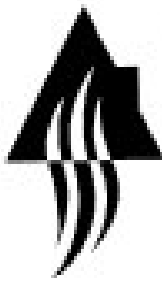
Air Group Australia

SOLECTAIR



INSTALLATION GUIDE

SYSTEM OVERVIEW

A Solectair ducted solar heating system may be installed as part of one of the following installations:-

1. **As a retrofit to an existing ducted evaporative air conditioning system**.

   A Solectair system may be added to any existing ducted evaporative system. A Weather Seal will need to be installed in the dropper if one is not already in place, to prevent the warm air escaping through the air conditioner.

   The most common method of connecting a Solectair system into the evaporative air conditioning ductwork will be to utilise a Distribution Hub (See Figure A). It may be possible to connect directly into the dropper if a 1500/1800 dropper has been installed (See Figure B).

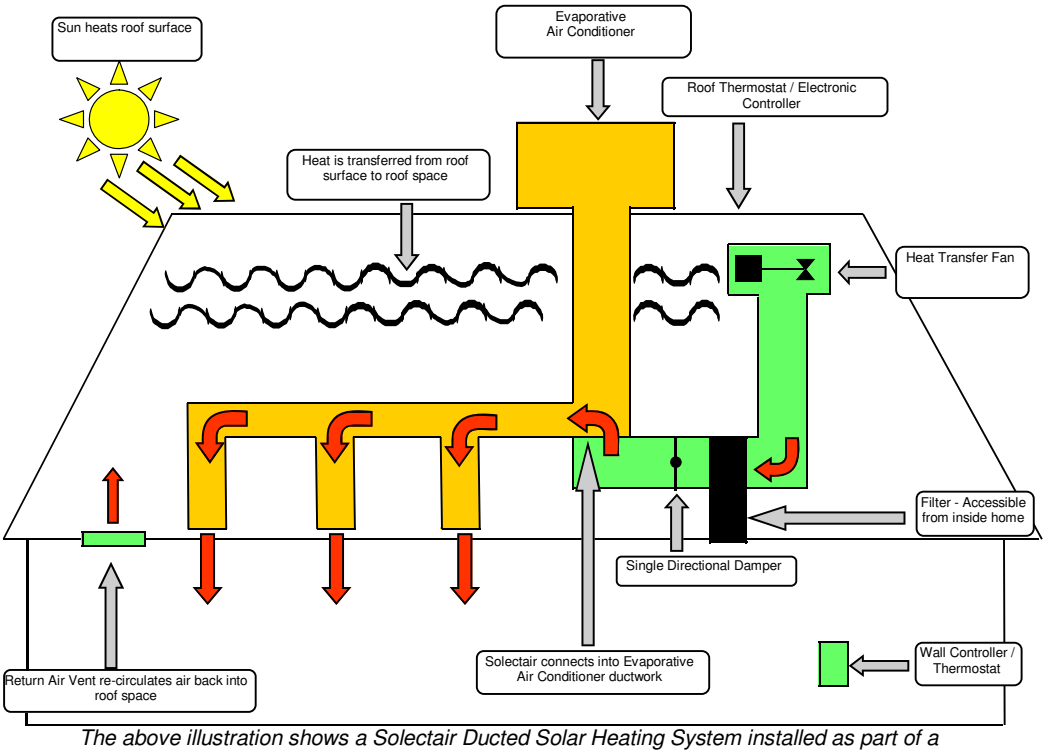
   If discharging from the Solectair ductwork directly into a dropper, make sure there is no air conditioning system duct outlet immediately opposite the Solectair duct, otherwise most of the Solectair system warm air will be directed straight down the duct immediately opposite. There may be a temptation on some 3 outlet droppers to connect into the blank 4th side of the dropper. Don't do it. (See Figure D).

   If a longer dropper cannot be utilized or a Dropper Chute is being installed use the connection method as per Figure A.

2. **As part of a new ducted evaporative air conditioning system.**

3. **As a stand-alone heat transfer system.**

SYSTEM OVERVIEW



The above illustration shows a Solectair Ducted Solar Heating System installed as part of a ducted evaporative air conditioning system

Direct sunshine on your roof's surface causes it to heat up. This heat is transferred into the roof space, creating a large readily available heat source. This warm air is then drawn from the roof space and transferred via ducting and ceiling vents to each room in your home, thereby effectively raising living area temperatures at minimum cost.

Solectair is most effective when the sun is shining, such as during spring and autumn, but it will also provide useful heating on sunny winter days.

A Solectair system does not replace a conventional heater, but supplements it, and reduces heating costs in a most environmentally friendly manner.

Solectair will switch on and run when the sun has heated the roof space to approximately 20°C or more, and is 5°C warmer than the temperature in your home at the wall controller.

Solectair will turn off automatically when the inside temperature setting has been reached or when the sun's rays are not adequately heating the roof space, (e.g. heavy cloud or the sun has gone down) or when residual stored roof space heat has been transferred to the living area.

