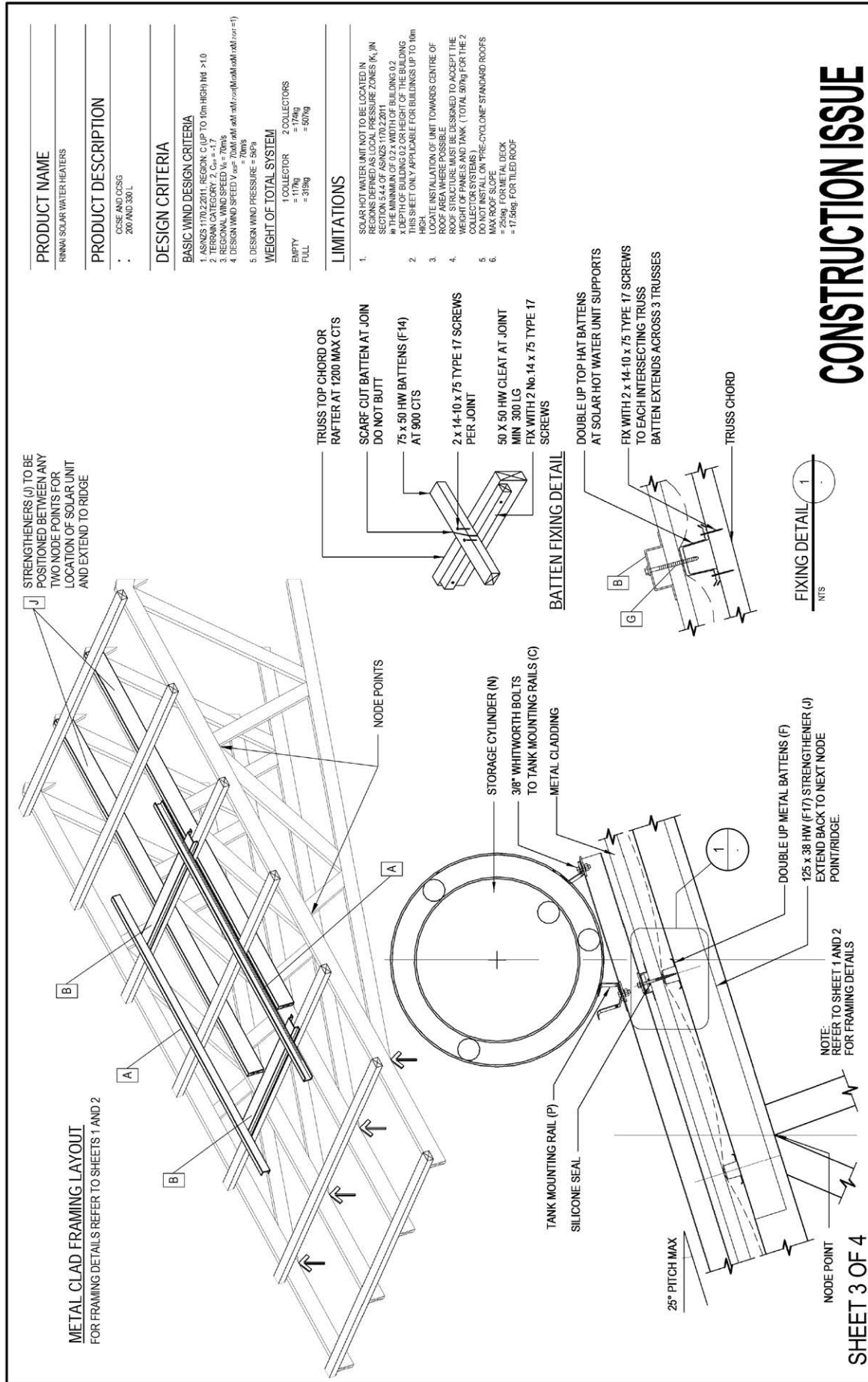
SYSTEM LAYOUT - PLAN VIEW

- FOR THE FIXING DETAILS TO METAL CLAD ROOFS REFER TO SHEETS 2 AND 3
- FOR THE FIXING DETAILS TO CONCRETE OR TILED ROOFS REFER TO SHEETS 2 AND 4
- FIXINGS FOR PROPRIETARY TOP HAT (B) TO BE LOCATED ON THE NEAREST CRESTS EACH SIDE OF CHANNEL SECTION (A) ON THE CENTRE LINE OF TOP HAT SECTION (C)
- ALL BOLTS, WASHERS AND SCREWS TO BE GALVANIZED OR CLASS 4 FINISH
- TRUSS TOP CHORDS OR RAFTERS TO BE 1200 MAX CENTRES

