

Building Consent for Installation of Solar Water Heating System - Application Requirements

Applications for Building Consent for Installation of Solar Water Heating Systems are to provide the following information.

Council:.....

Installer Making Application:.....

Telephone Number for Installer:.....

Product and Model Number Installed:.....

Supplier of Product:.....

Craftsman Plumber:.....

Address of Property on which Installed:.....

Location of Installation:.....

Lot:..... DP:.....

Owner of Property on which Installed:.....

Confirmation from the Installer that:

- The system will be installed such that the requirements of the New Zealand Building Code have been met
- Plumbing work has been installed to meet the requirements of standard AS/NZS3500.4
- The system described will be installed on a dwelling on the name property according to the G12 AS2
- A check will be made by a suitably qualified person to ensure that the system is located over suitably sound load bearing walls and strengthening of roof framing will be undertaken according to the guidelines provided by the system supplier and meets the requirements of Approved Document B1 of the New Zealand Building Code
- The installation is undertaken in terms of manuals and instructions from the product supplier
- The product supplier is a Solar Industries Association Accredited Supplier
- The installer has been appropriately trained in the installation of the named product by the product supplier and operate under that supplier's accreditation
- The installer is covered by a current Public Liability Insurance Policy to a current value of \$.....

The installer will provide clear sketch drawings showing the layout of the system and position with regard to roof framing and sound load bearing walls. Any strengthening required will be specified.

Installer Signature:.....

Date:.....

Model Producer Statement PS3 Installation of Solar Water Heating System

Applications for Building Consent for Installation of Solar Water Heating Systems are to provide the following information.

Council:.....

Building Consent No.:.....

Producer Statement Issued By:.....
(suitably qualified water heater system installer)

Address of Installer:.....

Product and Model Number Installed:.....

Supplier of Product:.....

Registered Plumber (if applicable):..... Registration No.:.....

Registered Electrician (if applicable):..... Registration
No.:.....

Registered Gas Fitter (if applicable):..... Registration No.:.....

Address of Property on which Installed:.....

Lot:..... DP:.....

The system has been installed such that the requirements of the New Zealand Building Code have been met. Plumbing work has been installed to meet the requirements of standard AS/NZS3500.4.

Registered Plumber Signature:.....

Date:.....

The solar water heating system described above has been installed on a dwelling on the named property according to G12 AS2

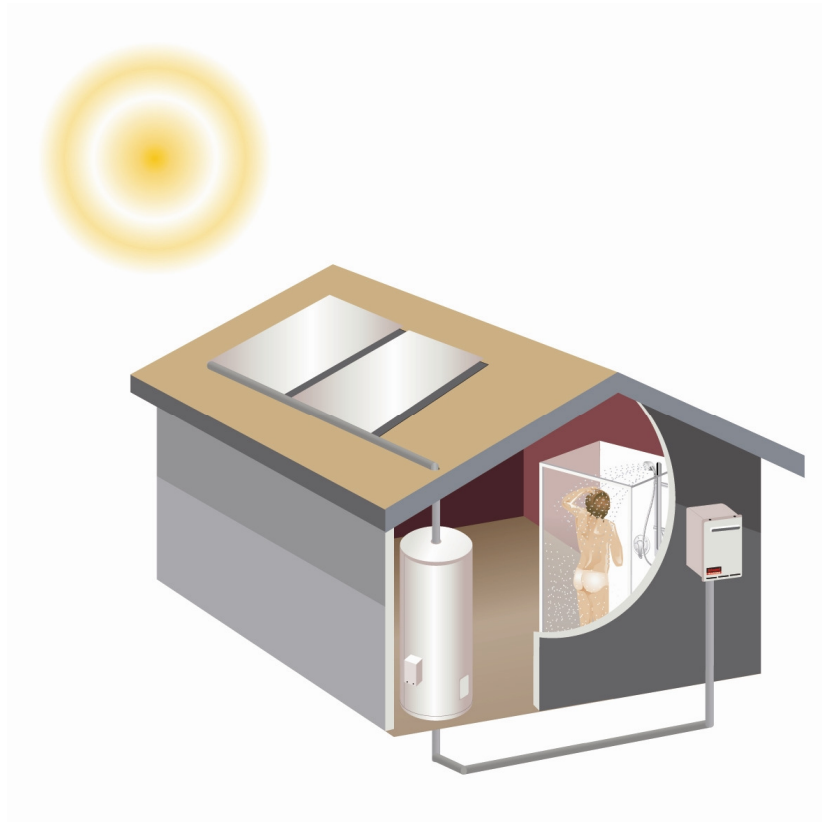
The system has been located as shown on the drawings provided with the Building Consent Application. A check has been made by a suitably qualified person to ensure that the system is located over suitably sound load bearing walls and strengthening of roof framing has been undertaken according to the guidelines provided by the system supplier and meets the requirements of Approved Document B1 of the New Zealand Building Code.