A: FAN HOUSING PROTECTIVE COVER.
B: FAN HOUSING. SUSPEND WITH CHAIN AND SPRINGS AS SHOWN - DISTANCE TO ROOF 400 MM
D: AIR-FILTER HOUSING WITH ACCESS PANEL AND INDUSTRIAL GRADE WASHABLE FILTER
E: 500 DIA. SOLAR DUCT-MIN LENGTH 1500MM
F: NON-RETURN DAMPER
G: DISTRIBUTION HUB. 500 X 300 DIA
H: 300 DIA. SOLAR CONNECTOR DUCT
I: DROPPER OUTLET ADAPTOR. 400,450,500,550 X 300 DIA. CUT EXISTING DUCT AT CONVENIENT POINT CLOSE TO DROPPER AND INSERT ELECTRONIC CONTROLLER WITH ROOF-SPACE
J: TEMPERATURE SENSOR
K: WALL CONTROL WITH LIVING-SPACE TEMPERATURE SENSOR
L: FAN SPEED CONTROLLER
J TO L: MAX DISTANCE 5M
J TO B: MAX DISTANCE 500MM
J TO K: STANDARD DISTANCE 10M - EXTENDS BY 10M

NOT TO SCALE

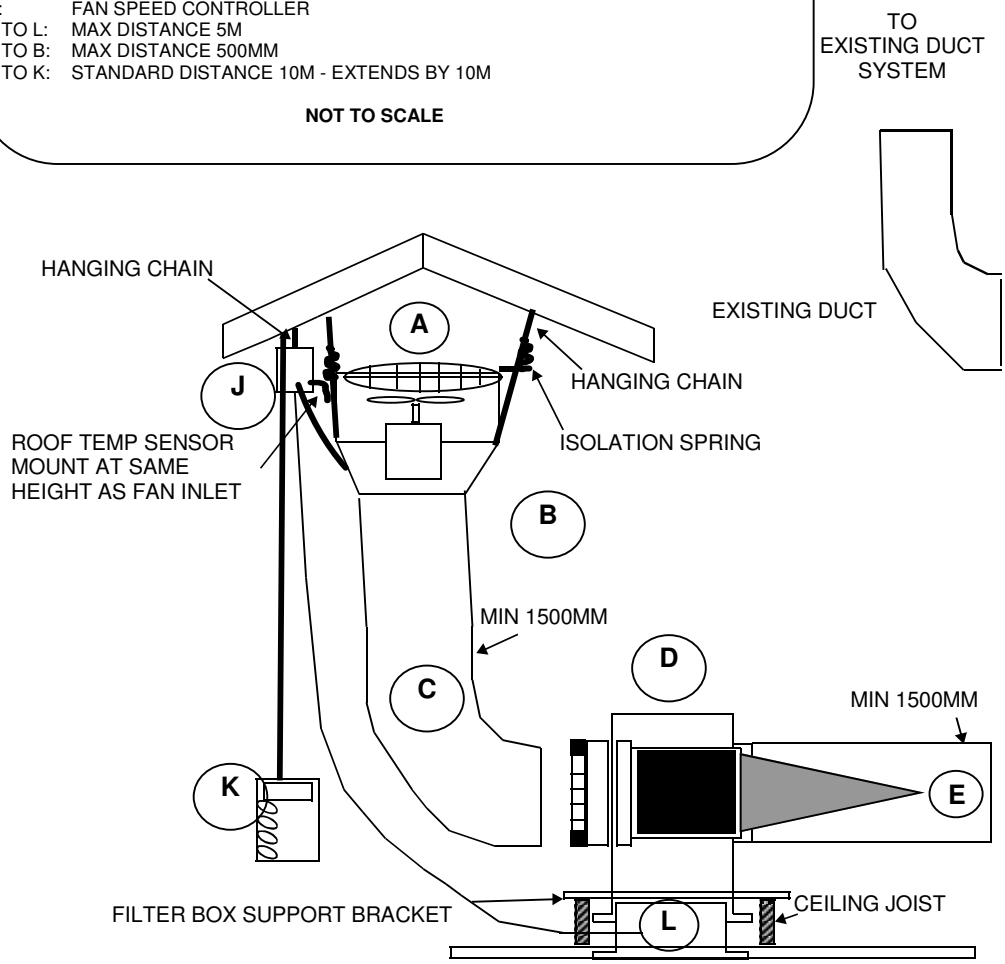
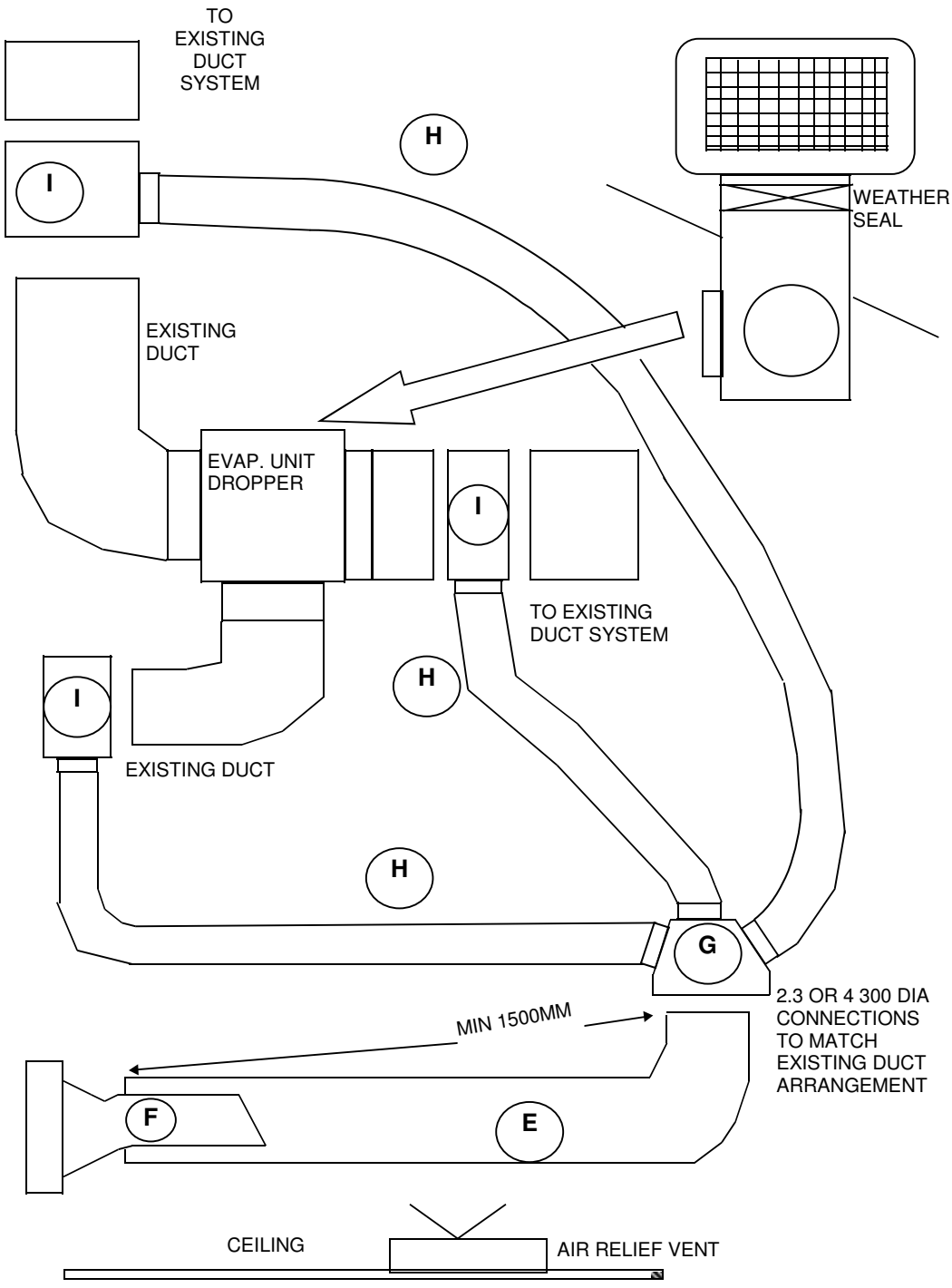