CONSTRUCTION ISSUE

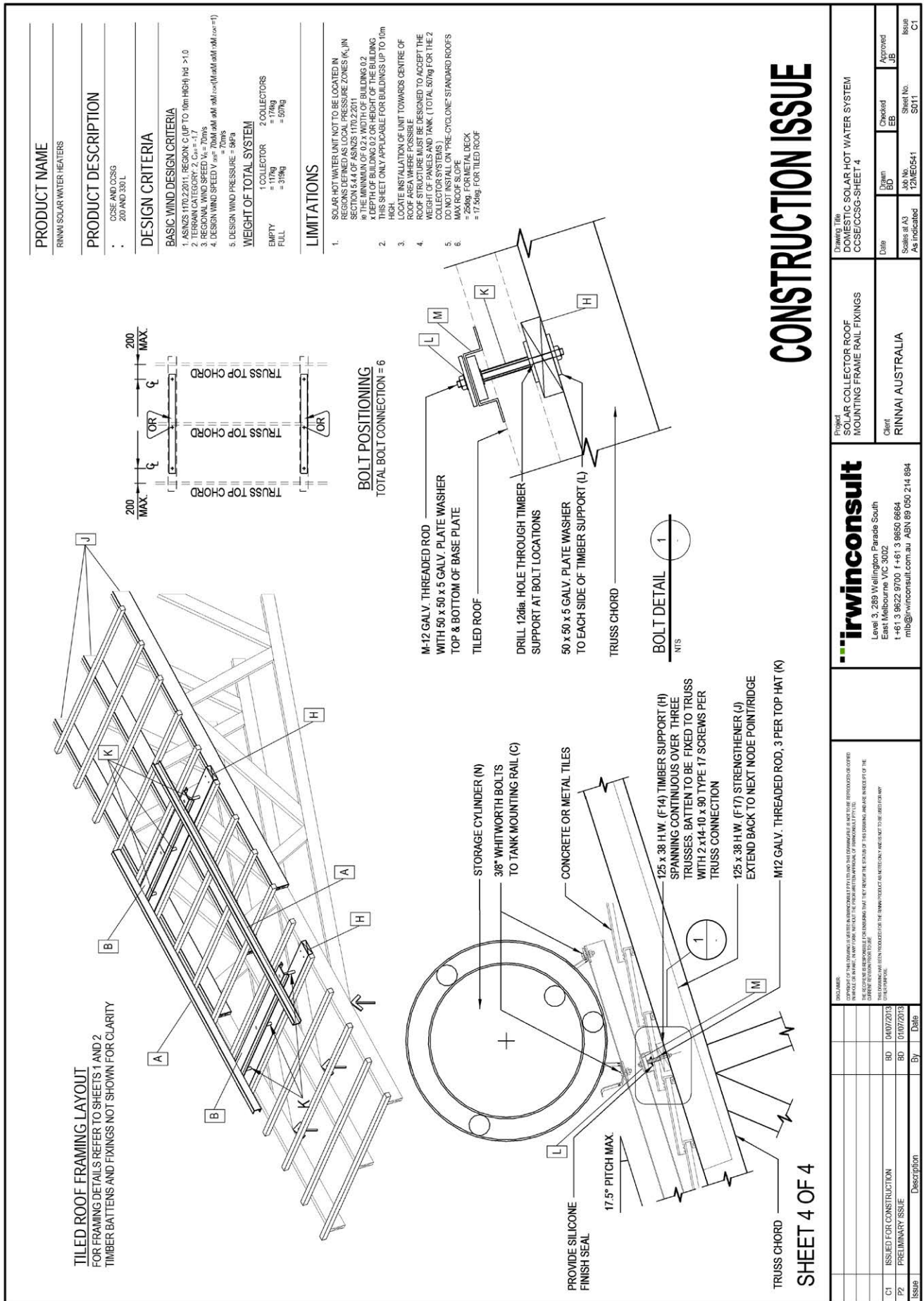
SHEET 1 OF 4

irwinconsult Level 3, 289 Wellington Parade South East Melbourne, VIC 3002 t +61 3 9522 9700 f +61 3 9520 6664 mib@irwinconsult.com.au ABN 59 050 214 834		Project: SOLAR COLLECTOR ROOF MOUNTING FRAME RAIL FIXINGS	Drawing Title: DOMESTIC SOLAR HOT WATER SYSTEM CCSG/CCSG-SHEET 1
Issue C1 ISSUED FOR CONSTRUCTION 04/07/2013 PRELIMINARY ISSUE 01/07/2013	By BD Date 04/07/2013	Client: RINNAI AUSTRALIA	Date: 04/07/2013 Checked: EB Approved: JB Sheet No. S008 Issue C1



CONSTRUCTION ISSUE

irwinconsult Level 3, 289 Wellington Parade South East Melbourne, VIC 3002 t +61 3 9522 9700 f +61 3 9550 6864 info@irwinconsult.com.au ABN 59 050 214 894		Project SOLAR COLLECTOR ROOF MOUNTING FRAME RAIL FIXINGS	Drawing Title DOMESTIC SOLAR HOT WATER SYSTEM CCSE/CCSG-SHEET 3
Client RINNAI AUSTRALIA	Date As indicated	Drawn BD	Checked EB
Job No. 12NE0541	Sheet No. S010	Approved JB	Issue C1
Issue C1	Description ISSUED FOR CONSTRUCTION PRELIMINARY ISSUE	By BD	Date 04/07/2013 04/07/2013



CERTIFICATE FOR NORTHERN TERRITORY

NORTHERN TERRITORY OF AUSTRALIA
BUILDING ACT
SECTION 40 – CERTIFICATE OF COMPLIANCE – STRUCTURAL DESIGN



All sections must be completed – mark N/A to any question that does not apply

PROPERTY / PROJECT DETAILS	
Owner (if known):	
Lot/Portion Number:	Address:
Location:	Town / Hundred :
Description of works :	
Rinnai Solar Water Systems / Heaters SP200A Model + CCSE, CCSG Models	

DOCUMENTS ATTACHED
Drawing Nos: DTC Sheets 1-5 for both model types
Other:

DESIGN BASIS (please list relevant Standards used in the design)			
Class of Building (BCA):		Type of Construction (BCA volume 1 §C1.1): (eg. Type A fire-resisting construction)	
Building Importance Level (BCA Table B1.2a): 2		Annual Probability of Exceedance for Wind (BCA Table 1.2b): 1 in 500	
Region: C	Regional ultimate wind speed V_R (m/s): 70	Terrain Category: 2	Reference height (m): 10
$M_{z,cat}$: 1.0	M_s : 1.0	M_t : 1.0	V_{des0} Design Wind Speed at reference height (m/s): 70
Internal Pressure Coefficients ($C_{p,i}$):		/	
External Pressure Coefficients ($C_{p,e}$)		Walls	
		Roof	
Net Pressure Coefficients: ($C_{p,n}$)		Roof / Walls	
Imposed Loads, kPa		Floor / Roof	
Earthquake Design Category, EDC (Table 2.1 of AS 1170.4):			
Annual Probability of Exceedance for Earthquake Actions (BCA Table 1.2b): 1 in		Hazard Factor, Z (Section 3):	
Importance Level (BCA):		Class of Sub-Soil (Section 4):	
Safe Foundation Bearing Capacity, kPa:		Site classification (AS2870):	

