



# SolarSheat

## Solar Heating and Ventilation

Todd Kirkpatrick-President  
Your Solar Home Inc.  
Vaughan, Ontario, Canada  
[www.yoursolarhome.com](http://www.yoursolarhome.com)

July 13, 2006



# Vision



Solar heating in every home and building



# Mission Statement



Develop, build and provide renewable energy technologies that preserve our natural resources and sustain energy efficient living.



# Company Overview



- Todd Kirkpatrick – President and CEO
- Sales
  - Randy Strong – North American Partner Manager
- Engineering
  - Peter Koepfgen
- Production
  - Dave Caron, Graeme Fleury
  - Contract for production at present
- Dealer Support
  - Meagan Ritchie
- Finance
  - Phillip Flacks & Company
- Legal
  - Torkin/Manes





# Company Overview



- Kerrydale Stables Ltd.
  - September 2003
  - Commercial Horse Farm Muskoka
  - Developed 22 kW solar preheating system using Conserval Engineering transpired collectors
  - Two exposures, south and west
  - Direct venting inside facility
  - HRV ventilation for west wall
  - Differential control for south wall





# Background



- Built first prototype SU1200  
– March 04
- Design was based on Kerrydale installation
- Self powered
- No external control
- Company incorporated 2004
- Patent filed March 2004
- Small production





# SolarSheat Product Line



- Four models of SolarSheat
- Two products designed for ventilation
  - 1500, 1500S
- Two products designed for space heating
  - 1500G, 1500GS
- SolarSheats can be connected together to form different configurations



# SolarSheat 1500



- Self Contained Panel
- Modular Design - size 43" x 86"
- Preheating/Fresh Air system
- 92 F at 32 F (30 C at 0 C ambient)
- 150 CFM (cubic feet per minute)
- Temperature sensor 68 F turns on unit
- Designed for preheating 500 sq ft.
- Switch On/Off/Auto
- 15 Watt PV runs integrated fan
- 5000 BTU peak/hr or 1.5 kw
- Insulated back with R20 rating
- Easy install with SolarSheat Mount







# SolarSheat 1500S



- Secondary solar air collector
- Modular Design
- Connects to 1500
- 92 F at 32 F (30 C at 0 C ambient)
- 150 CFM (cubic feet per minute)
- Standalone for larger systems
- 5000 BTU/hr or 1.5 kW
- Increases size of collection area
- Easy install with SolarSheat mount