FIGURE A SOLECTAIR SYSTEM INSTALLED WITH EVAPORATIVE AIR CONDITIONER AND DISTRIBUTION HUB


TO
EXISTING
DUCT
SYSTEM
H
I
WEATHER
SEAL
EXISTING
DUCT
EVAP. UNIT
DROPPER
I
TO EXISTING
DUCT SYSTEM
H
I
EXISTING DUCT
H
G
2.3 OR 4 300 DIA
CONNECTIONS
TO MATCH
EXISTING DUCT
ARRANGEMENT
MIN 1500MM
F
E
CEILING
AIR RELIEF VENT

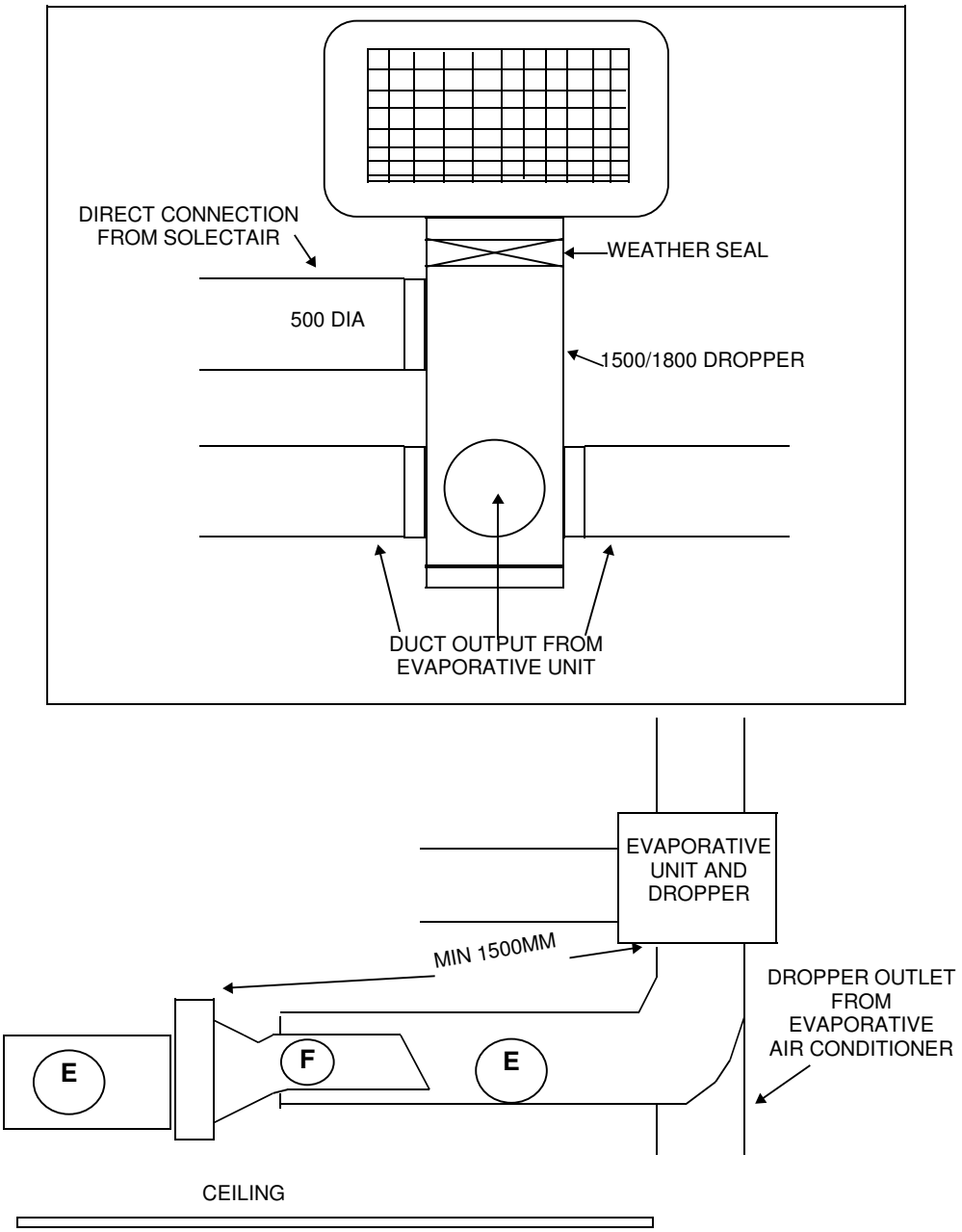


FIGURE B SOLECTAIR INSTALLED WITH EVAPORATIVE AIR CONDITIONER AND DIRECT 1500/1800 DROPPER CONNECTION FROM SOLECTAIR

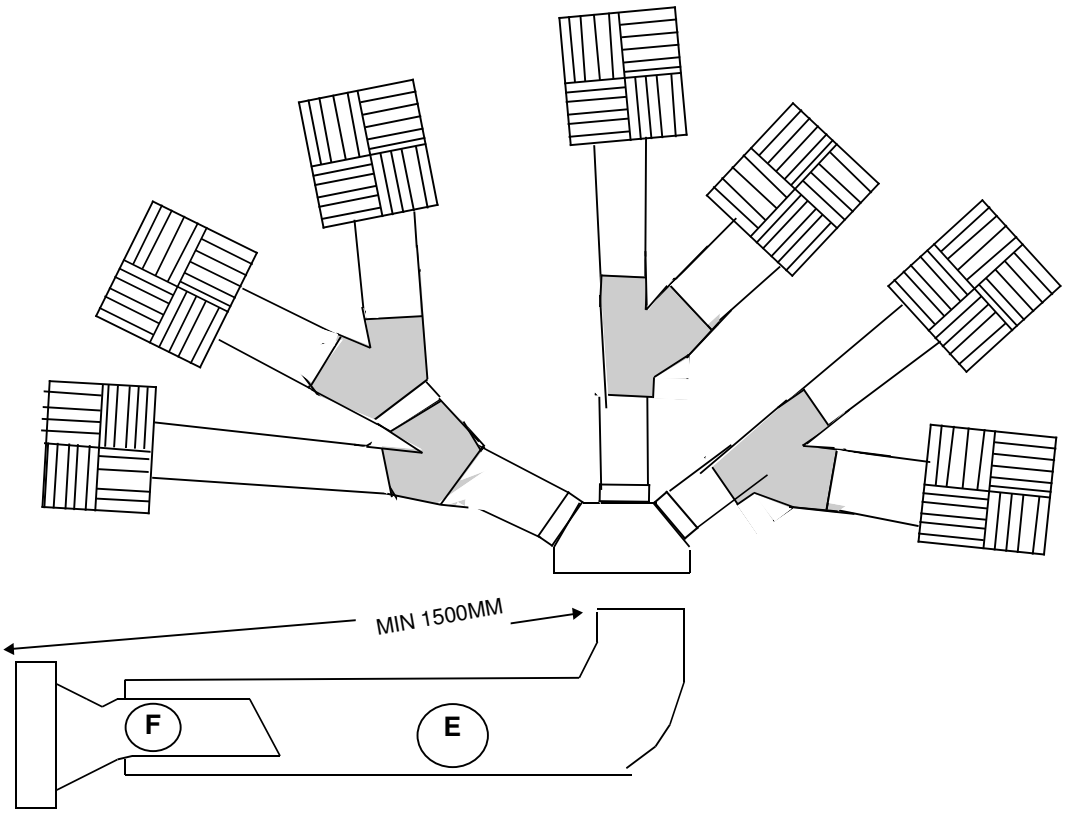
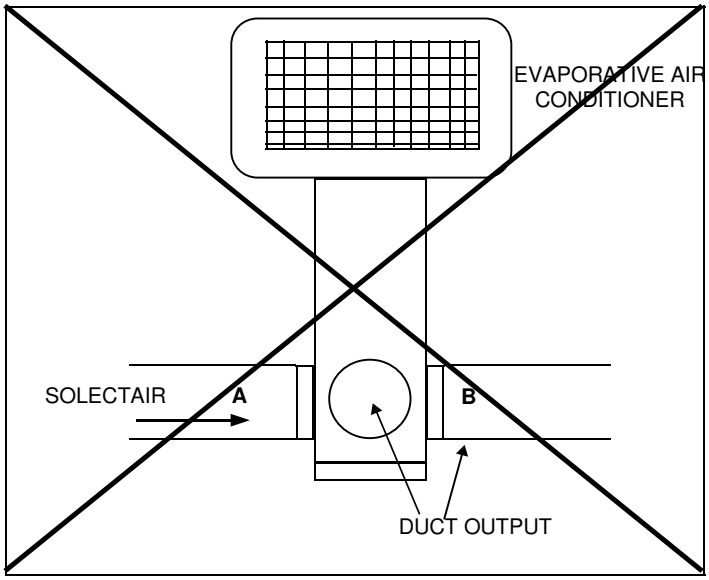
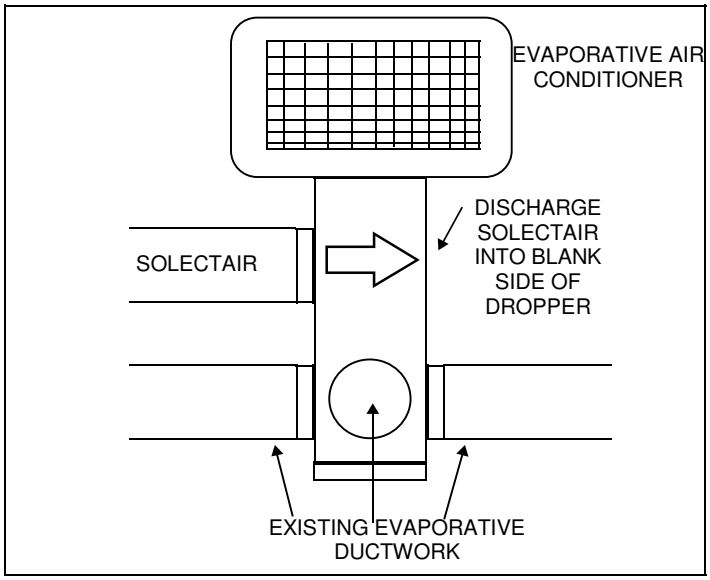


FIGURE C SOLECTAIR SYSTEM INSTALLED AS STAND-ALONE HEATING SYSTEM



WRONG

Warm air from Duct A will go straight down Duct B.



CORRECT

Plenum effect of dropper will distribute air evenly.

FIGURE D CONNECTING SOLECTAIR DIRECTLY INTO A DROPPER

INSTALLATION

Location and Position

1. Install fan in roof space with no external shading to roof cladding, or anticon type roof insulation under roof cladding.
2. Install fan 300mm - 400mm below roof surface.
3. If sufficient space, install in a vertical position (See Figure E).
4. Attach chains and isolation springs to roof rafters. Shorten chain as required.
5. Attach fan protective cover to motor housing using black plastic bolts provided.
6. Fit bolts and chains into holes in fan housing and firmly tighten.