The installation has been undertaken in terms of manuals and instructions from the Product Supplier who is a Solar Industries Association Accredited Supplier.

I certify that I have been appropriately trained in the installation of the named product by the product supplier and operate under that supplier's accreditation. As an independent solar water heating system supplier I am covered by a current Public Liability Insurance Policy to a current value of \$.....

Installers Signature:..... Date:.....

G12 AS2 Compliance Assessment for Rinnai Split Solar Systems



(attach to building consent application)

Installation of a Rinnai Split Solar System

Purpose of this Document

The Rinnai Solar Compliance Document has been compiled to assist installers through the building consent process by providing pre-prepared supporting documentation for Rinnai Solar Systems.

It is intended that installers do the following:

Step 1 Complete 'Building Consent for Installation of Solar Water Heating System – Application Requirements' and 'Model Producer Statement PS3' forms at the front of this document.

Step 2 Complete the Rinnai Solar Compliance Document by ticking and providing additional notations where relevant about how the system will be installed.

Step 3 Attach compliance document along with the Rinnai Operation and Installation manuals to building consent application.

Rinnai Operation and Installation instructions can be downloaded from www.rinnai-tradesmart.co.nz > Solar > Solar Components

Installation of a Rinnai Split Solar System

Rinnai System Description

All these combinations carry AS/NZS2712:2007 Approval.

Refer to www.rinnai-tradesmart.co.nz within the Solar section for full certificate.

G12 AS2 Level 1 Frost Compliant Systems

Tick	System ID	Storage Cylinder Model	Panel Qty	Panel Model	AS/NZS 2712 Certificate		Rinnai Order Codes
					Page	Line	Tank and Tank Kit Panel and Panel Kit
	Split System SS1601 FTC	Centurion 160L	1	SP200FTC	20	12	CYLSS16024 and SOLKITPUMPSS1 SOLPANSP200FTC and SOLKITPANX1
	Split System SS1601 EXT FTC	Centurion 160L	1	Excelsior FTC	20	9	CYLSS16024 and SOLKITPUMPSS1 SOLPANEX200FTC and SOLKITPANX1
	Split System SE1601 FTC	Rinnai Glass Lined 180L	1	SP200FTC	16	4	CYSOLGE18024 and SOLKITPUMPGE1 SOLPANSP200FTC and SOLKITPANX1
	Split System SE2502 FTC	Rinnai Glass Lined 250L	2	SP200 FTC	17	7	CYSOLGE25036 and SOLKITPUMPGE1 SOLPANSP200FTC and SOLKITPANX2
	Split System SS2502 FTC	Centurion 250L	2	SP200FTC	22	16	CYLSS25036 and SOLKITPUMPSS1 SOLPANSP200FTC and SOLKITPANX2
	Split System SS2502 Ext FTC	Centurion 250L	2	Excelsior FTC	22	13	CYLSS25036 and SOLKITPUMPSS1 SOLPANEX200FTC and SOLKITPANX2
	Split System SS3152 FTC	Centurion 315L	2	SP200FTC	24	21	CYLSS31536 and SOLKITPUMPSS1 SOLPANSP200FTC and SOLKITPANX2
	Split System SS3152 EXT FTC	Centurion 315L	2	Excelsior FTC	24	18	CYLSS31536 and SOLKITPUMPSS1 SOLPANEX200FTC and SOLKITPANX2
	Split System SE3152 FTC	Rinnai Glass Lined 340L	2	SP200FTC	17	19	CYLSOLGE34036 and SOLKITPUMPGE1 SOLPANSP200FTC and SOLKITPANX2
Compliant with specific engineering for 3 panel installations							
	Split System SS3153 FTC	Centurion 315L	3	SP200FTC	25	6	CYLSS31536 and SOLKITPUMPSS1 SOLPANSP200FTC and SOLKITPANX3
	Split System SS3153 EXT FTC	Centurion 315L	3	Excelsior FTC	25	7	CYLSS31536 and SOLKITPUMPSS1 SOLPANEX200FTC and SOLKITPANX3
	Split System SE3153 FTC	Rinnai Glass Lined 340L	3	SP200FTc	18	1	CYLSOLGE34036 and SOLKITPUMPGE1 SOLPANSP200FTC and SOLKITPANX3