COMMENTS / EXCLUSIONS (Exclusions to this Certificate must be clearly identified).
The following items are excluded and shall be certified separately:
Existing roof structure to be assessed by others
Comments:

CERTIFICATION BY STRUCTURAL ENGINEER			
Company Name		Company NT Registration Number	
IRWINCONSULT PTY LTD		18235ES	
We certify that reasonable care has been taken to ensure that the structural engineering aspects of the works as described above have been designed in accordance with the requirements of the Building Code of Australia and the Northern Territory Building Regulations.			
Name (print clearly)	Individual NT Registration Number	Signature	Date
NEIL W CLARKE	18183ES		

SCHEDULE OF STRUCTURAL INSPECTIONS REQUIRED

Inspection of construction is required at the stages indicated below.

- ☐ 1. Completion of site preparation/site filling/excavations for footings prior to placement of any reinforcement or concrete.
 - ☐ 2. Completion of preparations for placing of concrete strip footings including placement of reinforcement.
 - ☐ 3. Completion of preparations for placing concrete slabs including compaction of fill and sand blinding, placement of formwork, reinforcement, starter bars and cast in items.
 - ☐ 4. Completion of preparations for placing of concrete pier footings including reinforcement (if any).
 - ☐ 5. Starter bars and cast in items after placing of concrete and prior to any covering up work.
 - ☐ 6. Reinforcement to walls completed prior to core filling (inspection holes and cleanout cores to be completed).
 - ☐ 7. Structural steelwork and cold formed steelwork completed and prior to any covering up work. Floor framing system completed before floors are laid or underside is lined.
 - ☐ 8. Suspended concrete floor slabs with formwork, reinforcement and cast in items completed, prior to placing of concrete.
 - ☐ 9. Wall framing or blockwork wall core filling completed (with windows fixed in place) and roof framing with connections completed and prior to sheeting or lining.
- Note: ☐ Prior lodgement of truss manufacturer's drawings, details and certification required.
 ☐ Prior lodgement of windows manufacturer's drawings including fixings and certification required.
- ☐ 10. Structural wall linings completed and prior to any covering up work.
 - ☒ 11. Final inspection upon completion of all structural work including fixings of external roof and wall claddings, flashings, barges & vents.
 - ☐ 12. Other Inspections as required by the building permit

Important Information:

- 1) The above inspections are required to be carried out by either the certifying engineer or the building certifier who issued the building permit for the work. (If no inspections are indicated refer to the certifying engineer for advice).
- 2) Where works are prescribed building works under the *NT Building Act*, the building certifier must be provided with a copy of the inspection record and no further works must be carried out by the builder until the building certifier issues a release to proceed with further works.
- 3) Additional non structural inspections may be required during the course of construction before the issue of a Permit to Occupy (refer to building certifier for requirements).
- 4) Failure to obtain inspections may prevent the issue of a Permit to Occupy upon completion of the building works.

SPLIT SYSTEM

Product Name RINNAI SOLAR WATER HEATERS	
Product Description Split Solar Hot Water System 1 or 2 SP200A collectors	
Manufacturer's Name Rinnai Rinnai Australia Pty Ltd A.B.N. 74 005 538 789 1000 Rinnai Way Regency Park SA 5010 Ph: (08) 8229 5900	
Design Criteria WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 33kg 2 COLLECTORS = 66kg FULL = 34.3kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170.2:2011, REGION C (UP TO 10m HIGH) $h_{td} \leq 0.5$ hbb ≤ 0.5 2. TERRAIN CATEGORY 2, $Q_{pe} = -1.7$ 3. REGIONAL WIND SPEED $V_R = 70$ m/sec 4. DESIGN WIND SPEED $V_{des} = 70$ m/sec 5. DESIGN WIND PRESSURE = 4.9kPa	
Limitations 1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (V_L) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011. 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH. 3. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS (TOTAL 73kg FOR THE 2 COLLECTOR SYSTEMS) 5. DO NOT INSTALL ON "PRE-CYCLONE" STANDARD ROOFS. 6. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RHS BATTENS. 7. MAX ROOF SLOPE = 25° FOR METAL DECK 8. REFER ALSO TO BAC POLICY NOTE FOR SHWU INSTALLATION	
Accepted for Inclusion	
DTCM ref: M / /	
Chairman's Signature:	
Chairman's Name:	
Date of Approval: Expiry Date:	

SHEET 1 of 5

***Checking Engineers Certification**
Name: **M.P. KELLY**
NT Rego Number: **17488ES**
Date: **12/08/13**
Signature: *[Signature]*

***Certifying Engineers Certification**
Name: **NEIL WILLIAM CLARKE**
NT Rego Number: **18235ES**
Date: **12/08/13**
Signature: *[Signature]*

SYSTEM LAYOUT

- FOR THE FIXING DETAILS TO METAL CLAD ROOFS REFER TO SHEETS 2, 3 & 4.
- FOR THE FIXING DETAILS TO CONCRETE OR TILED ROOFS REFER TO SHEETS 3 & 5.
- ITEM G TO BE LOCATED ON THE NEAREST CRESTS EACH SIDE OF ITEM A ON THE CENTRE LINE OF TOP HAT SECTION (ITEM B).
- ALL BOLTS, WASHERS AND SCREWS TO BE GALVANIZED OR CLASS 4 FINISH.
- TRUSS TOP CHORDS OR RAFTERS TO BE 1200 MAX CENTRES.