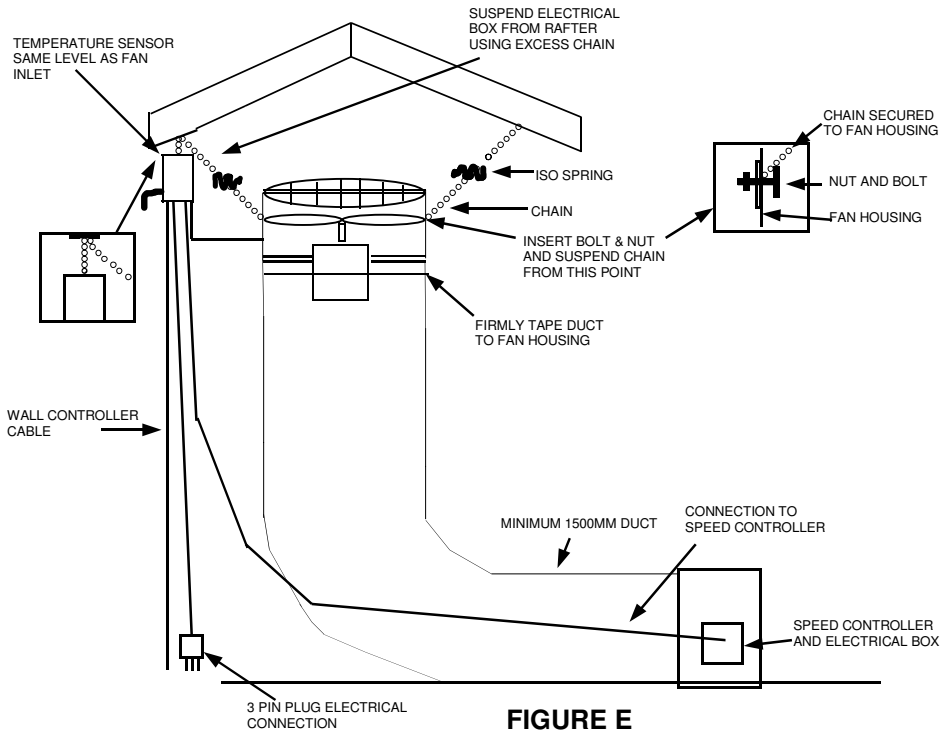


FIGURE E

7. If roof space is limited mount fan housing horizontally. Duct will need to be supported (See Figure F).

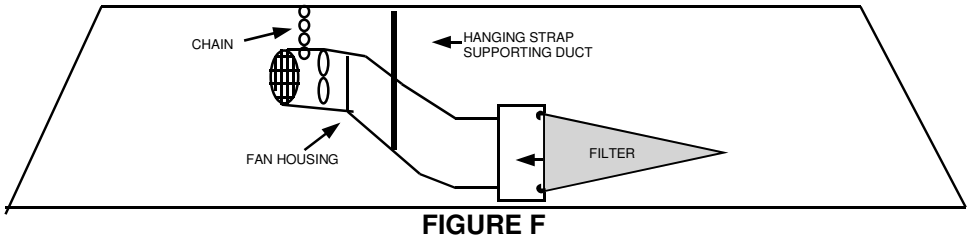


FIGURE F

FILTER

Note direction of air flow.

1. Install filter box as per Figure G.
2. Fit electrical box to filter assembly. Remove brass nuts from bolts, fit box and tighten nuts from inside filter box.

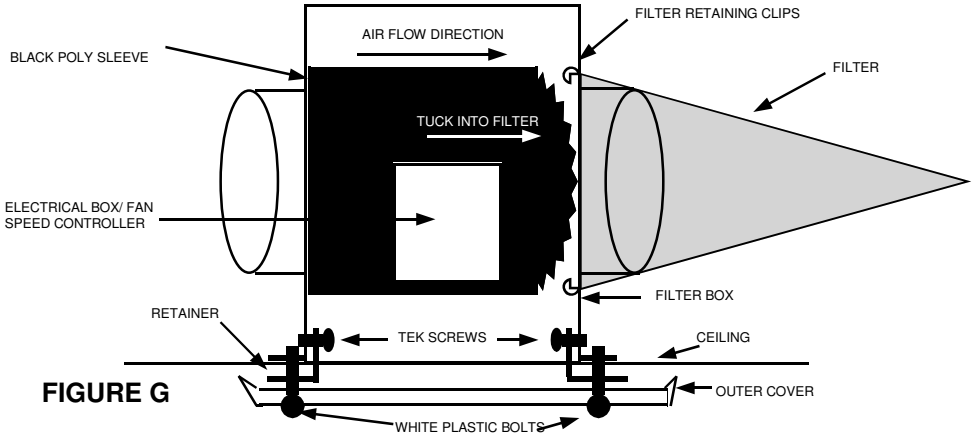


FIGURE G

3. Fit filter correctly in retaining tabs. Insert poly sleeve inside filter. (See Figure H).

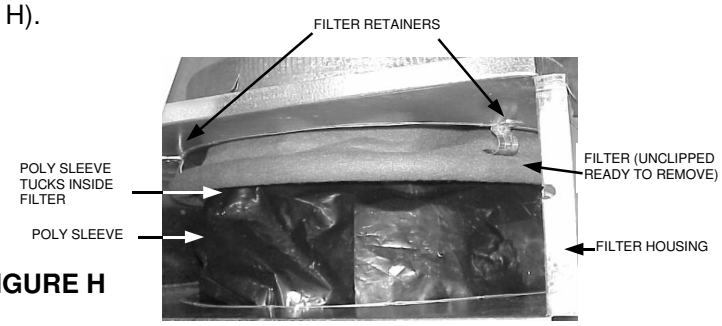


FIGURE H

Non Return Damper Installation

1. Install non return damper assembly min 1500mm from filter box. (See Figure I).
2. Duct between filter and damper to be straight and tight to allow room for filter when fully extended.

