This Section – SYSTEM SELECTION is dedicated to selecting an appropriate system for a particular project.

A step by step method guides the reader through the selection process.

The relevant information sheets are included in this section as a quick guide and reference.

• Step 1: Determine Hot Water Requirement.
Refer "Load Calculations" (examples).
Page 28 to 30.

• Step 2: Check if the location is in a frost zone.
Refer "Frost Guide". Page 31.

• Step 3: Check if the location is in a harsh water region.
Refer "Water quality". Page 32.

• Step 4: Check if the location is in a high radiation zone.
For Australia refer to "Radiation guide" in Page 33.

• Step 5: Check if the roof is facing equator.
Refer "Orientation Chart & Guide". Page 34.

• Step 6: The above steps are represented in a flow chart to further guide you through the selection process.
Refer "System Selection Flow Chart". Page 36-37.

• Step 7: Selection. Refer the relevant "Ready Reckoners"

"Ready Reckoner" Thermosiphon systems – Page 38.
"Ready Reckoner" Pump systems – Page 39.

Finally confirm the selection by referring to the SCF Program.

LOAD CALCULATIONS

Estimates of hot water requirement are at a stored water temperature of 60° C to comply with Australian Standard AS3500.4 and also to prevent the spread of the bacterium Legionella pneumophilia which could lead to a disease normally referred to as Legionnaires' Disease.

The hot water requirement for showers, hand washes, dish washing, laundry etc., are based on industry experience over the past fifty years. The table below is a guide to determine the hot water demand for most facilities.

HOT WATER REQUIREMENTS GUIDE

DEVICE	LOCATION	HOT WATER REQUIREMENTS IN LITRES @ 60°C	
Shower	Aged Homes	18	per person
	Domestic Dwellings	18	per person
	Caravan Parks	18	per person
	Hotels/Motels	18	per person
	Mining Towns	25	per person
Baths	Domestic Dwellings & Hotels	60	per person per day
	Hand Wash Domestic Dwellings	2	per person per day
	Offices	1	per person per day
	Hotel Guests and Staff	5	per person per day
Dish Washing Sinks	Domestic Dwellings	7	per sink full
	Hotels/Motels	10	per sink full
Glass Washers	Hotels/Motel Bars	2	per person
	Restaurants	5	per person
Laundry	Domestic Dwellings	10	per person
	Mine Site	15	per person
	Hotels/Motel	10	per person
	Hospitals	10	per person
Ring Main Losses	Good Condition - Small (< 100m)	Add 10%	to total demand
	Good Condition - Large (> 100m)	Add 15%	to total demand
	Large or Poorly Insulated	Add 30%	to total demand

IMPORTANT POINTERS

To determine the hot water demand for new projects or existing facilities the above table can be used as a guide. This table has been devised based on industry experience and provides an estimate for the designer to select an appropriate system.

The best and most recommended method for accurately determining the hot water demand or consumption of an existing facility is to measure the actual consumption. Over a two week period, record the water and energy consumption of the existing hot water service by installing relevant meters as detailed below.

- Water Meter at the cold inlet to the existing hot water service to measure the water consumed in litres.
- Hour Meter to the electric element to record the number of hours the element is on. This figure along with the element rating in kilowatts will give the amount of electric energy used.
- Gas Meter to measure the amount of gas consumed if the existing hot water service is a gas fired boiler.
- Record the oil consumption if the existing hot water service is an oil fired boiler.

The above information will help accurately determine the water consumed, the corresponding energy consumed and also the performance or efficiency of the

RESIDENTIAL DWELLINGS - HOUSEHOLD			
Number Of Persons	**4**		
Number Of Showers Per Person Per Day	2		
Total Number Of Showers Per Day	8		
Hot Water Per Shower @ 60° C	18		
Total Hot Water For Showers		**144**	**litres/Day**
Hand Washes Per Person Per Day	2		
Total Number Of Hand Washes	8		
Hot Water Per Hand Wash @ 60° C	2		
Total Hot Water For Hand Wash		**16**	**litres/Day**
Number Of Meals Per Day	3		
Hot Water Per Dish Wash @ 60° C	10		
Total Hot Water For Dish Washing		**30**	**litres/Day**
Hot Water For Laundry Per Person Per Day @ 60° C	10		
Total Hot Water For Laundry		**40**	**litres/Day**
Total Hot Water Requirement @ 60° C		**230**	**litres/Day**

RESIDENTIAL DWELLINGS - DUAL OCCUPANCY			
Number Of Persons	**2**		
Number Of Showers Per Person Per Day	2		
Total Number Of Showers Per Day	4		
Hot Water Per Shower @ 60° C	18		
Total Hot Water For Showers		**72**	**litres/Day**
Hand Washes Per Person Per Day	2		
Total Number Of Hand Washes	4		
Hot Water Per Hand Wash @ 60° C	2		
Total Hot Water For Hand Wash		**8**	**litres/Day**
Number Of Meals Per Day	3		
Hot Water Per Dish Wash @ 60° C	5		
Total Hot Water For Dish Washing		**15**	**litres/Day**
Hot Water For Laundry Per Person Per Day @ 60° C	10		
Total Hot Water For Laundry		**20**	**litres/Day**
Total Hot Water Requirement @ 60° C		**115**	**litres/Day**

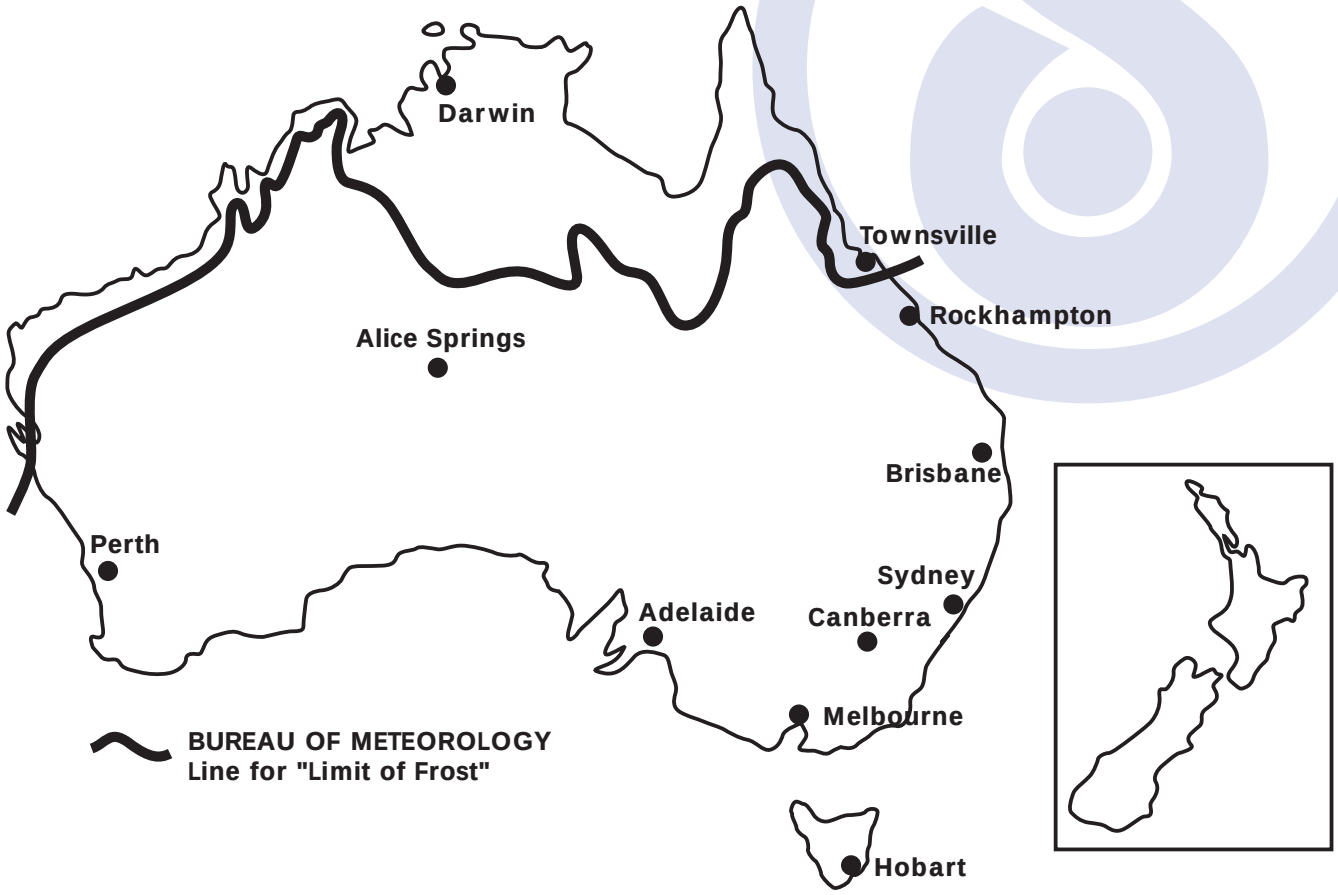
MINE SITE			
Number Of Persons	**4**		
Number Of Showers Per Person Per Day	2		
Total Number Of Showers Per Day	8		
Hot Water Per Shower @ 60° C	25		
Total Hot Water For Showers		**200**	**litres/Day**
Hand Washes Per Person Per Day	2		
Total Number Of Hand Washes	8		
Hot Water Per Hand Wash @ 60° C	2		
Total Hot Water For Hand Wash		**16**	**litres/Day**
Number Of Meals Per Day	3		
Hot Water Per Dish Wash @ 60° C	10		
Total Hot Water For Dish Washing		**30**	**litres/Day**
Hot Water For Laundry Per Person Per Day @ 60° C	15		
Total Hot Water For Laundry		**60**	**litres/Day**
Total Hot Water Requirement @ 60° C		**306**	**litres/Day**

Load Calculations (examples)

CARAVAN PARK			
Number Of Persons	**20**		
Number Of Showers Per Person Per Day	2		
Total Number Of Showers Per Day	40		
Hot Water Per Shower @ 60° C	18		litres
Total Hot Water For Showers		**720**	**litres/Day**
Hand Washes Per Person Per Day	2		
Total Number Of Hand Washes	40		
Hot Water Per Hand Wash @ 60° C	2		litres
Total Hot Water For Hand Wash		**80**	**litres/Day**
Number Of Meals Per Person Per Day	3		
Total Number Of Meals Per Day	60		
Hot Water Per Person For Dish Washing @ 60° C	6		litres
Total Hot Water For Dish Washing		**360**	**litres/Day**
Hot Water For Laundry Per Person Per Day @ 60° C	10		litres
Total Hot Water For Laundry		**200**	**litres/Day**
Total Hot Water Requirement @ 60° C		**1360**	**litres/Day**