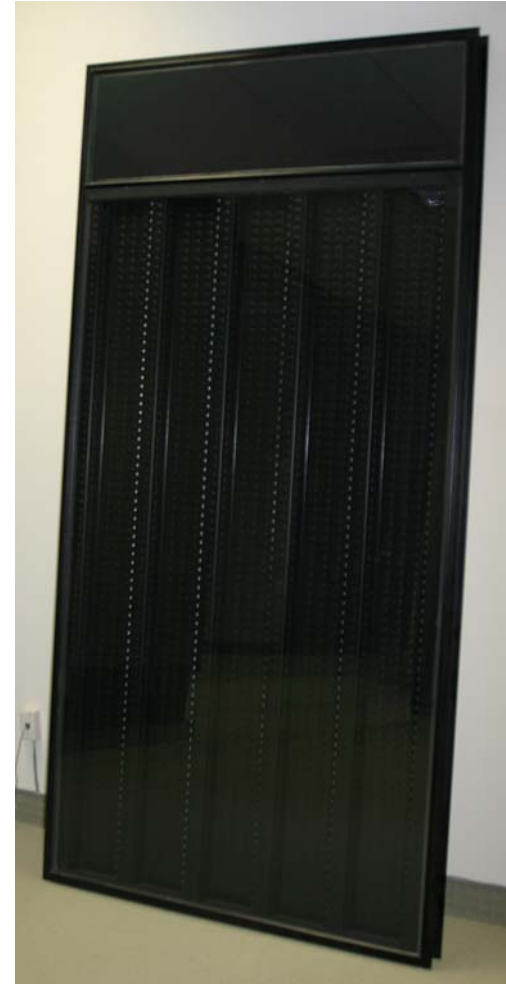




# SolarSheat 1500G

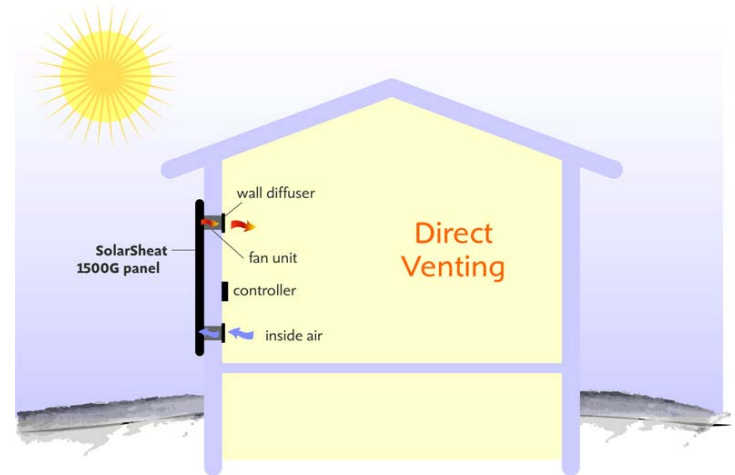


- Self Contained Panel
- Glazed system with Tempered Glass
- Modular Design - size 43" x 86"
- Recirculation air system
- Temperature up to 120 F
- Weight 94 lbs
- 100 CFM (cubic feet per minute)
- Ships with separate control
- 15 Watt PV runs integrated fan
- 5000 BTU peak/hr or 1.5 kw
- Insulated back with R20 rating
- Easy install with SolarSheat Mount
- Template mounting sheet





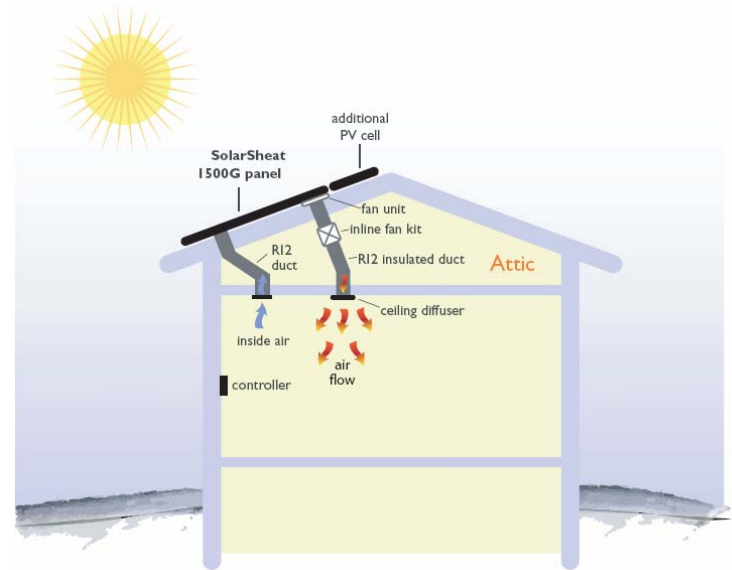
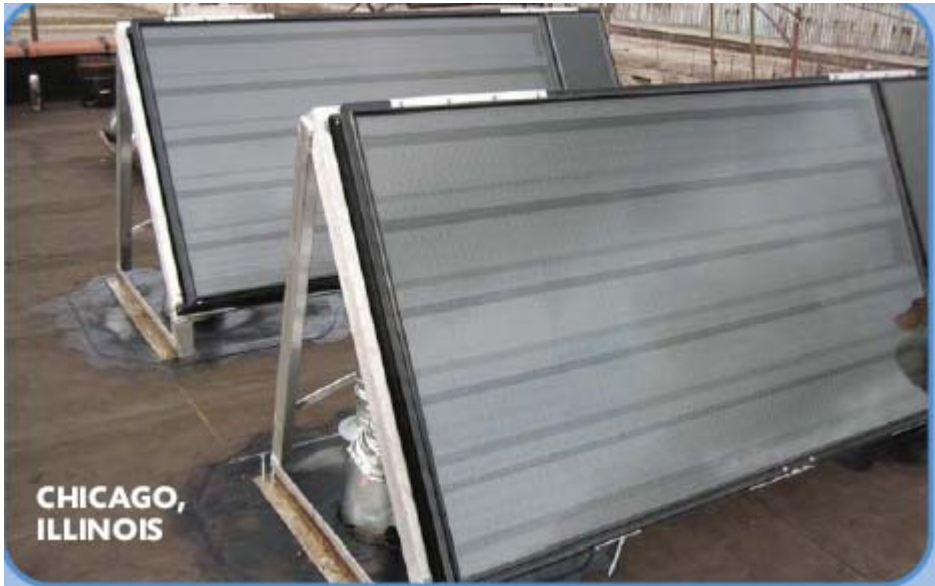
# SolarSheat 1500G