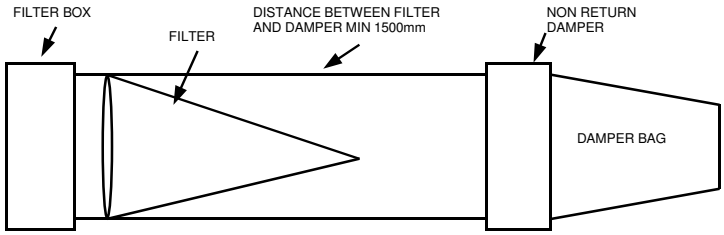


FIGURE I

3. Install non return damper with 'top' label at highest point . This is most important. For correct operation of damper (See Figure J).

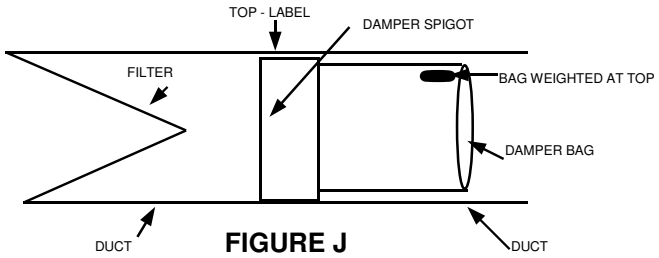
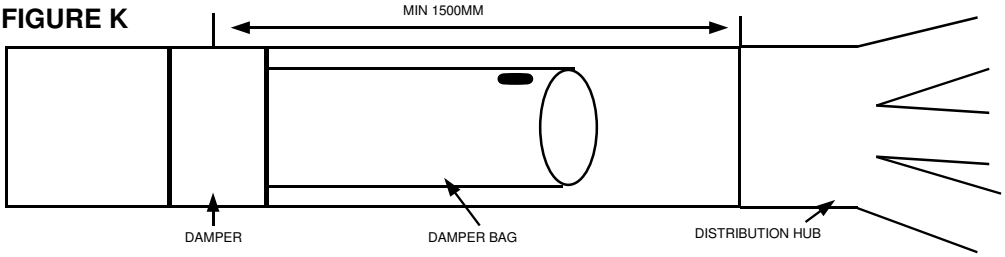


FIGURE J

4. Damper bag will collapse downward when system is switched off to prevent backflow of air.
5. Minimum distance between damper and duct connection 1500mm (See Figure K).
6. Duct to be straight and tight between damper and distribution hub for correct operation of damper.

FIGURE K

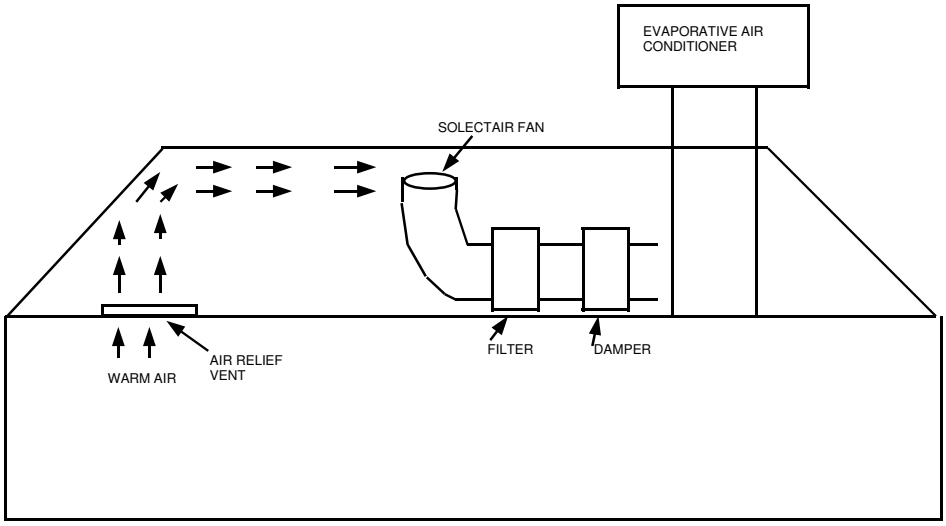


Installation of Air Relief Vent

1. Install air relief vent as far away as possible from Solectair fan intake.

2. Returned warmed air from air relief vent should move through roof space and be re-heated prior to being drawn in through Solectair fan.

3. Positioning the air relief vent immediately below the Solectair fan intake will reduce the system's effectiveness as returned air will immediately be drawn back into the Solectair fan.