Notes covering basis of DTC (Relevant test reports etc)
Same frame used as for M/ 52801-05, with length of Channel section (Item A) increased by 60mm.
Installer may cut excess Channel Section to match installation.
No tank, existing collectors and fastening methods as previously tested.
Test Report Rinnai Australia Cyclone Frame Tasting Summary - 28 May 2013.

Product Name RINNAI SOLAR WATER HEATERS	
Product Description Split Solar Hot Water System 1 or 2 SP200A collectors	
Manufacturer's Name Rinnai Rinnai Australia Pty Ltd A.B.N. 74 005 138 769 1000 Rinnai Way Regency Park SA 5010 Ph: (08) 8229 5900	
Design Criteria WEIGHT OF TOTAL SYSTEM EMPTY = 33kg FULL = 68kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170.2:2011, REGION C (UP TO 10m HIGH) $W_d \leq 0.5$ h/b ≤ 0.5 2. TERRAIN CATEGORY: 2, $C_{pe} = -1.7$ 3. REGIONAL WIND SPEED $V_R = 70$ m/sec 4. DESIGN WIND SPEED $V_{des} = 70$ m/s 5. DESIGN WIND PRESSURE = 4.9kPa	
Limitations 1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (V_L) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011. 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH. 3. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS (TOTAL 73kg FOR THE 2 COLLECTOR SYSTEMS) 5. DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS. 6. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RHS BATTENS. 7. MAX ROOF SLOPE = 25° FOR METAL DECK 8. REFER ALSO TO BAC POLICY NOTE FOR SHWU INSTALLATION	
Accepted for Inclusion	
DTOM ref: M / /	
Chairman's Signature:	
Chairman's Name:	
Date of Approval:	
Expiry Date:	

COLLECTOR MOUNTING DETAILS

BATTEN FIXING DETAIL

METAL BATTEN FIXING

FIXING TO VARIOUS ROOF DECK PROFILE

CUSTOM ORB: FIX EVERY 2nd CREST
SPANDEK: FIX EVERY 2nd CREST
TRIMDEK: FIX EVERY CREST

NOTES

1. CHANNEL SECTION 64 x 36 x 2.0mm GRADE 300 (PART No. 142.01.079)
2. TOP HAT SECTION 110 x 20 x 2.0mm (PART No. 142.01.097)
3. 3/8\"/>

***Checking Engineers Certification**

Name: M.P. KELLY
NT Rego Number: 17488ES
Date: 12/01/13
Signature: [Signature]

***Certifying Engineers Certification**

Name: NEIL WILLIAM CLARKE
NT Rego Number: 18235ES
Date: 12/01/13
Signature: [Signature]

SHEET 2 of 5

TILED ROOF FRAMING LAYOUT: FOR FRAMING DETAILS REFER TO SHEET 2. TIMBER BATTENS & FIXINGS NOT SHOWN FOR CLARITY.		Product Name RINNAI SOLAR WATER HEATERS
NOTE: WHEN FITTING TO AN EXISTING TILED ROOF, REMOVE ROOF TILES & INSTALL ADDITIONAL BATTENS & STRENGTHEN	① - FIXED AT 300 STAGGERED NAIL CENTRES RAFTER BOLT DETAILS ON SHEET 5. STRENGTHENERS TO BE POSITIONED BETWEEN ANY TWO NODE POINTS FOR LOCATION OF SOLAR UNIT AND EXTENDED TO RIDGE	Product Description Split Solar Hot Water System 1 or 2 SP200A collectors
METAL CLAD FRAMING LAYOUT: FOR FRAMING DETAILS REFER TO SHEET 2.		Manufacturer's Name Rinnai Rinnai Australia Pty Ltd 40-42 Thirlmere Street Regency Park SA 5010 Ph: (08) 8229 5900
DESIGN CRITERIA WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 33kg 2 COLLECTORS = 66kg FULL = 34.3kg EMPTY = 68.6kg BASIC WIND DESIGN CRITERIA - AS/NZS 1170.2:2011, REGION C (UP TO 10m HIGH) hnd ≤ 0.5 hnb ≤ 0.5 - TERRAIN CATEGORY: 2, $C_{pe} = -1.7$ - REGIONAL WIND SPEED $V_R = 70 \text{ m/sec}$ - DESIGN WIND SPEED Vals $G = 70 \text{ m/sec}$ cat (Max hnd hnb, cat 1.0) - DESIGN WIND PRESSURE = 4.9kPa	Limitations - SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (K_z) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011. - THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH. - LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. - ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS (TOTAL 73kg FOR THE 2 COLLECTOR SYSTEMS) - DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RHS BATTENS. - MAX ROOF SLOPE = 25° FOR METAL DECK - MAX ROOF SLOPE = 17.5° FOR TILED ROOF - REFER ALSO TO BAC POLICY NOTE FOR SHWU INSTALLATION.	Accepted for Inclusion DTM ref: M / /
Notes covering basis of DTC (Relevant test reports etc) Same frame used as for M / 12801-05, with length of Channel section (Item A) increased by 60mm. Installer may cut excess Channel Section to neaten installation. No tank, existing collectors and fastening methods as previously listed. Test Report Rinnai Australia Cyclone Frame Testing Summary - 29 May 2013.	SHEET 3 of 5 Checking Engineers Certification Name: M.P. KELLY NT Rego Number: 17488ES Date: 12.8.13 Signature: <i>[Signature]</i> Certifying Engineers Certification Name: NEIL WILLIAM CLARKE NT Rego Number: 18233ES Date: 12.8.13 Signature: <i>[Signature]</i> ***irwinconsult*** 1 +61 8 8655 5900 1 +61 8 8655 4910 enquiries@irwinconsult.com.au ABN 18 590 514 984 ***registered as a structural engineer in Northern Territory***	Chairman's Signature: Chairman's Name: Date of Approval: Expiry Date:

Product Name RINNAI SOLAR WATER HEATERS			
Product Description Split Solar Hot Water System 1 or 2 SP200A collectors	NOTES: 1. MAX ROOF SLOPE 25° 2. REFER TO SHEET 2 FOR FRAME DETAILS		
Manufacturer's Name Rinnai Rinnai Australia Pty Ltd A.B.N. 74 005 032 788 1000 Rinnai Way Rennet Park SA 5010 Ph: (08) 8229 9000	METAL CLAD INSTALLATION: 1. MAX ROOF SLOPE 25° 2. REFER TO SHEET 2 FOR FRAME DETAILS		
Design Criteria WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 33kg 2 COLLECTORS = 66kg EMPTY = 34.3kg FULL = 65.8kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170.2:2011, REGION: C (UP TO 10m HIGH) hld ≤ 0.5 hlb ≤ 0.5 2. TERRAIN CATEGORY: 2, Cp,e = -1.7 3. REGIONAL WIND SPEED V R = 70m/sec 4. DESIGN WIND SPEED Vdes @ = 70m/sec 5. DESIGN WIND PRESSURE = 4.9kPa	Limitations 1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (V_z) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011. 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH. 3. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS (TOTAL 72kg FOR THE 2 COLLECTOR SYSTEMS) 5. DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS. 6. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RHS BATTENS. 7. MAX ROOF SLOPE = 25° FOR METAL DECK 8. REFER ALSO TO BAC POLICY NOTE FOR SHUW INSTALLATION.		
Accepted for Inclusion	Accepted for Inclusion		
DTCM ref:	DTCM ref: M / /		
Chairman's Signature:	Chairman's Signature:		
Chairman's Name:	Chairman's Name:		
Date of Approval:	Date of Approval:		
Expiry Date:	Expiry Date:		

Product Name RINNAI SOLAR WATER HEATERS	Product Description Split Solar Hot Water System 1 or 2 SP200A collectors
Manufacturer's Name Rinnai Rinnai Australia Pty Ltd A.B.N. 76 005 128769 140 Regency Park Rd Regency Park SA 5010 Ph: (08) 8229 9900	Design Criteria WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 33kg 2 COLLECTORS = 66kg FULL = 34.3kg EMPTY = 68.6kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170.2:2011, REGION: C (UP TO 10m HIGH) hld ≤ 0.5 h_b ≤ 0.5 2. TERRAIN CATEGORY: 2, C_{pe} = -1.7 3. REGIONAL WIND SPEED V_R = 70m/sec 4. DESIGN WIND SPEED V_{des} @ 70m/sec cat (MoxMaxMmMz cat = 1.0) 5. DESIGN WIND PRESSURE = 4.9kPa
Limitations - SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (L_z) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011. - THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH. - LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. - ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS (TOTAL 73kg FOR THE 2 COLLECTOR SYSTEMS) - DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RIBS BATTENS. - MAX ROOF SLOPE = 25° FOR METAL DECK - REFER ALSO TO BAC POLICY NOTE FOR SHWU INSTALLATION.	Accepted for Inclusion DTM ref: M / /
Chairman's Signature: Chairman's Name: Date of Approval: Expiry Date:	

NOTES:

1. MAX ROOF SLOPE 17.5°

CLEAR OF ROOF INSTALLATION (TILE ROOF):

TOTAL PIPE/BOLT CONNECTIONS = 6

BOLT POSITIONING

BOLT DETAIL

***Checking Engineers Certification**

Name: **M.P. KELLY**

NT Rego Number: **17488ES**

Date: **12/08/13**

Signature: *[Signature]*

*registered as a structural engineer in Northern Territory

***Certifying Engineers Certification**

Name: **NEIL WILLIAM CLARKE**

NT Rego Number: **1823SES**

Date: **12/08/13**

Signature: *[Signature]*

*registered as a structural engineer in Northern Territory

Notes covering basis of DTC (Relevant test reports etc)

Same frame used as for M / 12901-05, with length of Channel section (Item A) increased by 60mm.

Installer may cut excess Channel Section to install installation.

No task, existing collectors and fastening methods as previously listed.

Test Report Rinnai Australia Cyclone Frame Testing Summary - 29 May 2013.

CLOSE COUPLED SYSTEM

Product Name RINNAI SOLAR WATER HEATERS	
Product Description Close Coupled Solar Hot Water System 180 / 200 and 330 L	
Manufacturer's Name Rinnai Rinnai Australia Pty Ltd A.B.N. 74 600 130 769 100 Rinnai Way Regency Park SA 5010 Ph: (08) 8229 8000	
Design Criteria MAX WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 174kg 2 COLLECTORS = 348kg EMPTY = 117kg FULL = 319kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170.2:2011, REGION C (UP TO 10m HIGH) h/d ≤ 0.5 h/b ≤ 0.5 2. TERRAIN CATEGORY: 2, C _{pe} = -1.7 3. REGIONAL WIND SPEED V _R = 70m/sec 4. DESIGN WIND SPEED V _{des} = 70m/sec 5. DESIGN WIND PRESSURE = 4.9kPa	
Limitations 1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (V _L) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH. 3. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS AND TANK. (TOTAL 507kg FOR THE 330 L UNIT) 5. DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS 6. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RHS BATTENS 7. MAX ROOF SLOPE = 25° FOR METAL DECK 8. REFER ALSO TO BAC POLICY NOTE FOR SHUW INSTALLATION	
Accepted for Inclusion	
DTCM ref: M / /	
Chairman's Signature:	
Chairman's Name:	
Date of Approval:	
Expiry Date:	

SYSTEM LAYOUT

- FOR THE FIXING DETAILS TO METAL CLAD ROOFS REFER TO SHEETS 2, 3 & 4.
- FOR THE FIXING DETAILS TO CONCRETE OR TILED ROOFS REFER TO SHEETS 3 & 5.
- ITEM H TO BE LOCATED ON THE NEAREST CRESTS EACH SIDE OF ITEM B ON THE CENTRE LINE OF TOP HAT SECTION (ITEM C).
- ALL BOLTS, WASHERS AND SCREWS TO BE GALVANIZED OR CLASS 4 FINISH.
- TRUSS TOP CHORDS OR RAFTERS TO BE 1200 MAX CENTRES.