2-stage zone control



# SolarSheat 1500G



Dual 1500G roof mount



# SolarSheat Pak



- Stand Alone - Residential ventilation system.
- Uses 1 SolarSheat 1500G with Fresh Air Ports
- Secondary heating with 1500GS with Fresh Air Ports
- Large SolarSheat 1500GS increases collection area providing greater heat for ventilation preheating





# SolarSheat 1500GS

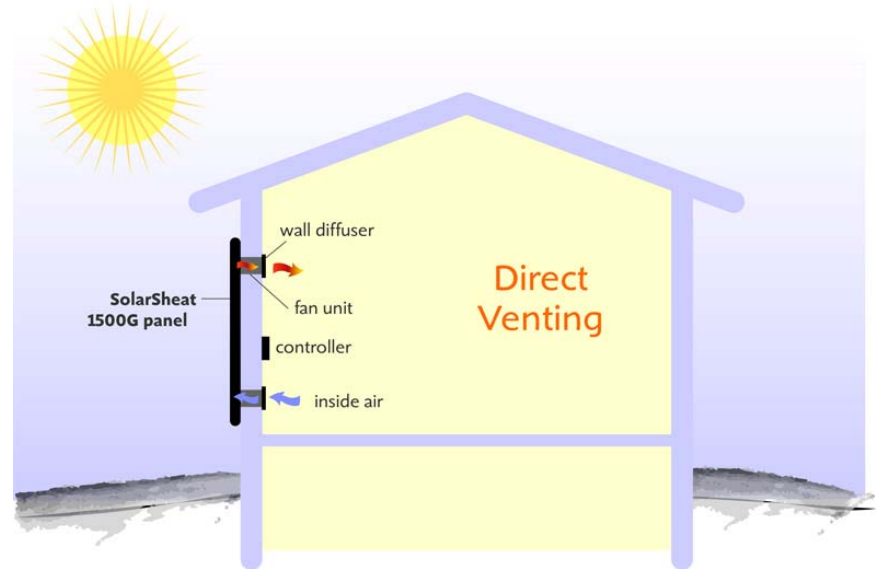


- Glazed system with Tempered Glass
- Modular Design - size 43" x 86"
- Recirculation air system
- Temperature up to 120 F
- Weight 90 lbs
- Rated for 150 CFM (cubic feet per minute) per collector
- Designed for single and multiple collector operation
- 15 Watt Fan Unit can be attached to unit
- 5000 BTU peak/hr or 1.5 kw
- Insulated back with R20 rating
- Easy install with Solarsheat Mount
- Template mounting sheet
- Production beginning March 30 06
- No pricing yet