Electrical Connection

1. We recommend connecting the Solectair system on a dedicated electrical circuit wired directly back to the main board. The connection may be shared with an evaporative air conditioner, if one is installed.
2. When mounting box with roof space temperature sensor it is most important that the box is mounted with the temperature sensor at the lowest point to ensure an accurate measurement of the roof space air temperature. Failure to do this may cause internal heat from the electrical box to give an incorrect reading at the temperature sensor. (See Figure L.)

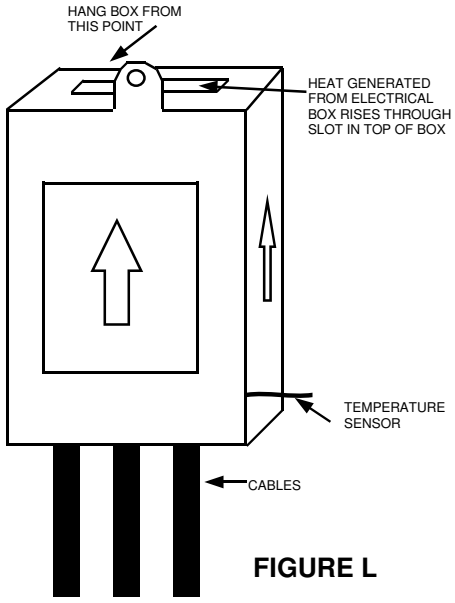


FIGURE L

3. Carefully pull the temperature sensor clear of box and suspend in free air (See Figure M).

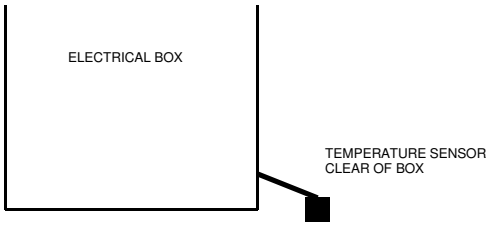
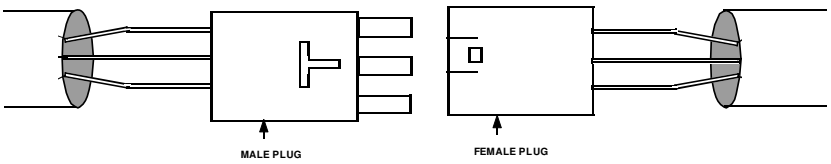


FIGURE M

4. Connect the motor lead from the motor to the extension lead from the electrical box. Press the plugs together firmly and engage the locking clips.



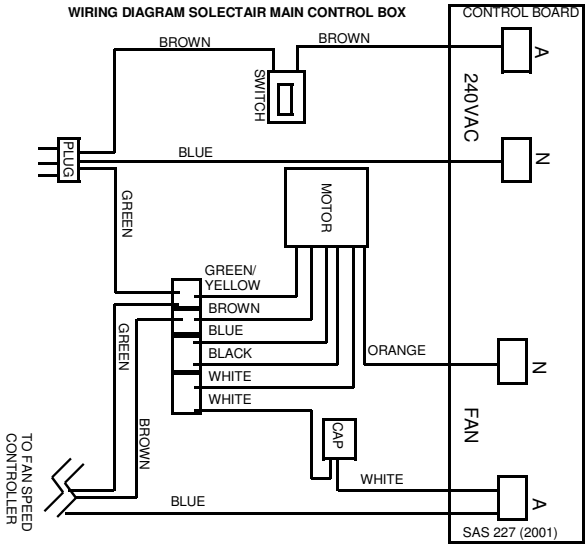
Motor extension lead *Motor lead*

5. Mount indoor wall controller in a central location in order to obtain accurate room temperature conditions.

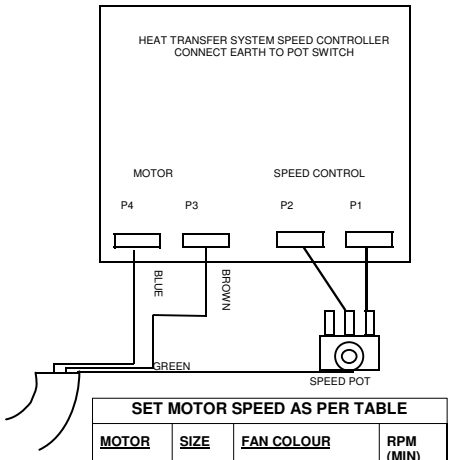
6. Test operation of the fan by simultaneously pressing ↑ and ↓ on the wall controller to switch system on.

7. Adjust the fan speed controller to suit duct layout and client requirements. The fan speed controller adjustment is located in the filter box.

Wiring Diagram for Solectair Version with Separate Fan Speed Controller



MAIN ELECTRICAL BOX



SET MOTOR SPEED AS PER TABLE			
MOTOR	**SIZE**	**FAN COLOUR**	**RPM (MIN)**
TECO	600W	GREY/GREEN HUB	800

FAN SPEED CONTROLLER

NOTES