SHEET 1 of 5

***Checking Engineers Certification**
 Name: M.P. KELLY
 NT Rego Number: 17488ES
 Date: 22.8.13
 Signature: *M.P. Kelly*

***Certifying Engineers Certification**
 Name: NEIL WILLIAM CLARKE
 NT Rego Number: 18235ES
 Date: 22.8.13
 Signature: *Neil William Clarke*

*****irwinconsult*****
 14/15 S 3802 5000 1 1415 8 881 4070
 enq@irwinconsult.com.au A/BN 69 990 24 604

**registered as a structural engineer in Northern Territory

Notes covering basis of DTC (Relevant test reports etc)

Same frame used as for M 152801-05, with length of Channel section (Item B) increased by 60mm.

Installer may cut excess Channel Section to retain insulation.

New tank, existing collectors and fastening methods as previously tested.

Test Report Rinnai Australia Cyclone Frame Testing Summary - 29 May 2013.

Product Name RINNAI SOLAR WATER HEATERS Product Description Close Coupled Solar Hot Water System 180 / 200 and 330 L Manufacturer's Name Rinnai Rinnai Australia Pty Ltd 40-42 Tindale Street Regency Park SA 5010 PH: (08) 8229 9900 Design Criteria MAX WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 117kg 2 COLLECTORS = 174kg FULL = 319kg = 507kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170:2011, REGION C (UP TO 10m HIGH) $W_d \leq 0.5$ hb ≤ 0.5 2. TERRAIN CATEGORY 2, $C_{pe} = -1.7$ 3. REGIONAL WIND SPEED $V_R = 70$ m/s 4. DESIGN WIND SPEED $V_d = 70$ m/s (Max 10m h, cat. 1.0) 5. DESIGN WIND PRESSURE = 4.5 kPa	Limitations 1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (A, B, C) IN SECTION 14 OF AS/NZS 1170:2011 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH 3. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS AND TANK (TOTAL 970kg FOR THE 330 L UNIT) 5. DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS 6. (* DOUBLE UP TOP HAT BATTENS OR ENGINEERED RIBS BATTENS 7. MAX ROOF SLOPE = 25° FOR METAL DECK 8. REFER ALSO TO BAC POLICY NOTE FOR SHW INSTALLATION. Accepted for Inclusion DTCM ref: M / / Chairman's Signature: Chairman's Name: Date of Approval: Expiry Date:
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TANK MOUNTING RAIL DETAILS

TRUSSES TOP CHORD OR RAFTER AT 1200 MAX CTS

SCARF CUT BATTEN AT JOINT DO NOT BUTT.

75 x 50 HW BATTENS (F14) AT 900 CTS.

2 No. 14 x 75 POWER DRIVEN PHILIPS HEAD SCREWS PER JOINT.

50 X 50 HW CLEAT AT JOINT MIN 300 LG

FIX WITH 2 No. 14 x 75 TYPE 17 SCREWS.

BATTEN FIXING DETAIL

DOUBLE UP TOP HAT BATTENS AT SOLAR HOT WATER UNIT

SUPPORTS: FIX WITH 2 - #14 TEKs TO EACH INTERSECTING TRUSS. BATTEN EXTENDS ACROSS 4 TRUSSES

NUMBER OF SCREWS DEPENDS ON DECK PROFILE

METAL BATTEN FIXING

330L TANK

A. CHANNEL SECTION 64 x 36 x 2.0mm GRADE 300 (PART No. 142.01.001)

B. WITH PLATE REINFORCEMENT UNDER TANK

C. TOP HAT SECTION 110 x 20 x 2.0mm (PART No. 142.01.097)

D. 3/8" WHITWORTH x 20mm LONG BOLT, NUT, AND 10 PLATE WASHER

E. COLLECTOR MOUNTING BAR 1.5m (PART No. 142.01.083)

F. COLLECTOR (1025 x 1935 EACH) (PART No. 188.01.740) REFER TO LIMITATIONS.

G. MINIMUM 75 x 50mm HARDWOOD (F14) BATTEN OR 40 x 0.75mm TOP HAT STEEL BATTEN

H. 1. FIXING PROPRIETARY STEEL TOP HAT (C.) TO TIMBER ROOF BATTENS, USE 14-10 x 90 TYPE 17 SCREWS, CLASS 4 FINISH, EQUALLY SPACED FIXED THROUGH CREST OF ROOF DECK.

I. 2. FIXING PROPRIETARY STEEL TOP HAT (C.) TO DOUBLED-UP 40 x 0.75mm TOP HAT BATTENS, 14-10 x 90 TYPE 17 SCREWS, EQUALLY SPACED FIXED THROUGH CREST OF ROOF DECK.

J. 125 x 38mm H.W. (F17) TIMBER SUPPORT, REFER TO CLEAR OF ROOF INSTALLATION DETAIL ON SHEET 5 FOR CLARIFICATION.

K. 125 x 38mm H.W. (F17) STRENGTHENER FOR BASE PLATE CONNECTED ANY LOCATION BETWEEN 2 NODE POINTS ON TOP CHORD OF TRUSSES, ALTERNATIVELY 90 x 38 HW (F17) STRENGTHENER FOR BASE PLATE CONNECTED WITHIN 500mm OF TRUSS NODE POINT. FIX WITH 75 x 2.8 (GALV) NAILS AT 300 MAX CTS STAGGERED. MAX DIFFERENCE BETWEEN NODE POINTS TO BE 1850mm. ONLY REQUIRED WITH COLLECTOR TANK.