Installation of a Rinnai Split Solar System

Rinnai System Compliance

Clause	G12, AS2 Requirement	Rinnai System Compliance	Tick
1.0	Scope		
1.0.1	Solar Water Heaters Installed on Buildings		
1.0.2	Installation must comply with G12 AS1		
1.0.3	Informative Note		
1.1	Structural Support Limitations		
1.1.1	Design standard for building meets one of: <ul style="list-style-type: none"> ▪ NZS3604:1990/1999 ▪ NZS4203 ▪ NZS1170, points 1-3 and 5 	Installer to verify – any building with code compliance should meet this.	
1.1.1a)	Weight of collectors less than 22kg/m ²	Collectors weigh 19.3kg/m ²	✓
1.1.1b)	Storage cylinder not on roof		✓
1.1.1c)	Storage cylinder not in roof cavity		✓
1.1.1d)	Roof pitch no steeper than 45°		
1.1.1e)	Wind zone does not exceed 50m/s (VH)	This information can be found on many council websites, otherwise refer to district plan zonings.	
1.1.1f)	Solar collector area does not exceed 4m ²	<ul style="list-style-type: none"> ▪ 2 panel systems comply – 3.92m² ▪ 3 panel systems will require specific engineering 	
1.1.1g)	Designed snow loading less than 0.5kPa		
1.1.1h)i	Collectors mounted parallel to roof		
1.1.1h)ii	Collectors on frame: <ul style="list-style-type: none"> ▪ Collector pitch < 45° to horizontal ▪ Wind zone does not exceed 44m/s (H) ▪ Solar collector faces same direction as roof 		
1.1.2	If all of a) – h) are not compliant then specific engineering required		
1.2	Exclusions		
1.2.1	This AS applies only to potable water heating function of the installation		✓
2.0	Materials		
2.1	Materials Selection		
2.1.1a)	Meet durability of B2	Demonstrated by b), c) and d) below	✓
2.1.1b)	Meet requirements of table 1	Refer Appendix A	✓
2.1.1c)	Meet requirements of table 2	Refer Appendix B	✓
2.1.1d)	Meet requirements of table 3	Refer Appendix C	✓
2.1.2	Use only mini dek-tite on unpainted galvanised roofing		
2.1.3	If 2.1.2 not met then paint boots or roofing		
2.1.4	Galvanised fastenings used with galvanised or zinc/alum roofing		
2.1.5	Brackets and straps to be galvanised with galvanised or zinc/alum roofing	Refer Appendix A	✓

Installation of a Rinnai Split Solar System

Rinnai System Compliance

Clause	G12, AS2 Requirement	Rinnai System Compliance	Tick
3.0	Solar Water Heater Requirements		
3.1	Solar Water Heater and Components		
3.1.1	Standard compliance	Rinnai systems as listed on page 4 carry AS/NZS 2712:2007 Approval	✓
3.1.2	Insulation requirements	Refer Appendix D	✓
3.2	Solar Controller		
3.2.1	Comply with AS/NZS 2712:2007 6.3	Rinnai systems as listed on page 4 carry AS/NZS 2712:2007 Approval	
3.2.2	Minimise supplementary heating	<ul style="list-style-type: none"> ▪ For electric boost, fit and program external timer as per installation instructions ▪ For gas boost, fit flow diversion valve as per Rinnai installation manual, refer page 23 	
3.2.3	Compliance with NZBC H1.3.4	Demonstrated by compliance with 3.2.1 and/or 3.2.2 above	
3.3	Sizing of Systems		
3.3.1	Min 50 litres storage per m ² panel	All systems listed on page 4 comply	
3.4	Operating and Safety Devices		
3.4.1	Meet G12 AS1 paragraph 6 – Valve and Valve Ratings	Refer Rinnai installation manual page 11 for Rinnai valve rating requirements	
3.4.2	Drain lines to lead to gully traps		
3.5	Protection from Legionella		
3.5.1a)	Continuously energized heating element	N/A to Rinnai systems	✓
3.5.1b)	For electric boost, heat water to > 60°C once per day	<ul style="list-style-type: none"> ▪ Set thermostat to > 60°C ▪ Set timer to energise between 9pm – 5am 	
3.5.1c)	Heat water to > 60°C once per week	N/A to Rinnai systems	✓
3.5.2a)	For gas boost, heat storage tank to > 60°C	N/A to Rinnai systems	✓
3.5.2b)	Heat water to > 60°C in gas booster	Ensure Rinnai Infinity set to 75°C	
3.5.3	Solar storage as preheater to electric storage	N/A to Rinnai systems	✓
3.6	Protection from Frosts		
3.6.1a)	Level 1 frost protection -5°C	Rinnai FTC collectors comply	
3.6.2a)	Level 2 frost protection -15°C	Rinnai draining systems comply	