HOTEL			
Number Of Rooms	**100**		
Number Of Persons Per Room	2		
Total Number Of Persons	200		
Hot Water Per Person Per Shower @ 60° C	18		litres
Hot Water Per Person For Hand Washes @ 60° C	5		litres
Hot Water Per Person For Dish Wash (Kitchen) @ 60° C	5		litres
Hot Water Per Person For Laundry Per Day @ 60° C	10		litres
Total Hot Water Per Person Per Day	38		litres
Total Hot Water For Hotel Guests		**7,600**	**liters/Day**
Total Staff	25		
Hot Water Per Staff Per Day @ 60° C	5		litres
Total Hot Water Per Staff Per Day		**125**	**liters/Day**
Hot Water Requirement Per Day @ 60° C		**7,725**	**liters/Day**
Ring Main Losses - Small (<100m) @ 10%		**773**	**liters/Day**
Total Hot Water Requirement @ 60° C		**8,498**	**liters/Day**

HOSPITAL			
Number of Beds	**100**		
Hot Water per person per shower @ 60° C	20		litres
Hot Water per person for hand washes @ 60° C	5		litres
Hot Water per person for dish wash (kitchen) @ 60° C	5		litres
Hot Water per person for laundry per day @ 60° C	10		litres
Hot Water for clinic per day @ 60° C	5		litres
Hot Water in surgery per person per day @ 60° C	5		litres
Total hot water per person per day	50		litres
Hot water requirement per day @ 60° C		**5,000**	**litres/day**
Ring Main Losses - small (<100m) @ 10%		**1,500**	**litres/day**
Total Hot Water Requirement @ 60° C		**6,500**	**litres/day**



• The information given here is a guide only. Climatic conditions can vary over time. Local knowledge of the location should prevail over these guide-lines.

• If in doubt always recommend a "Closed Circuit" thermosiphon system or pump system. Do not recommend "Open Circuit" systems.

• All locations in the North and South Islands of New Zealand are considered to be subject to frost.

• Western suburbs of Sydney are frost prone.

• The hills region of Perth as well as locations at the foot of the hills are considered to be frost prone.

• Rockhampton is considered to be a frost prone location.

• All locations in the Hunter Valley are considered to be frost prone.

MAJOR LOCATIONS - AUSTRALIA		
Frost		**Non Frost**
Alice Springs	West Suburbs of Sydney	Adelaide
Ayers Rock		Broome
Tennant Creek		Cairns
Esperance	Hunter Valley	Carnarvon
Broken Hill		Darwin
Bunbury	All cities in the ACT, Tasmania & Victoria	Derby
Gippsland		Geraldton
Orange		Gold Coast
Bathurst		Mackay
Bacchus Marsh		Newcastle
Goulburn	All cities in the North & South Islands of New Zealand	Perth
Wagga Wagga		Port Hedland
Rockhampton		Sunshine Coast
Tamworth		Townsville

WATER QUALITY

AN OVERVIEW

All Solahart storage cylinders for both "thermosiphon" and "pump" systems are suitable for use with water where the Total Dissolved Solids content is less than 1,000 ppm and where the Total Hardness, expressed as Calcium Carbonate ($CaCO_3$) does not exceed 200 ppm. It is recommended that water supplies where calcium hardness ($CaCO_3$) and the alkalinity are in excess of 150 ppm, that the water should be treated by a softening process prior to use.

All systems that are offered with a Twelve (12) and Ten (10) year Warranty are fitted with large 33 mm magnesium anodes.

All other systems offered with a Five (5) year Warranty are fitted with 20 mm magnesium anode. These anodes will need replacement as suggested in the schedule

Total Dissolved Solids (ppm)	Recommended Anode Replacement Period
0-600	5 years
600-1000	3 years
Over 1000*	Less than 2 years

below:
*For areas where the Total Dissolved Solids content in the water is greater than 1,000 ppm a special Aluminium anode is available.

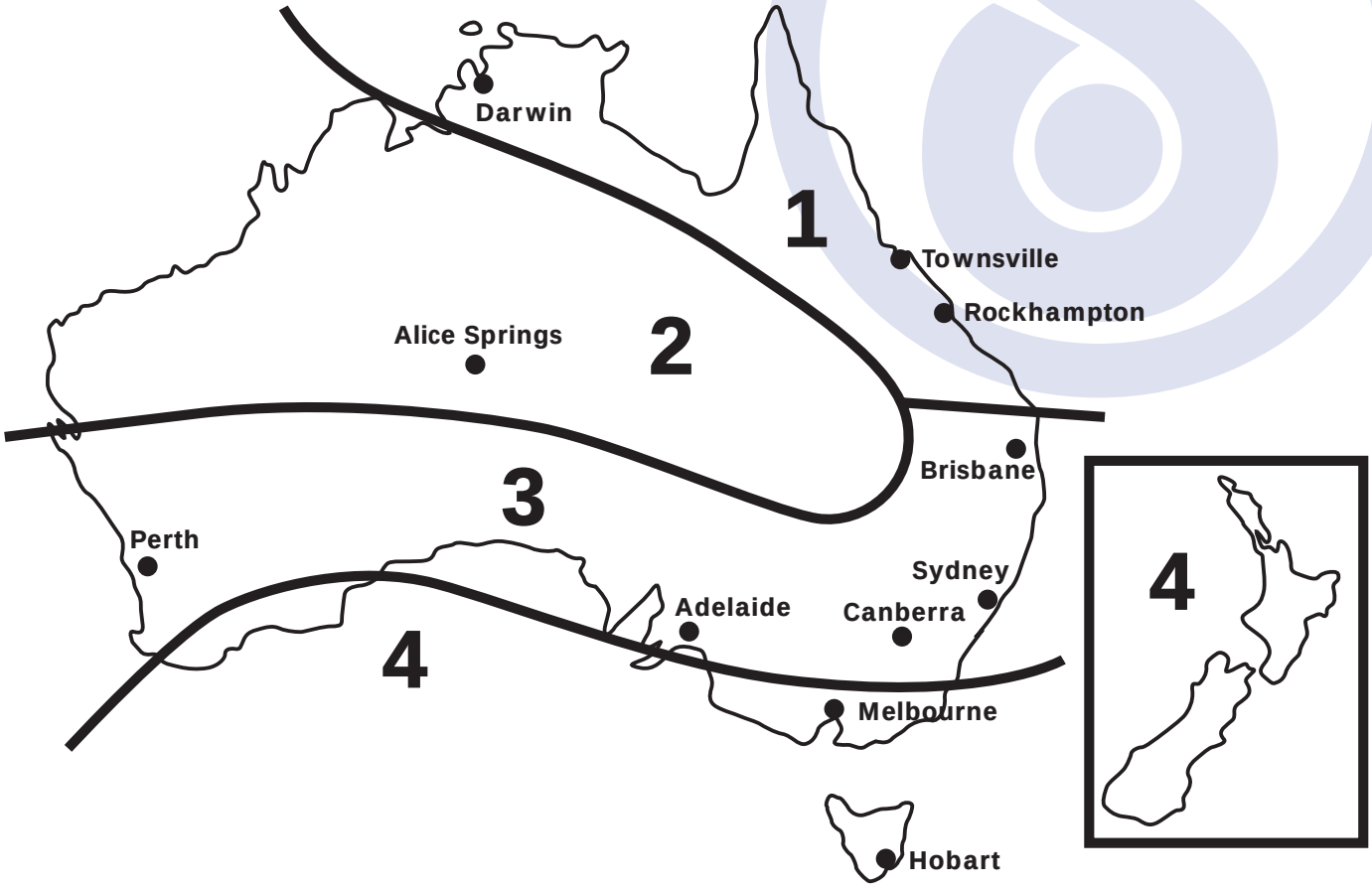
GENERAL RULES

- Water from bore wells should be analysed prior to use in hot water systems.
- Do not use hot water from any hot water system for drinking or cooking.

KNOWN LOCATIONS OF HARSH WATER QUALITY - AUSTRALIA:

- Central region of Australia – Alice Springs, Ayers Rock
- Pilbara region of Western Australia
- Kimberley region of Western Australia
- Mining towns in North Queensland

In these locations do not recommend "open circuit" systems either of the "pump" or
"thermosiphon" type that use 'L' collectors. Do not recommend Heat Pumps. Always recommend "closed circuit" systems that use 'J', 'K', 'B' or 'M' collectors.