# SolarSheat 1500GS

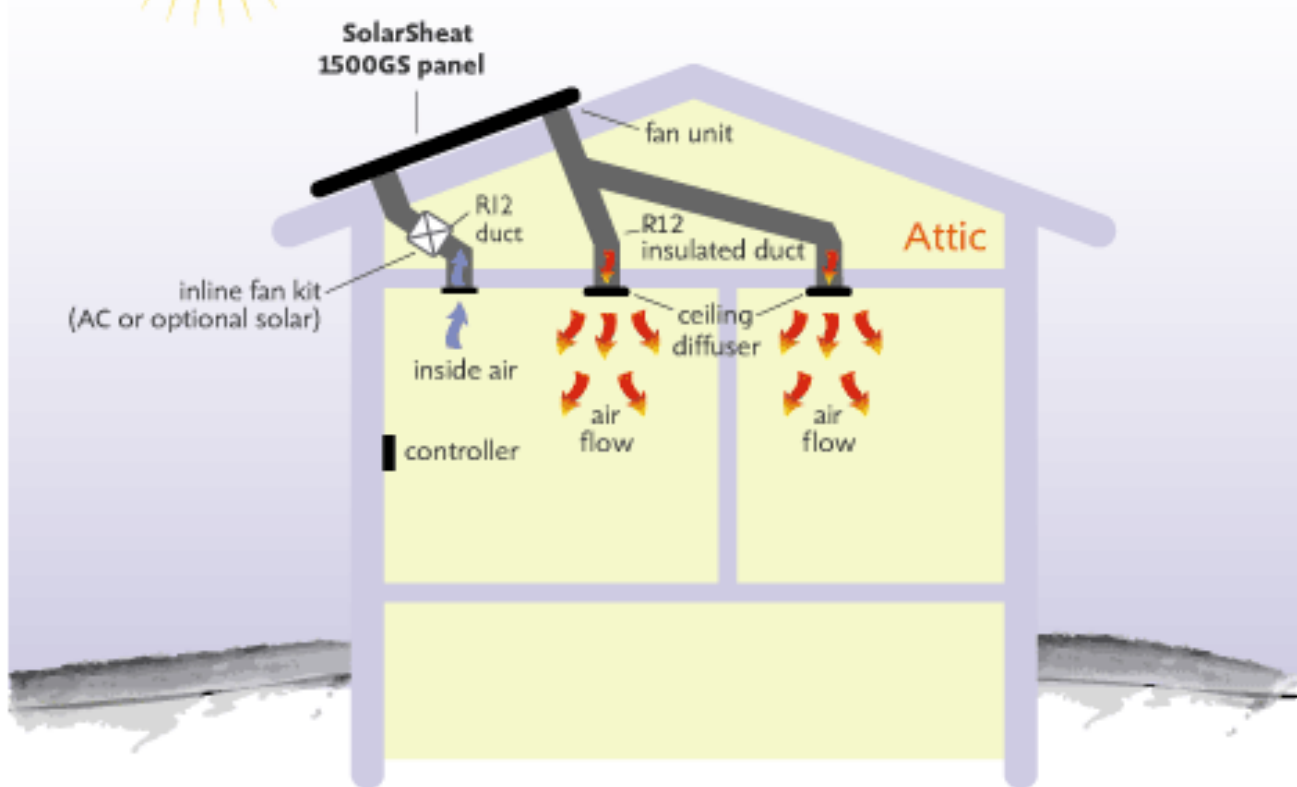




# SolarSheat 1502GS



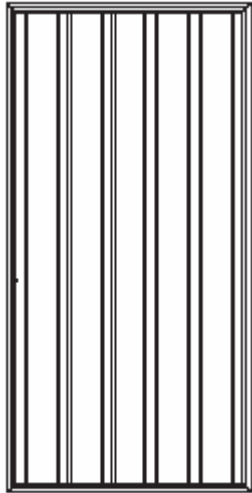
## How It Works



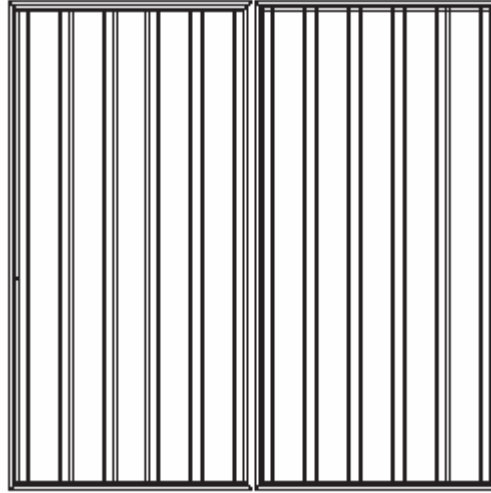




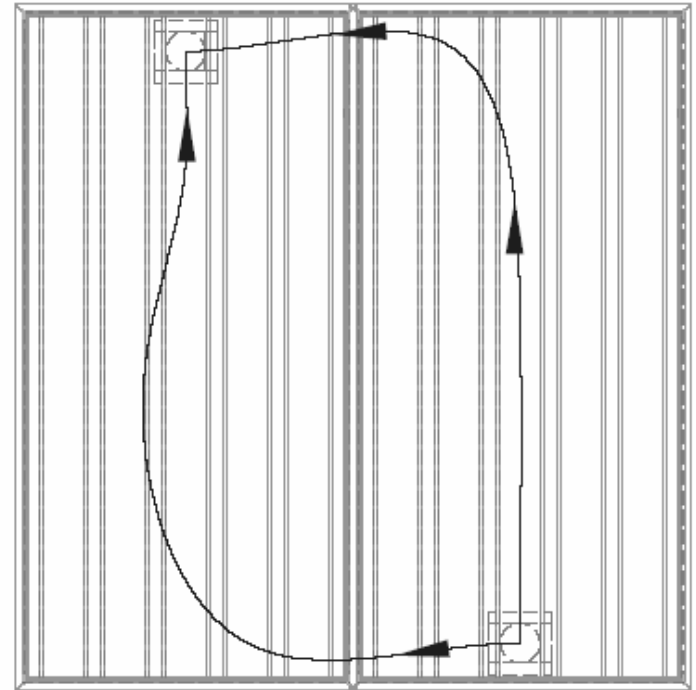
# SolarSheat 1520GS Configuration



**1500GS**



**1520GS**

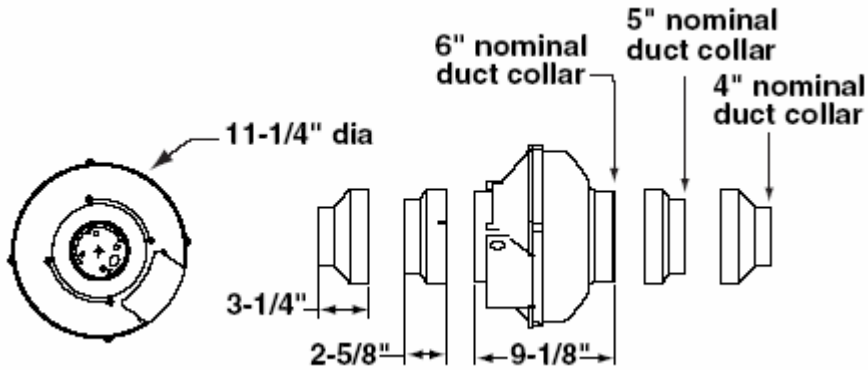


*FRONT VIEW  
SOLARSHEAT 1520GS*

<b>System Name</b>	<b>1500 GS</b>	<b>1520 GS</b>
<b>Floor Space</b> (sq. ft.)	500-1000	1000-2000
<b>No. of 1500GS</b> <b>units (quantity)</b>	<b>1</b>	<b>2</b>



# 1520GS AC Fan



- Mounted usually in Attic – AC Inline Fan will not fit into wall cavities
- Comes with Relay & Transformer pre-wired for DC thermostat
- Variable Fan Speed Control



# Furnace Retrofit



- SolarSheat can be integrated into any furnace
- SolarSheat can provide supplemental heating using existing house ductwork