L. 250 x 5 (GALV) PIPE SPACER CONNECTION WITH BOLT CONNECTION. REFER TO CLEAR OF ROOF INSTALLATION DETAIL ON SHEET 5.

M. TANK MOUNTING RAILS (PART No. 142.01.101)

N. REINFORCEMENT PLATE (PART No. 152.01.002)

P. PLATE WASHER (PART No. 152.01.001)

Q. PLATE WASHER TAPPED (PART No. 152.01.003)

FIXING TO VARIOUS ROOF

DECK PROFILE

CUSTOM ORB: FIX EVERY 2nd CREST

SPANDEK: FIX EVERY 2nd CREST

TRIMDEK: FIX EVERY CREST

SHEET 2 of 5

*Checking Engineers Certification Name: M.P. KELLY NT Rego Number: 17488ES Date: 12.8.13 Signature: <i>[Signature]</i> **registered as a structural engineer in Northern Territory	*Certifying Engineers Certification Name: NEIL WILLIAM CLARKE NT Rego Number: 18236ES Date: 12.8.13 Signature: <i>[Signature]</i> **registered as a structural engineer in Northern Territory
--	---

Notes covering basis of DTC (Relevant test reports etc)

Same frame used as for M / 52801-05, with length of Channel section (Item B) increased by 60mm. Installer may cut excess Channel Section to maintain installation.

New tank, existing collectors and fastening methods as previously listed.

Test Report Rinnai Australia Cyclone Frame Testing Summary - 29 May 2013.

Product Name RINNAI SOLAR WATER HEATERS	
Product Description Close Coupled Solar Hot Water System 180 / 200 and 330 L	
Manufacturer's Name Rinnai Rinnai Australia Pty Ltd 4/5-7/8 The Arcade 40-42 The Arcade Regency Park SA 5010 Ph: (08) 8228 8900	
Design Criteria MAX WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 117kg 2 COLLECTORS = 174kg FULL = 319kg EMPTY = 507kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170.2:2011, REGION: C (UP TO 10m HIGH) h/d ≤ 0.5 h/b ≤ 0.5 2. TERRAIN CATEGORY: 2, $Q_{pe} = 1.7$ 3. REGIONAL WIND SPEED $V_{R} = 70 \text{ m/sec}$ 4. DESIGN WIND SPEED $V_{des} \Theta = 70 \text{ m/sec}$ cat (Max/Mid/Min cat, cat = 1.0) 5. DESIGN WIND PRESSURE = 4.9 kPa	
Limitations 1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (K) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH 3. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS AND TANK (TOTAL 507kg FOR THE 330 L UNIT) 5. DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS. 6. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RIBS BATTENS 7. MAX ROOF SLOPE = 25° FOR METAL DECK 8. REFER ALSO TO BAC POLICY NOTE FOR SHIMU INSTALLATION	
Accepted for Inclusion	
DTCM ref: M / /	
Chairman's Signature:	
Chairman's Name:	
Date of Approval:	
Expiry Date:	

TILED ROOF FRAMING LAYOUT: FOR FRAMING DETAILS REFER TO SHEET 2. TIMBER BATTENS & FIXINGS NOT SHOWN FOR CLARITY. NOTE: WHEN FITTING TO AN EXISTING TILED ROOF, REMOVE ROOF TILES & INSTALL ADDITIONAL BATTENS & STRENGTHENERS			
METAL CLAD FRAMING LAYOUT: FOR FRAMING DETAILS REFER TO SHEET 2.			

Notes covering basis of DTC (Relevant test reports etc) Same frame used as for H/ 52801-05, with length of Channel section (Item B) increased by 60mm. Installer may cut excess Channel Section to shorten installation. New tank, existing collectors and fastening methods as previously tested. Test Report Rinnai Australia Cyclone Frame Testing Summary - 29 May 2013.		*Checking Engineers Certification Name: M.P. KELLY NT Rego Number: 17488ES Date: 21/11/13 Signature: <i>[Signature]</i>	
*Certifying Engineers Certification Name: NEIL WILLIAM CLARKE NT Rego Number: 1823SES Date: 21/11/13 Signature: <i>[Signature]</i>		SHEET 3 of 5	

Product Name	RINNAI SOLAR WATER HEATERS		
Product Description	Close Coupled Solar Hot Water System 180 / 200 and 330 L		
Manufacturer's Name	Rinnai Rinnai Australia Pty Ltd A.B.N. 74 005 338 786 40-42 Tharara Street Regency Park SA 5010 Ph: (08) 5253 2068		
Design Criteria	MAX WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 117kg 2 COLLECTORS = 234kg EMPTY = 117kg FULL = 319kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170:2011, REGION C (UP TO 10m HIGH) $W_{ref} \leq 0.5$ h.b. $s \leq 0.5$ 2. TERRAIN CATEGORY: 2, $Q_{ref} = -1.7$ 3. REGIONAL WIND SPEED $V_R = 70$ m/sec 4. DESIGN WIND SPEED $V_{des} \phi = 70 \text{ m/sec} \times 1.0 = 70$ m/sec 5. DESIGN WIND PRESSURE = 4.9kPa		
Limitations	1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONE (L) IN SECTION 3.4.4 OF AS/NZS 1170:2011 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH 3. LOCAL INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS AND TANK (TOTAL 60% FOR THE 330L UNIT) 5. DO NOT INSTALL ON "PRE-CYCLONE" STANDARD ROOFS 6. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RIB BATTENS 7. MAX ROOF SLOPE = 25° FOR METAL DECK = 17.5° FOR TILED ROOF 8. REFER ALSO TO BAC POLICY NOTE FOR SHWU INSTALLATION		
Accepted for Inclusion			
DTCM ref:	M / /		
Chairman's Signature:			
Chairman's Name:			
Date of Approval:	Expiry Date:		

METAL CLAD INSTALLATION:

NOTES:
 1. MAX ROOF SLOPE 25°
 2. REFER TO SHEET 2 FOR FRAME DETAILS

SHEET 4 of 5

***Checking Engineers Certification**
 Name: M.P. KELLY
 NT Rego Number: 17488ES
 Date: 12/09/13
 Signature: [Signature]

***Certifying Engineers Certification**
 Name: NEIL WILLIAM CLARKE
 NT Rego Number: 18235ES
 Date: 12/09/13
 Signature: [Signature]

Notes covering basis of DTC (Relevant test reports etc)

Same frame used as for M / 52001-05, with length of Channel section (Item B) increased by 60mm.
 Installer may cut excess Channel Section to make installation.