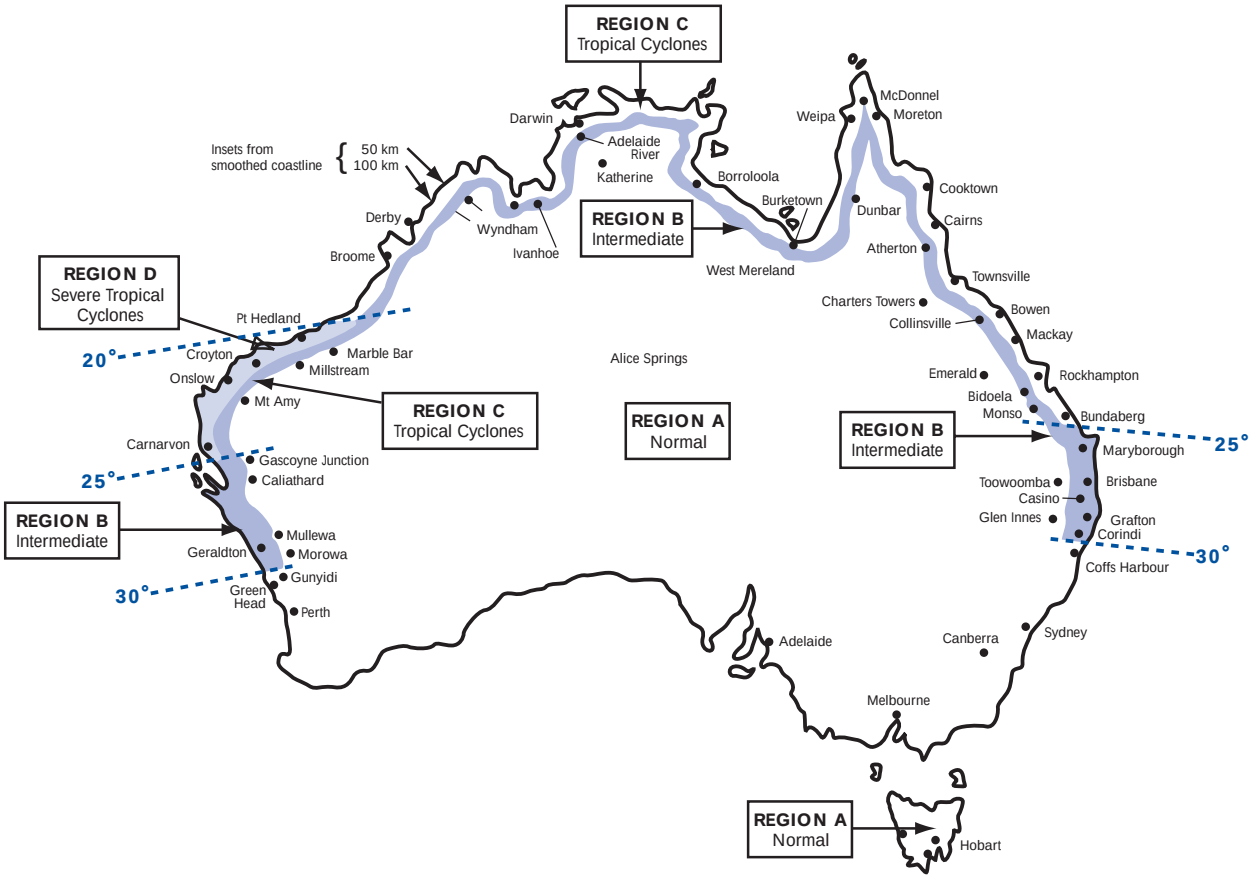
The above map and the table below is a general guide to radiation levels and effective ambient temperature levels in Australia and New Zealand.

- Zone 2 is considered a high radiation zone.
- Whilst Australia has 4 separate Zones and the climate can vary, it is best to qualify New Zealand in Zone 4 to ensure peak performance of the selected system.

The table below shows a few locations for each zone.

MAJOR LOCATIONS			
Zone 1	**Zone 2**	**Zone 3**	**Zone 4**
Radiation 18 to 26 MJ/m² day	**Radiation 21 to 26 MJ/m² day**	**Radiation 14 to 24 MJ/m² day**	**Radiation 9 to 23 MJ/m² day**
Effective Ambient Temperature 20° to 28° C	**Effective Ambient Temperature 9° to 29° C**	**Effective Ambient Temperature 11° to 23° C**	**Effective Ambient Temperature 8° to 20° C**
Townsville, Cairns, Mackay, Rockhampton, Gladstone, Maryborough, Darwin, Katherine	Alice Springs, Ayres Rock, Tennant Creek, Pilbara region, Kimberley Region, Geraldton Kalgoorlie	Sydney, Canberra, Newcastle, Coffs Harbour, Brisbane, Gold Coast, Sunshine Coast, Adelaide, Port Pirie, Perth, Bunbury	All cities in Tasmania and Victoria, All cities in the North and South islands of New Zealand

AUSTRALIAN CYCLONE GUIDE



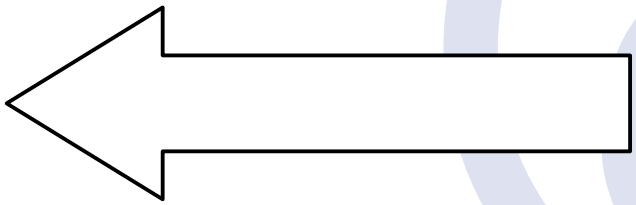
The above map and the table below are a general guide to Cyclone areas in Australia.

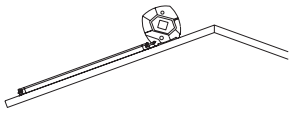
- Installations in region ‘A’ may not require cyclone frames.
- Installations in region ‘B’ may require cyclone frames for thermosiphon systems.
- It is a requirement to install thermosiphon systems on cyclone frames in Region ‘C’
- All installations in Region ‘D’ must use cyclone frames.

The table below shows a few locations for each Region.

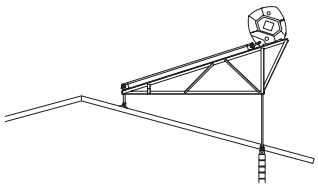
MAJOR LOCATIONS - AUSTRALIA			
Region A	**Region B**	**Region C**	**Region D**
Normal	**Intermediate**	**Tropical Cyclones**	**Severe Tropical Cyclones**
Alice Springs, Sydney, Canberra, Melbourne, Adelaide, Hobart, Perth, Coffs Harbour, Geelong, Newcastle, Auckland, Wellington, Christchurch	Brisbane, Toowoomba, Maryborough, Dunbar, West Moreland, Biloelam Casino, Glen Innes, Geraldton, Atherton, NZ exposed locations	Bundaberg, Rockhampton, Mackay, Townsville, Cairns, Cooktown, Weipa, Bowen, Darwin, Derby, Broome	Port Hedland, Croydon, Onslow, Carnarvon, Wickham, Karratha, Exmouth