Installation of a Rinnai Split Solar System

Rinnai System Compliance

Clause	G12, AS2 Requirement	Rinnai System Compliance	Tick
4.0	Location of Solar Water Heaters		
4.1	Location		
4.1.1	Located away from gable ends as per Fig.2		
4.2	Solar Orientation and Inclination		
4.2.1	Collectors face North $\pm 90^\circ$		
4.2.2	Collectors inclined latitude $\pm 20^\circ$		
5.0	Installation of Solar Water Heaters		
5.0.1	Installed in accordance with AS/NZS3500.4		
5.0.2	<ul style="list-style-type: none"> ▪ Isolating valve fitted to storage vessel ▪ Facility to empty storage vessel 		
5.0.3	Fixings to meet material requirements in section 2 above		
5.0.4	<ul style="list-style-type: none"> ▪ Swarf removed from roof after installation ▪ No scratching to protective roof coating 		
5.1	Wetback Water Heaters	N/A to Rinnai systems	✓
5.2	Weather Tightness		
5.2.1	Penetrations must be sealed or flashed	Refer to Rinnai installation manual, pages 16-22	
5.2.2	Large penetrations for collectors in roof	N/A to Rinnai systems	✓
5.2.3	Tile roof pipe penetrations as per Fig.5	Must be back flashed under next tile up	
5.2.4	Metal tile roof pipe penetrations	Use dek-tite or equivalent	
5.2.5a)	Profiled metal roof penetrations	Use dek-tite or equivalent	
5.2.6a)	Tile roofing, specific design required for penetrations where pitch is $<15^\circ$		
5.2.6b)	Metal roofing, specific design required for penetrations where pitch is $<10^\circ$		
5.2.6c)	Specific design for penetrations $>60\text{mm}$	N/A to Rinnai systems	✓
5.2.6d)	Specific design for special or complex flashings		
5.2.7	Penetrations for membrane roof as per Fig.8		
5.2.8	Electrical penetration	Hot sense wire to use own mini dek-tite	
	Sealants		
5.2.9	Neutral Cure silicon sealant to either: <ul style="list-style-type: none"> ▪ Type F, Class 20LM or 25LM of ISO 11600 or ▪ Low modulus type II Class A of fed spec TT-S-00230C 		
5.2.10	Acetic cured silicon acceptable on stainless but not zinc or zinc/alum		
5.2.11	Sealants not to be primary method of excluding moisture		
5.2.12	All penetrations through cladding crests		

Installation of a Rinnai Split Solar System

Rinnai System Compliance

Clause	G12, AS2 Requirement	Rinnai System Compliance	Tick
5.3	Pipe Installation		
5.3.1	Pipes compatible with their supports or isolated from them	Use rubber ring inserts in muncing rings	
5.3.2	Pipe installed to allow for expansion		
5.3.3	Water supply pipe support centres as per G12 AS1 Table 7		
5.4	Pipe Insulation		
5.4.1	Hot water pipes insulated to H1.3.4		
5.4.2	Where closed cell foam used, protect from UV		
6.0	Structural Support for Solar Water Heaters		
6.1	Scope		
6.1.1	Complies with 1.1.1a) to h)		
6.2	General Requirements		
6.2.1	Installation must not cause ponding		
6.2.2	Must not distort or damage roof or protective coatings		
6.2.3	Fixings must use sealing washers or boots		
6.2.4	Each solar collector supported at a minimum of 4 points		
6.2.4	Outer support points maximum of 200mm from collector edge		
6.2.5	Roof framing not to be reduced in strength except for fastener installation		
6.2.6	Fastener penetrations: <ul style="list-style-type: none"> ▪ 20mm for 8 gauge screws ▪ 25mm for 14 gauge screws ▪ 40mm for 10mm bolts 		
6.2.7	Fixings >10 fasteners diameters from timber ends		
6.3	Direct Fixed Solar Collectors Parallel to the Roof		
6.3.1	Solar collectors mounted direct to roof as per Fig. 10 & 11	Refer Rinnai installation manual, pages 16-22	
6.3.2	Mountings to meet material requirements of section 2	Refer Appendices A,B & C	
	Metal Roof Claddings – Collector Mounting Rails		
6.3.3a)	Attached with 12 x 8 gauge screws into cladding and 6.3.3b)		
6.3.3b)	Attached with 4 x 8 gauge screws into 50x50 purlins within 200mm of collector corners		
	Tile Roof Claddings – Collector Mounting Rails Fastened With...		
6.3.4a)	Stainless straps inserted between tile rows and fastened to rafters		
6.3.4b)	Collector mounting rails sitting within 100mm of underlying tile battens		
6.3.4c)	Load distributed across as many tiles as practicable		