New tank, existing collectors and fastening methods as previously tested.

Test Report Rinnai Australia Cyclone Frame Testing Summary - 29 May 2013.

Product Name RINNAI SOLAR WATER HEATERS	
Product Description Close Coupled Solar Hot Water System 180 / 200 and 330 L	
Manufacturer's Name Rinnai Rinnai Australia Pty Ltd A.B.N. 74 005 138 789 40-42 Theatre Street Regency Park SA 5010 Ph: (08) 8228 8800	
Design Criteria MAX WEIGHT OF TOTAL SYSTEM 1 COLLECTOR = 174kg 2 COLLECTORS = 319kg BASIC WIND DESIGN CRITERIA 1. AS/NZS 1170.2:2011, REGION C (UP TO 10m HIGH) hld ≤ 0.5 hbs ≤ 0.5 2. TERRAIN CATEGORY: 2, Q _{pe} = -1.7 3. REGIONAL WIND SPEED V _R = 70m/sec 4. DESIGN WIND SPEED V _{des} = 70m/sec 5. DESIGN WIND PRESSURE = 4.9kPa	
Limitations 1. SOLAR HOT WATER UNIT NOT TO BE LOCATED IN REGIONS DEFINED AS LOCAL PRESSURE ZONES (K) IN SECTION 5.4.4 OF AS/NZS 1170.2:2011 2. THIS SHEET ONLY APPLICABLE FOR BUILDINGS UP TO 10m HIGH. 3. LOCATE INSTALLATION OF UNIT TOWARDS CENTRE OF ROOF AREA WHERE POSSIBLE. 4. ROOF STRUCTURE MUST BE DESIGNED TO ACCEPT THE WEIGHT OF PANELS AND TANK (TOTAL 507kg FOR THE 330 L UNIT) 5. DO NOT INSTALL ON 'PRE-CYCLONE' STANDARD ROOFS. 6. (*) DOUBLE UP TOP HAT BATTENS OR ENGINEERED RHS BATTENS 7. MAX ROOF SLOPE = 25° FOR METAL DECK 8. MAX ROOF SLOPE = 17.5° FOR TILED ROOF 9. REFER ALSO TO BAC POLICY NOTE FOR SHWU INSTALLATION	
Accepted for Inclusion	
DTCM ref:	M / /
Chairman's Signature:	
Chairman's Name:	
Date of Approval:	Expiry Date:

1. 17.5° PITCH

2. BASE PLATE SECTION 110 x 25 x 2 SUPPORT.

3. PROVIDE SILICONE FINISH SEAL.

4. 250 x 5 GALV PIPE. ①

5. TILE BATTEN FIXED AS PER STRUCTURAL DRAWINGS.

6. CONCRETE OR METAL TILES AS SPECIFIED ON STRUCTURAL DRAWINGS.

7. 125 x 38 H.W. (F14) TIMBER SUPPORT (H) SPANNING CONTINUOUS OVER THREE TRUSSES. BATTEN TO BE FIXED TO TRUSS WITH 6 x 14-10 x 90 TYPE 17 TEK SCREW (PRE-DRILLED).

CLEAR OF ROOF INSTALLATION (TILE ROOF):

NOTES:
1. MAX ROOF SLOPE 17.5°
2. REFER TO SHEET 2 FOR FRAME DETAILS

M-12 GALV THREADED ROD WITH 50 x 50 x 5 GALV PLATE WASHER TOP & BOTTOM OF BASE PLATE.

DRILL 120 HOLE THROUGH TIMBER SUPPORT AT BOLT LOCATIONS.

50 x 50 x 5 GALV PLATE WASHER TO EACH SIDE OF TIMBER SUPPORT.

TOTAL PIPE/BOLT CONNECTIONS = 6

BOLT DETAIL

BOLT POSITIONING

SHEET 5 of 5

Notes covering basis of DTC (Relevant test reports etc) Same frame used as for MJ 52801-05, with length of Channel section (Item B) increased by 50mm. Installer may cut excess Channel Section to nearest installation. New tank, existing collectors and fastening methods as previously tested. Test Report Rinnai Australia Cyclone Frame Testing Summary - 29 May 2013.	*Checking Engineers Certification Name: M.P. KELLY NT Rego Number: 17488ES Date: 12/07/13 Signature: [Signature] *registered as a structural engineer in Northern Territory	*Certifying Engineers Certification Name: NEIL WILLIAM CLARKE NT Rego Number: 18235ES Date: 17/8/13 Signature: [Signature] *registered as a structural engineer in Northern Territory
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Rinnai

Rinnai Australia Pty. Ltd. ABN 74 005 138 769

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Rinnai has a Service and Spare Parts network with personnel who are fully trained and equipped to give the best service on your Rinnai appliance. If your appliance requires service, please call our National Help Line. Rinnai recommends that this appliance be serviced every 3 years.

Internet: www.rinnai.com.au E-mail: enquiry@rinnai.com.au

National Help Line

Tel: 1300 555 545* Fax: 1300 555 655*

**Cost of a local call higher from mobile or public phones.*

Hot Water Service Line

Tel: 1800 000 340