Equator This Way

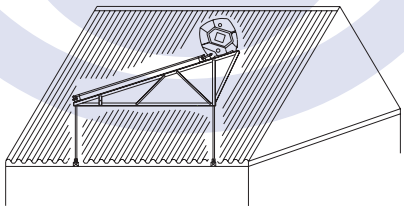




With Pitch

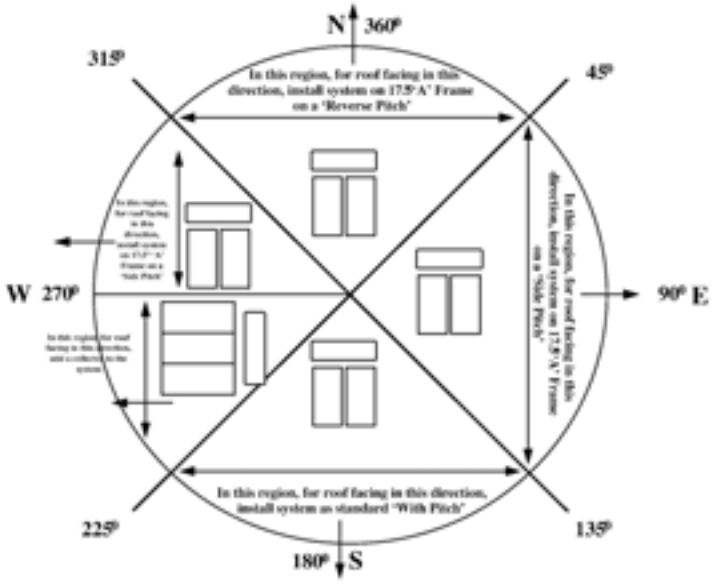


Reverse Pitch

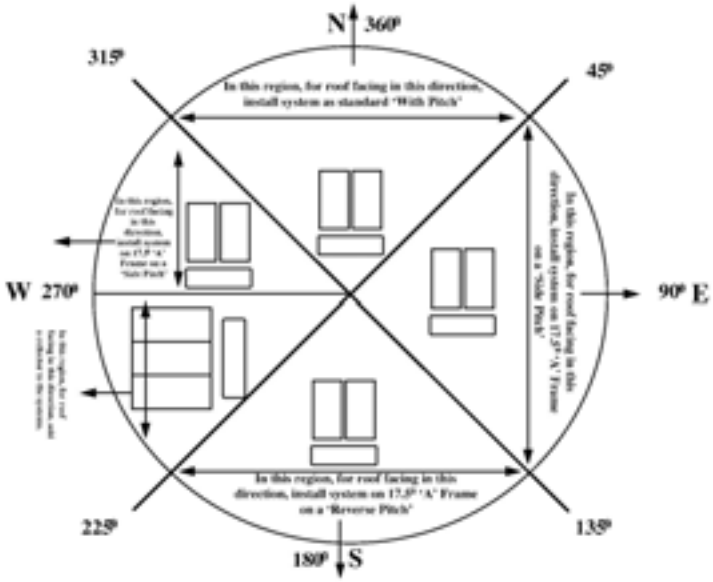


Side Pitch

ORIENTATION CHART & GUIDE NORTHERN HEMISPHERE



ORIENTATION CHART & GUIDE SOUTHERN HEMISPHERE



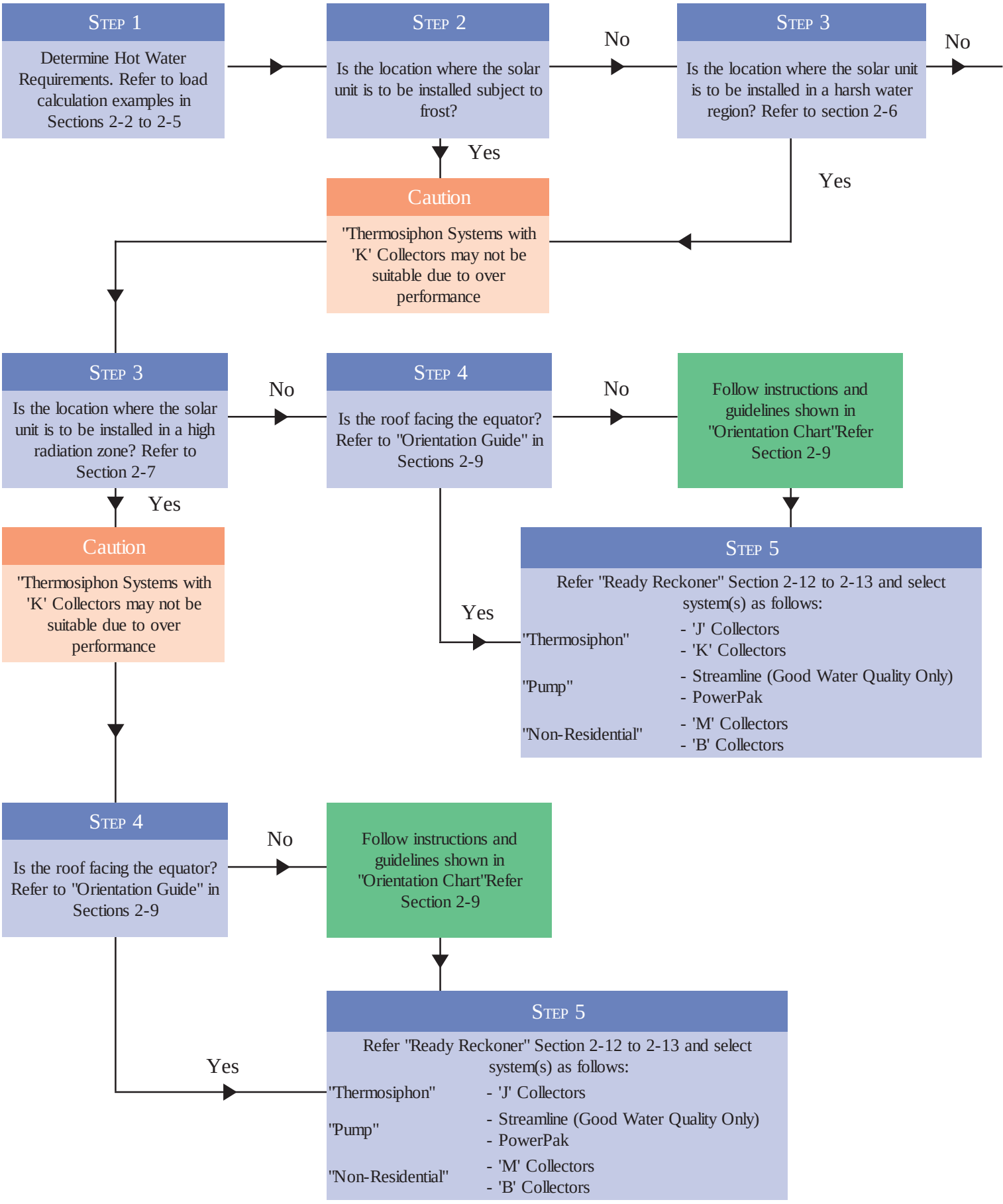
Notes:

• For 'Pumped' systems with multiple collectors, the preferred and recommended method of mounting the collectors is 'with pitch' facing north.

• If 'with pitch' mounting is not conducive, increase the quantity of collectors to achieve desired performance. Refer SCF Program.

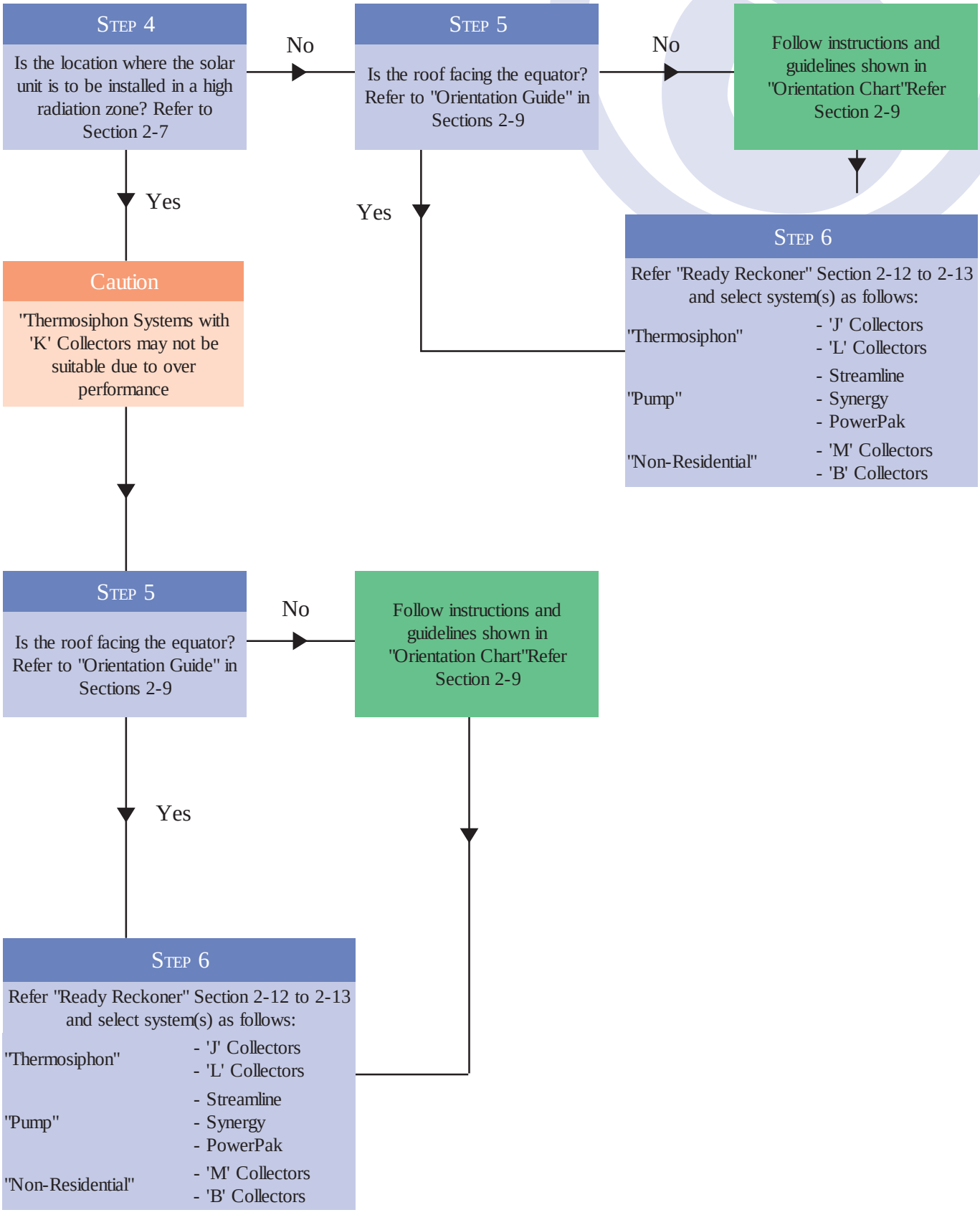
• Never use 'with pitch' mounting on a roof facing away from the equator..

SYSTEM SELECTION FLOW CHART



Issue Date: September 2003

SYSTEM SELECTION FLOW CHART



READY RECKONER

"PASSIVE" OR "THERMOSIPHON SYSTEMS

Litres of hot water per day at 60C	151J	151L*	181J	181JFHEAT	181KF	181FHEAT	181L*	182J	182JFHEAT	182KF	182FHEAT	182L*	221J	221JFHEAT	221KF	221FHEAT	221L*	222J	222JFHEAT	222KF	222FHEAT	222L*	301J	301KF	301L*	302J	302JFHEAT	302KF	302FHEAT	302L	303J	303JFHEAT	303KF	303FHEAT	303L*	443J	443JFHEAT	443KF	443FHEAT	443L*	444J	444JFHEAT	444KF	444FHEAT	444L*
100 - 150	1	1	1	1	1	1	1																																					
150 - 200	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																				
200 - 300	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1										
300 - 400	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
400 - 500	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
500 - 600	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
600 - 700	5	5	5	5	5	5	5	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
700 - 800			5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2
800 - 900								5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	2
900 - 1000																		5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	2	2	2	2	3
1000 - 1250																										5	5	5	5	5	4	4	4	4	4	3	3	3	3	3	2	2	2	2	3
1250 - 1500																															5	5	5	5	5	4	4	4	4	4	3	3	3	3	4
1500 - 1750																																			4	4	4	4	4	3	3	3	3	4
1750 - 2000																																			5	5	5	5	5	4	4	4	4	5
2000 - 2250																																			5	5	5	5	5	4	4	4	4	5
2250 - 2500																																			6	6	6	6	6	5	5	5	5	6
2500 - 2750																																			7	7	7	7	6	6	6	6	6	6
2750 - 3000																																			8	8	8	8	7	7	7	7	7	7
	Section 3-1 to 3-12																																											

*** It is not advisable to install these systems in Frost Prone and Harsh Water Regions**

Note: The sections listed at the bottom of the table will provide further information on the recommended products

Issue Date: September 2003

READY RECKONER

"ACTIVE" OR "PUMP" SYSTEMS

	SFV262	SLV262	SFV263	SLV263	272SFV	272SLV	273SFV	273SLV	342SFV	342SLV	343SFV	343SLV	433SFV	433SLV	444SFV	444SLV	275HAV	PPAK10	2500J	3500J	6500J
100 - 150	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
150 - 200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
200 - 300	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2				
300 - 400	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2				
400 - 500	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
500 - 600	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3				
600 - 700	3	3	2	2	3	3	3	3	2	2	2	2	2	2	2	2	3				
700 - 800	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3	3	3				
800 - 900	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4				
900 - 1000			3	3					3	3	3	3	3	3	3	3	4				
1000 - 1500													4	4	4	4			1		
1500 - 2000													5	5	5	5			1		
2000 - 2500													6	6	6	6			1	1	
2500 - 3000													7	7	7	7			2	1	
3000 - 3500																			2	1	
3500 - 4000																			2	1	
4000 - 4500																			2	1	1
5000 - 6000																			2	1	1
6000 - 7000																			2	2	1
7000 - 8000																				2	1
8000 - 9000																				3	2
9000 - 10000																				4	2
Section	4																	5	6		