Installation of a Rinnai Split Solar System

Rinnai System Compliance

Clause	G12, AS2 Requirement	Rinnai System Compliance	Tick
6.4	Elevated Solar Collector Panels Parallel to Roof	N/A to Rinnai systems	✓
6.5	Collector Support Rails (for elevated solar panels)	N/A to Rinnai systems	✓
6.6	Mounting Collectors at different pitch to the roof cladding	N/A to Rinnai systems	✓
7.0	Maintenance and Durability		
7.1	Maintenance		
7.1.1	Label fixed to system as required by AS2712:2002		
7.2	Durability		
7.2.1	Must meet durability of NZBC clause B2	Refer 7.2.2	
7.2.2	Durability of 15 years	<ul style="list-style-type: none"> ▪ Mounting rails, whose fastenings penetrate the building envelope have a 15 year durability, please refer Appendices A, B & C 	
7.2.3	Components requiring maintenance and replaced before 15 years clearly identified in owners manual	Refer Rinnai Operation and Installation manuals page 4	

Installation of a Rinnai Split Solar System

Appendix A

2.1.1b) Materials used to install water heaters must be suitable for their use, location and environment as shown in Table 1

Materials Specification in Rinnai collector installation kits are as follows

Mounting Rails	Steel Galvanised to AS/NZS2312 HDG900 which gives an E-M atmospheric corrosivity category per table 5.2. This is equivalent to a Type 6 coating, refer AS NZS2728 table 1.1.
Standard Mounting Straps Supplied with Collector Kits	
Optional Stainless Steel Mounting Straps (part number 11116 for tile roof installation as per 6.3.4a)	Type 304 stainless steel

Materials are therefore compliant in all zones including salt spray zone.

Appendix B

2.1.1c) Materials used to install water heater must be compatible with adjoining materials as shown in Table 1

Please refer to Rinnai installation manual page 19. This recommends the use of suitable EDPM washers to space mounting rails and straps away from metal roof claddings. If this practice is followed, compliance with this clause is achieved.

Additionally from Table 2, Rails and Straps are of galvanised steel. This is suitable for all common metallic roof claddings, painted and unpainted galvanised steel, painted and unpainted zinc/alum. If other than this material refer to Table 2 in detail.

Appendix C

Materials used to install water heater must be compatible with materials subject to run-off as shown in Table 3

Rails and straps are of steel, galvanised coil-coated.

Referring to Table 3 these materials are compatible with all common roof claddings except unpainted galvanised steel and zinc. These roof types must be painted in areas subject to run-off from panel prior to installation.

Installation of a Rinnai Split Solar System

Appendix D – Cylinder Installation

Under the trans-Tasman mutual recognition agreement, all products legally able to be sold in Australia may also be sold in New Zealand. Refer to the Energy Efficiency and Conservation Authority website.

<http://www.eeca.govt.nz/labelling-and-standards/heating-and-cooling/electric-hot-water-cylinders.html>

Cylinder Registration

All types of electric hot water cylinder must be registered. This involves a submission of product testing and importer details, usually via the Australian Energy Rating website.

New Zealand shares many standards and a website with Australia. If models have already been registered in Australia then no registration is needed in New Zealand.

To Check Cylinder Registration

To check which cylinders are registered refer to the Energy Rating Australia website.

<http://www.energyrating.gov.au/>

Select > search and compare appliances > Hot water heaters >

For Centurion Cylinders

Select > Beasley >

- Centurion 160 litre Listed as 12S-160
- Centurion 250 litre Listed as 12S-250
- Centurion 315 litre Listed as 12S-315

(12S-model this model designation is on the cylinder rating plate)

For HotFlo Cylinders

Select > Rinnai >

- Rinnai Glass Lined 180 litre Listed as HFE160
- Rinnai Glass Lined 270 litre Listed as HFE250
- Rinnai Glass Lined 340 litre Listed as HFE315

(HFE-model this model designation is on the cylinder rating plate)

Installation of a Rinnai Split Solar System

Customer Contacts

For more information about Rinnai appliances call:

- Consumers 0800 RINNAI (0800 746 624)
- Installers 0800 TO RINNAI (0800 86 746 624)

Rinnai New Zealand Limited

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Website: www.rinnai.co.nz

All Rinnai appliances meet or exceed the safety standards required by New Zealand gas and electrical regulations.

Rinnai is constantly improving its products and as such specifications are subject to change or variation without notice.