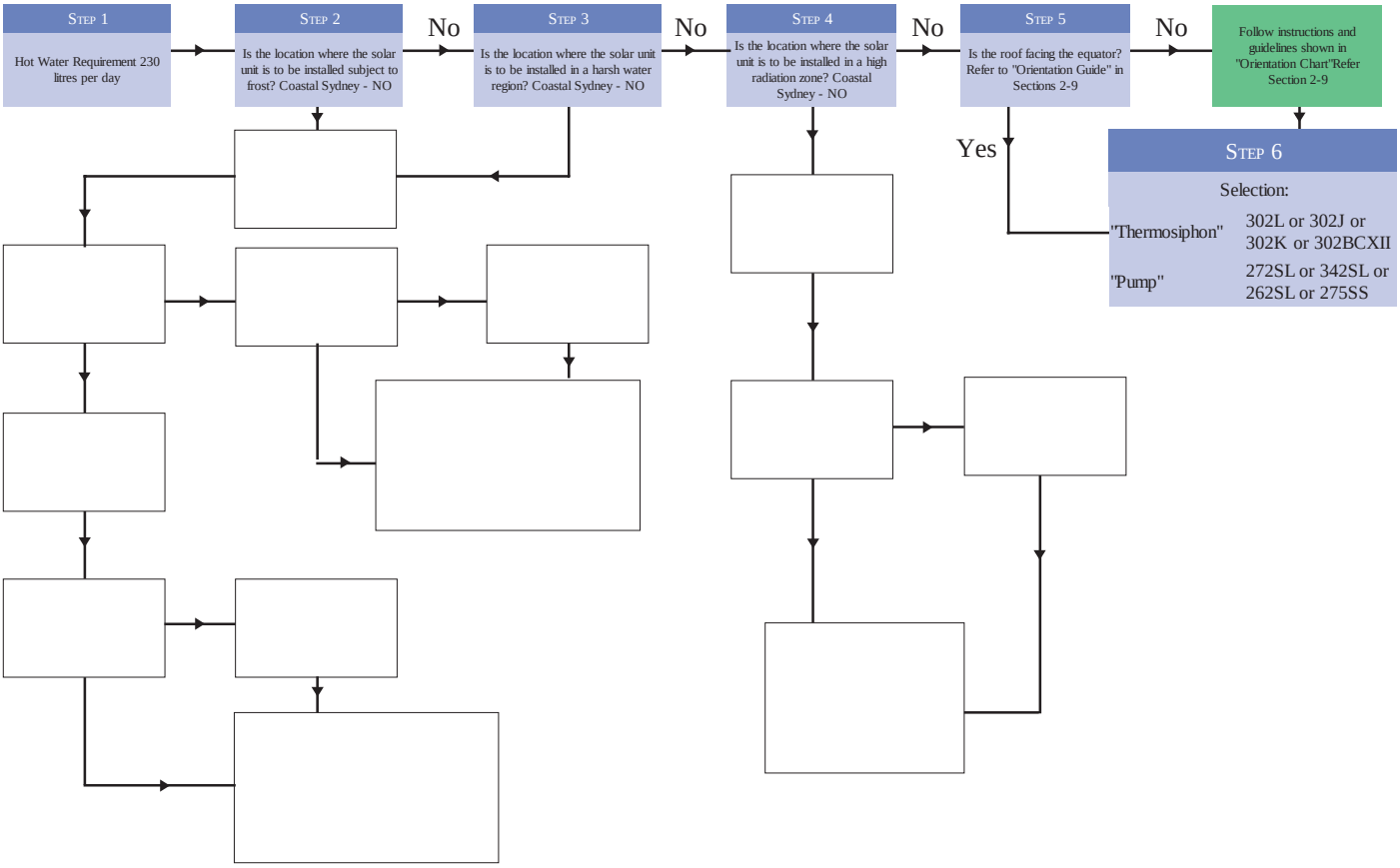
*** It is not advisable to install these systems in Frost Prone and Harsh Water Regions**

Note: The sections listed at the bottom of the table will provide further information on the recommended products

Issue Date: September 2003

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the “Step by Step Process” and the “System Selection Flow Chart”, we will now select suitable systems for different locations.

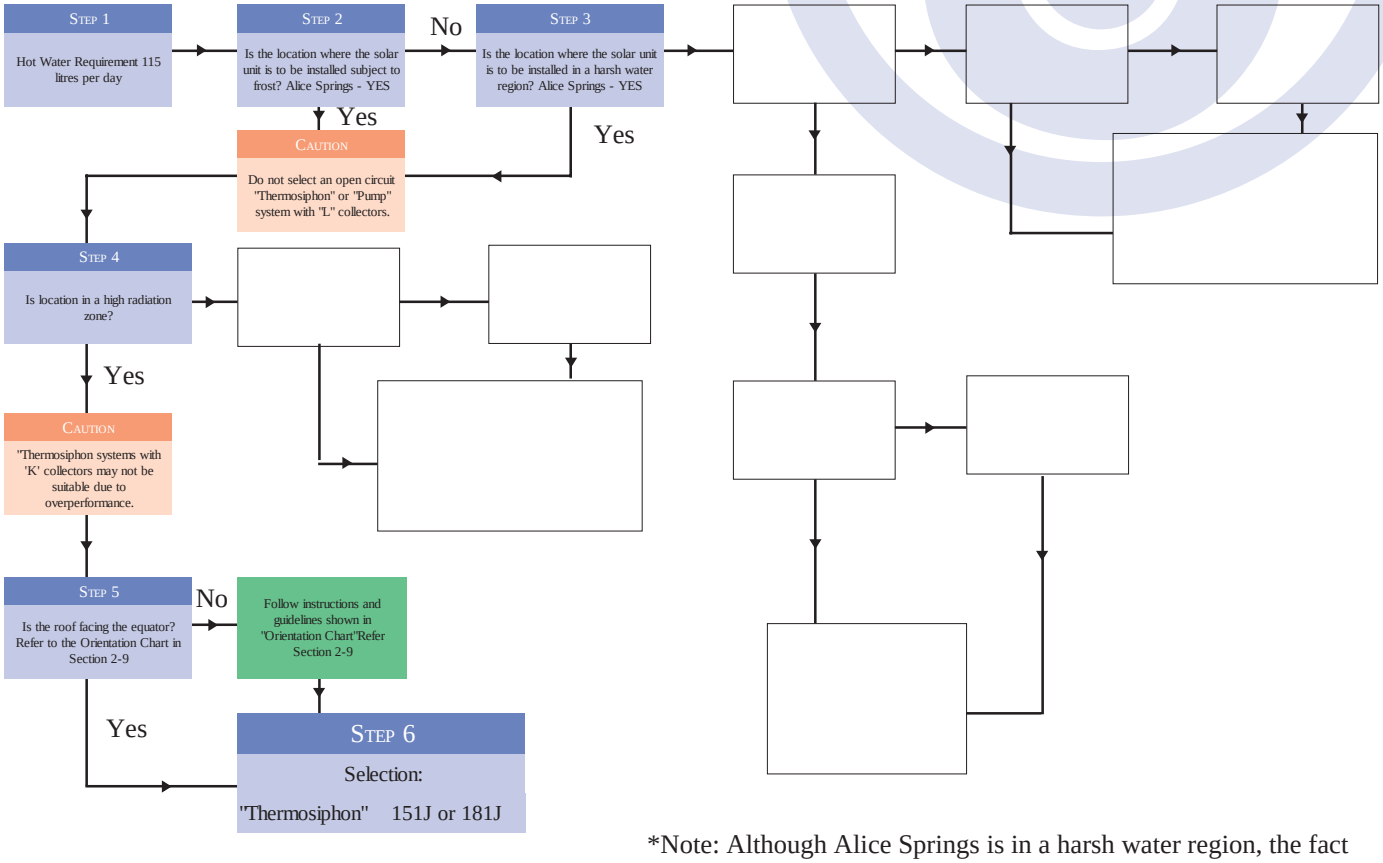
SYSTEM SELECTION - FLOW CHART
Example 1: Household – 230 litres/day in Coastal Sydney



	Step 1: Hot Water Requirement – Household: 230 litres/day in Coastal Sydney
Flow Path	***Step 2:*** Is the location subject to frost? Location: Coastal Sydney – No. ***Step 3:*** Is the location in a harsh water region? Location: Coastal Sydney – No. ***Step 4:*** Is the location in a high radiation zone? Location: Coastal Sydney – No. ***Step 5:*** Is the roof facing the equator? Refer to “Orientation Chart and Guide”.
Selection	"Thermosiphon" systems - 302L, 302J, 302J-FreeHeat, 302K_F or 302K_F-FreeHeat "Pump" systems - Streamline: 272SLV/272SFV or 342SLV/342SFV or SLV260/SFV260 - Synergy: 275HAV
Confirm	Now refer to the SCF program and select Sydney. Select the system in the program Set the parametres - water draw, inclination and orientation Compare the annual average solar contributions for each of the systems and finally confirm the selection

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the “Step by Step Process” and the “System Selection Flow Chart”, we will now select suitable systems for different locations.

SYSTEM SELECTION - FLOW CHART
Example 2: Dual Occupancy – 115 litres/day in Alice Springs

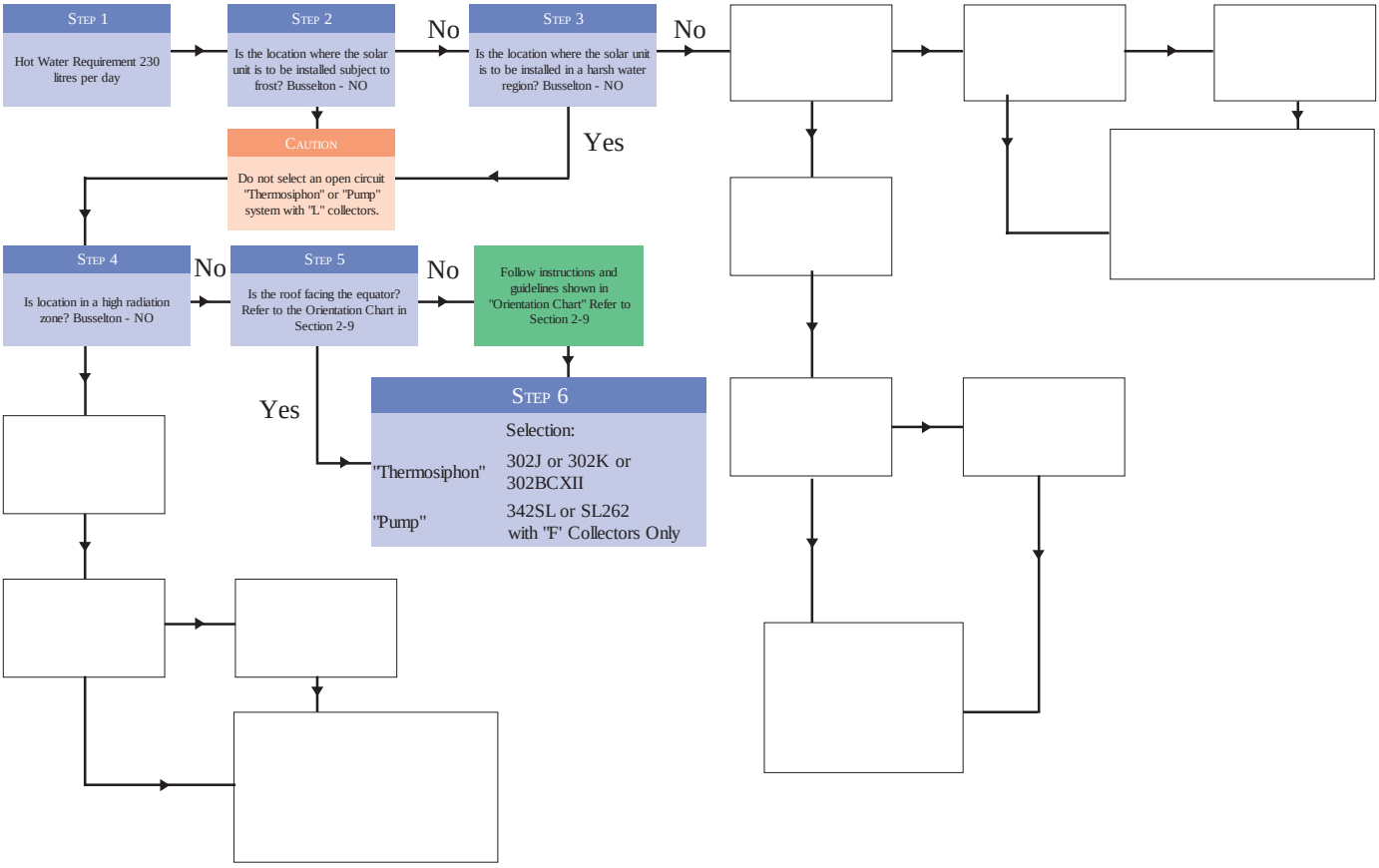


*Note: Although Alice Springs is in a harsh water region, the fact that it is subkject to frost supersedes this criterion. Following the path shown above leads to the selection of the appropriate system.

	Step 1: Hot Water Requirement – Household: 115 litres/day in Alice Springs
Flow Path	***Step 2:*** Is the location subject to frost? Location: Alice Springs – Yes. ***Step 3:*** Is the location in a harsh water region? Location: Alice Springs – Yes. Refer to note in Flow Chart above. ***Step 4:*** Is the location in a high radiation zone? Location: Alice Springs – Yes. ***Step 5:*** Is the roof facing the equator? Refer to “Orientation Chart and Guide”.
Selection	"Thermosiphon" systems - 151J, 181J or 181J-FreeHeat
Confirm	Now refer to the SCF program and select Alice Springs. Select the system in the program Set the parametres - water draw, inclination and orientation Compare the annual average solar contributions for each of the systems and finally confirm the selection

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the “Step by Step Process” and the “System Selection Flow Chart”, we will now select suitable systems for different locations.

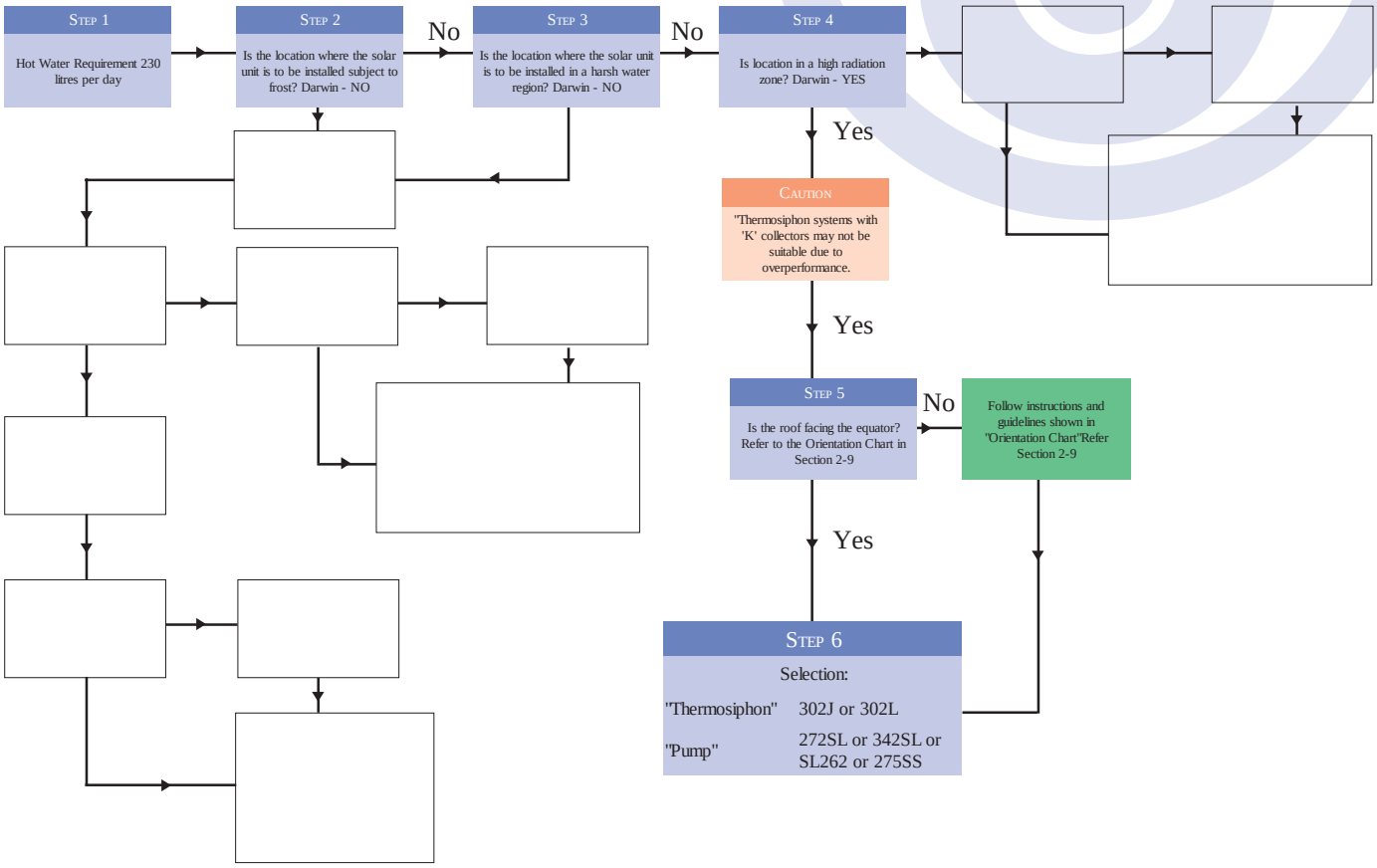
SYSTEM SELECTION - FLOW CHART
Example 3: Household – 230 litres/day in Busselton



	Step 1: Hot Water Requirement – Household: 230 litres/day in Busselton
Flow Path	***Step 2:*** Is the location subject to frost? Location: Busselton - No. ***Step 3:*** Is the location in a harsh water region? Location: Busselton - YES ***Step 4:*** Is the location in a high radiation zone? Location: Busselton - No. ***Step 5:*** Is the roof facing the equator? Refer to “Orientation Chart and Guide”.
Selection	"Thermosiphon" systems - 302J, 302J-Free Heat, $302K_{F-}$FreeHeat, $302K_{F}$ "Pump" systems - Streamline: 342SLV/342SFV or SLV262/SFV262
Confirm	Now refer to the SCF program and select Busselton. Select the system in the program Set the parametres - water draw, inclination and orientation Compare the annual average solar contributions for each of the systems and finally confirm the selection

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the “Step by Step Process” and the “System Selection Flow Chart”, we will now select suitable systems for different locations.

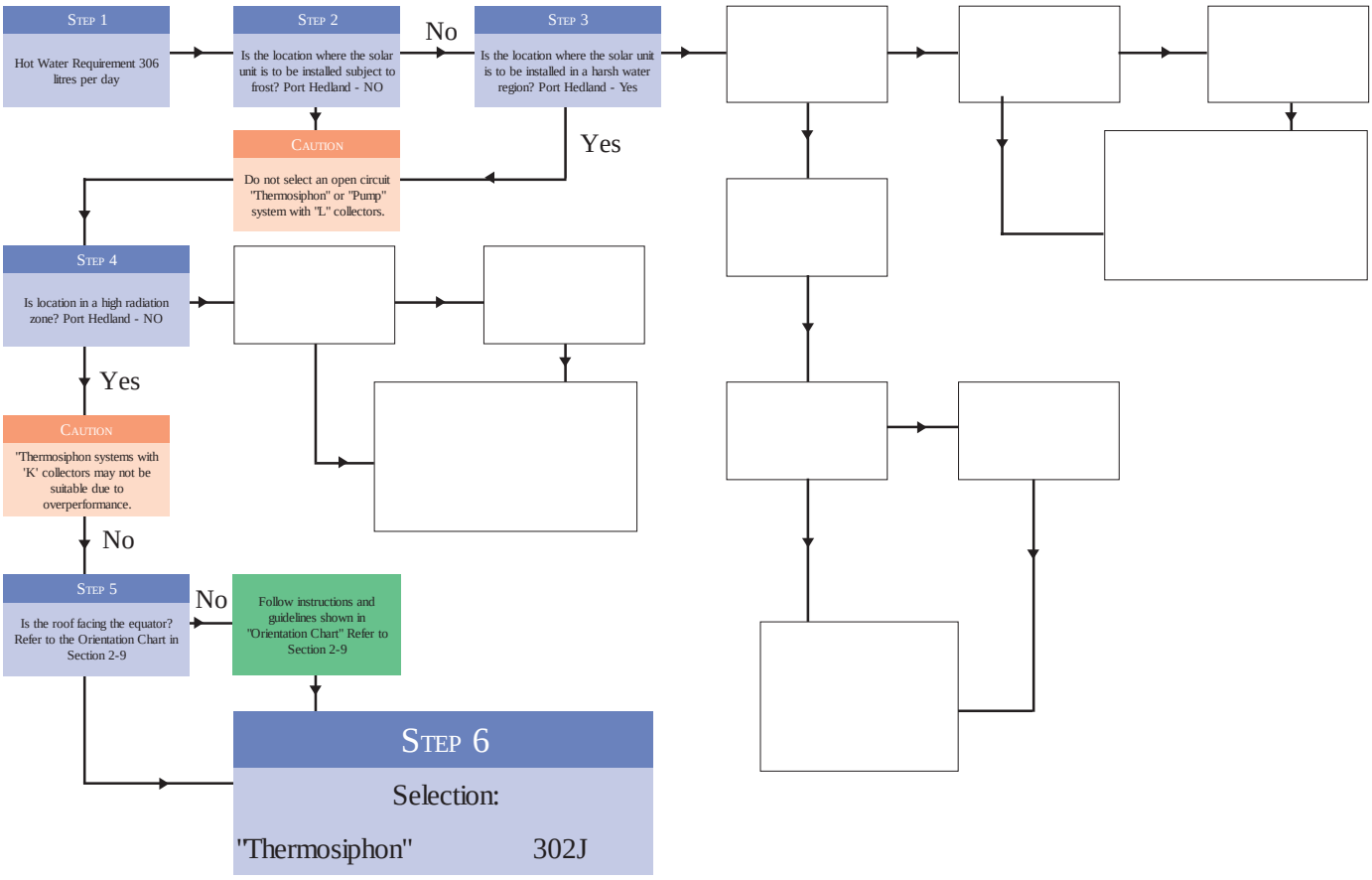
SYSTEM SELECTION - FLOW CHART
Example 4: Dual Occupancy – 230 litres/day in Darwin



	Step 1: Hot Water Requirement – Household: 230 litres/day in Darwin
Flow Path	***Step 2:*** Is the location subject to frost? Location: Darwin - No. ***Step 3:*** Is the location in a harsh water region? Location: Darwin - No Refer to note in Flow Chart above. ***Step 4:*** Is the location in a high radiation zone? Location: Darwin - Yes ***Step 5:*** Is the roof facing the equator? Refer to “Orientation Chart and Guide”.
Selection	"Thermosiphon" systems - 302J, 302J-FreeHeat or 302L "Pump" systems - Streamline: 272SLV/272SFV, 342SLV/342SFV, SLV260/SFV260 - Synergy: 275HAV
Confirm	Now refer to the SCF program and select Darwin. Select the system in the program Set the parametres - water draw, inclination and orientation Compare the annual average solar contributions for each of the systems and finally confirm the selection

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the “Step by Step Process” and the “System Selection Flow Chart”, we will now select suitable systems for different locations.

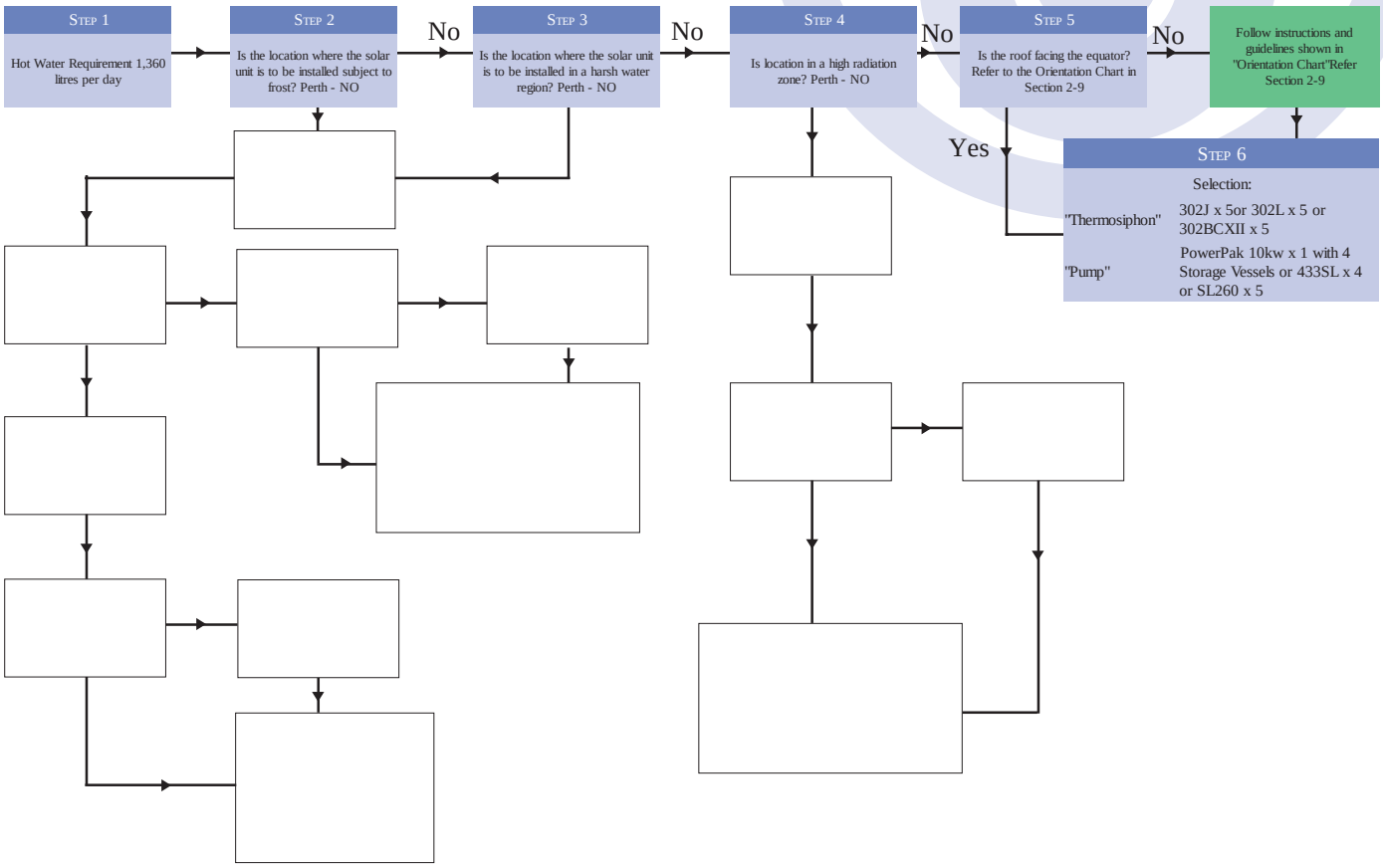
SYSTEM SELECTION - FLOW CHART
Example 5: Mine Site - 306 litres/day in Port Hedland



	Step 1: Hot Water Requirement – Mine Site: 306 litres/day in Port Hedland
Flow Path	***Step 2:*** Is the location subject to frost? Location: Port Hedland - No. ***Step 3:*** Is the location in a harsh water region? Location: Port Hedland - Yes. ***Step 4:*** Is the location in a high radiation zone? Location: Port Hedland - Yes. ***Step 5:*** Is the roof facing the equator? Refer to “Orientation Chart and Guide”.
Selection	"Thermosiphon" systems - 302J, 302J-FreeHeat
Confirm	Now refer to the SCF program and select Port Hedland. Select the system in the program Set the parametres - water draw, inclination and orientation Compare the annual average solar contributions for each of the systems and finally confirm the selection

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the “Step by Step Process” and the “System Selection Flow Chart”, we will now select suitable systems for different locations.

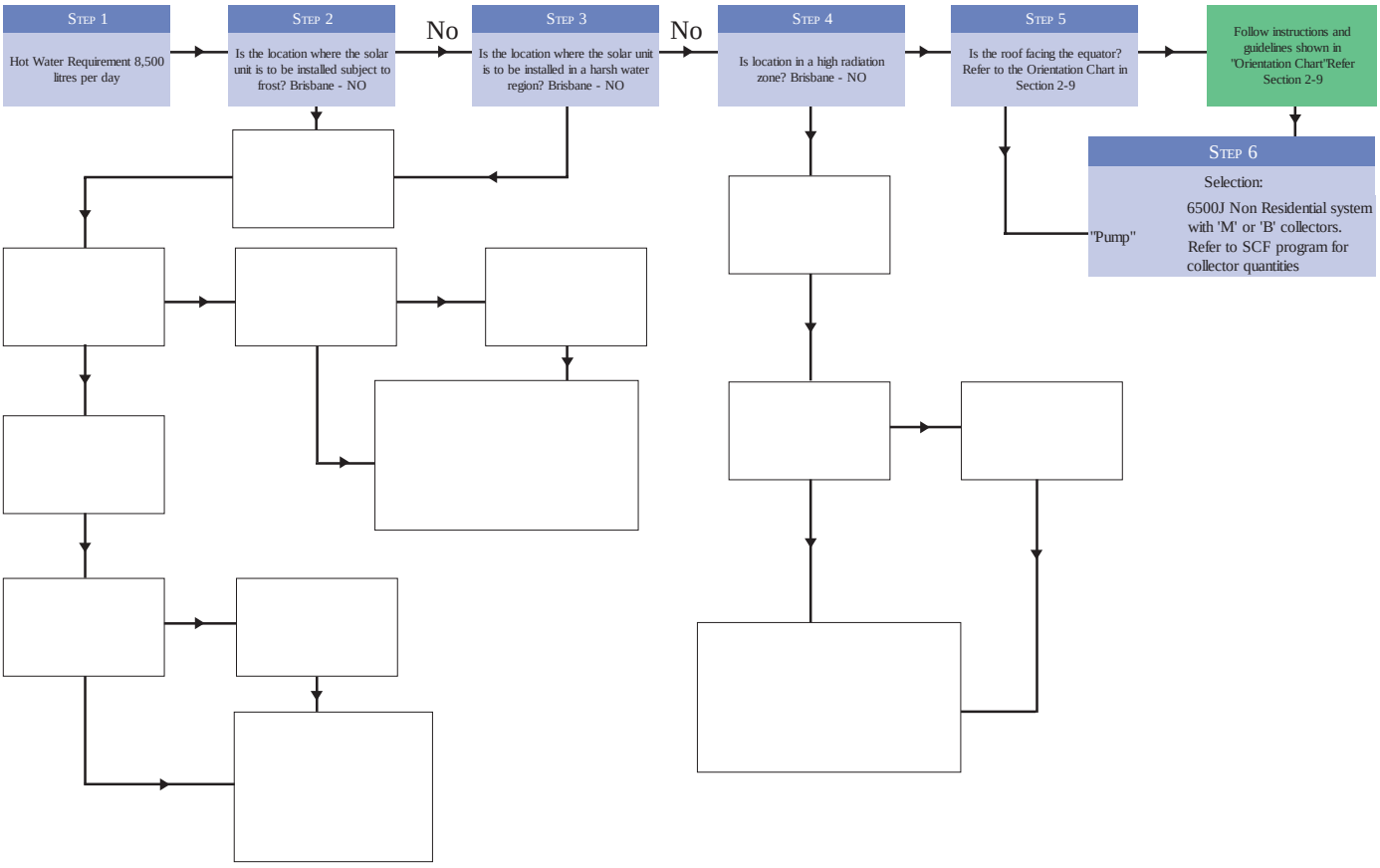
SYSTEM SELECTION - FLOW CHART
Example 6: Caravan Park – 1,360 litres/day in Perth



	Step 1: Hot Water Requirement – Caravan Park: 1,360 litres/day in Perth
Flow Path	***Step 2:*** Is the location subject to frost? Location: Perth - No. ***Step 3:*** Is the location in a harsh water region? Location: Perth - No Refer to note in Flow Chart above. ***Step 4:*** Is the location in a high radiation zone? Location: Perth - No ***Step 5:*** Is the roof facing the equator? Refer to “Orientation Chart and Guide”.
Selection	"Thermosiphon" systems - 302J x 5, 302J-FreeHeat or 302L x 5 "Pump" systems - PowerPak: 10kw with 4 Storage Vessels - Streamline: 433SLV/433SFV x 4 or SLV260/SFV260 x 5
Confirm	Now refer to the SCF program and select Darwin. Select the system in the program Set the parametres - water draw, inclination and orientation Compare the annual average solar contributions for each of the systems and finally confirm the selection

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the “Step by Step Process” and the “System Selection Flow Chart”, we will now select suitable systems for different locations.

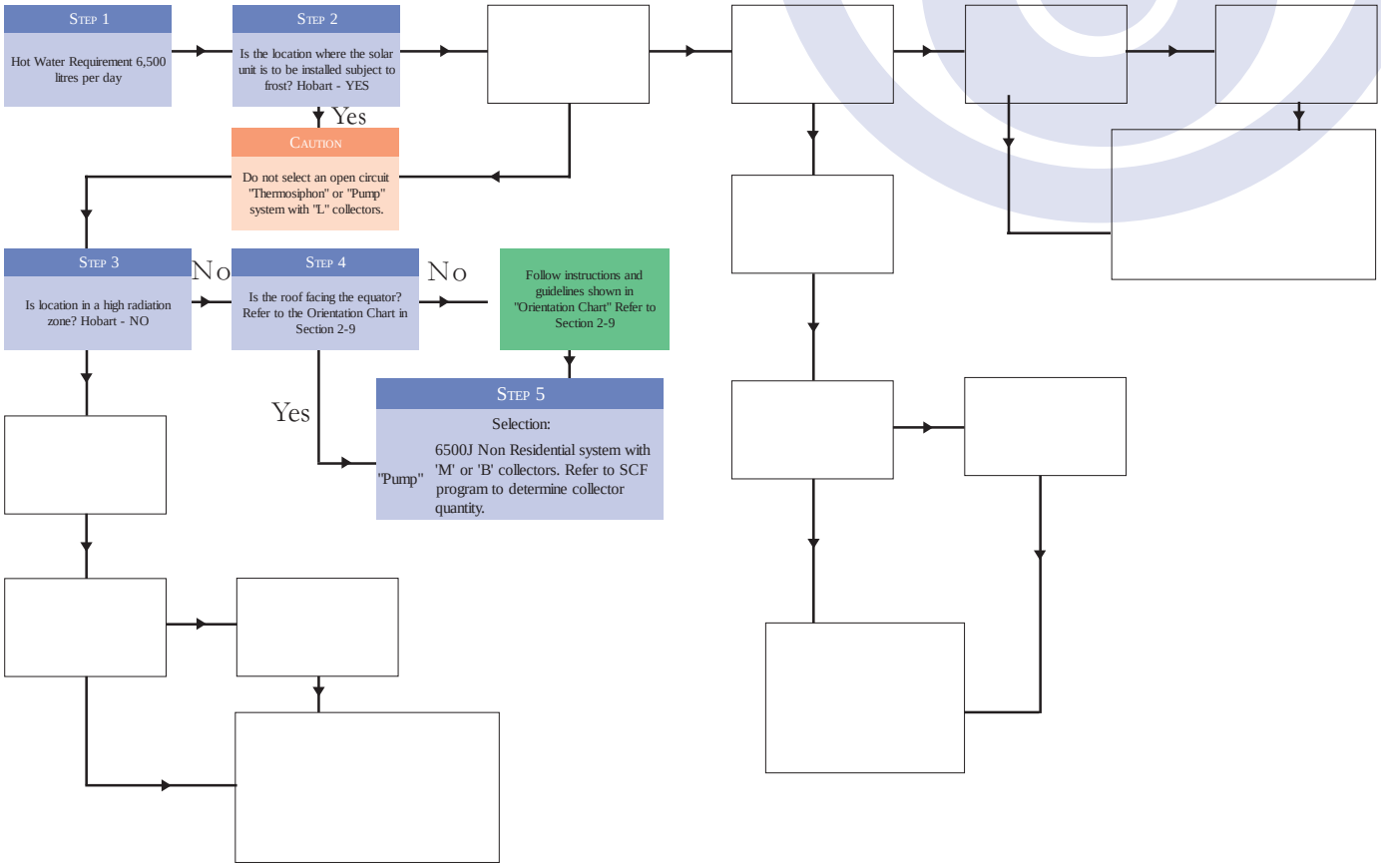
SYSTEM SELECTION - FLOW CHART
Example 7: Typical Motel - 8,500 litres/day in Brisbane



	Step 1: Hot Water Requirement – Typical Hotel 8,500 litres/day in Brisbane
Flow Path	***Step 2:*** Is the location subject to frost? Location: Brisbane - No. ***Step 3:*** Is the location in a harsh water region? Location: Brisbane - No. ***Step 4:*** Is the location in a high radiation zone? Location: Brisbane - No. ***Step 5:*** Is the roof facing the equator? Refer to “Orientation Chart and Guide”.
Selection	"Pump" systems - 6500J Non Residential system with 'M' or 'B' collectors. Refer to SCF program to determine collector quantities. For large hot water requirements of this magnitude it is best to recommend Non Residential Systems. The a cost of mulitple installation will be greater than for a centralised system.
Confirm	Now refer to the SCF program and select Brisbane Select the system in the program Set the parametres - water draw, inclination and orientation Select the number of 'M' or 'B' collectors to give desired annual average solar contributions

The Hot Water Requirements have been estimated earlier for different facilities. Using that information as well as the "Step by Step Process" and the "System Selection Flow Chart", we will now select suitable systems for different locations.

SYSTEM SELECTION - FLOW CHART
Example 8: Hospital – 6,500 litres/day in Hobart



	Step 1: Hot Water Requirement – Hospital: 6,500 litres/day in Hobart
Flow Path	***Step 2:*** Is the location subject to frost? Location: Hobart - Yes. ***Step 3:*** Is the location in a high radiation zone? Location: Hobart - No ***Step 4:*** Is the roof facing the equator? Refer to "Orientation Chart and Guide".
Selection	"Pump" systems - 6500J Non Residential system with 'M' or 'B' collectors. Refer to the SCF program to detemine the number of collectos required. For large hot water requirements of this magnitude, it is best to recommend Non Residential Systems. Cost of multiple installations will be greater than that for a centralised system.
Confirm	Now refer to the SCF program and select Hobart. Select the system in the program Set the parametres - water draw, inclination and orientation Select the number of 'M' or 'B' collectors to give the desired annual average solar contributions.

The SCF Program is a Windows based program designed to help the user select an appropriate system for the application.

SCF: Solar Contribution Factor

The program uses data published by the Bureau of Meteorology and results from tests on the systems conducted in an accredited NATA Laboratory.

	DATA	SOURCE
1.	Total Global Radiation (MJ/m²)	Bureau of Meteorology
2.	Ambient Temperature (°C)	Bureau of Meteorology
3.	Water Temperature (°C)	Bureau of Meteorology
4.	Storage Heat Loss (Watts/day)	NATA Laboratory

With the help of this information, the program performs a series of calculations in the background to determine the Solar Contribution Factor for the chosen system under certain conditions.

The Solar Contribution Factor is expressed as an Annual Average Percentage.

The program allows the user to vary several parameters and observe the performance of the chosen system.

	PARAMETER	VARIATION
1.	Location	All major locations in the world
2.	Type of System	All Solahart systems
3.	Type of Collector	J, K, L or M Collectors
4.	Daily Load (MJ)	This differs from system to system
5.	Daily Load (litres)	This differs from system to system
6.	Water Temperature	Between 45° C and 85° C
7.	Orientation	Between 0° and 90° off the equator
8.	Inclination	Between 5° and 45° off the horizonal

The above is a view of a 302K system in Brisbane set to deliver 239 litres per day at 60°C. The system is facing North and inclined at an angle of 20°. Under these conditions the 302K system is capable of an annual average solar contribution of 87%.. Energy Savings are 4,323 kWh/yr.

Black Chrome XII Systems

Twelve (12) year warranty on the cylinder and collectors, six (6) year warranty on parts and labour.

Residential Thermosiphon Systems

Complete Water Heater

Five (5) year 100% comprehensive guarantee covering all parts and labour.

Individual Tanks and Collectors

Tanks and Collectors purchased other than as a complete water heater – Twelve month comprehensive warranty covering parts and labour. A further four (4) year parts only guarantee after the 12 month period.

Non Residential Pump Systems

Complete System

Twelve month comprehensive warranty covering parts and labour. A further four (4) year parts only guarantee after the 12 month period.

Streamline

Cylinder: Five (5) year guarantee on cylinder, three (3) year labour warranty and one (1) year warranty on parts.

Collectors: Five (5) year guarantee on collectors, one (1) year parts and labour warranty.

Synergy Heat Pump

Five (5) year cylinder warranty, three (3) year labour warranty and one (1) year warranty on parts.

PowerPak

Cylinder: Five (5) year guarantee on cylinder, three (3) year labour warranty and one (1) year warranty on parts.

Collectors: Five (5) year guarantee on collectors, one (1) year parts and labour warranty.

Gas Booster

Five (5) year 100% comprehensive warranty covering parts and labour.

*Refer individual Owners' Manual for each system for complete details of the Warranty policy.