- Configuration includes fan, controls, dampers  
Installation and ductwork additional
- Provides customers with an affordable whole house supplemental heating system
- HVAC or trade level installed product



# Retrofit Kit

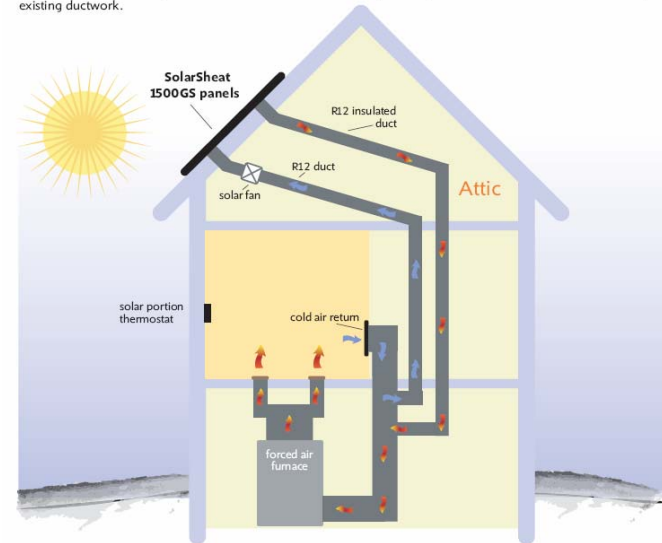


- SolarSheat collectors 4 – 10 SolarSheat 1500GS
- Roof or wall installed
- SolarSheat is connected to the cold air return
- System ships with fan, controls, dampers
- Ductwork is not included
- System payback is excellent

## Furnace Retrofit Pak



An array of SolarSheat air collectors can be used to retrofit any furnace. At least four SolarSheat 1500GS solar collectors attaches to cold air return. Whenever the SolarSheat air collectors are warm and there is a call for heat from the solar thermostat, the furnace's fan and solar fan turn on, blowing solar heated air into the home through existing ductwork.



	1504GS	1505GS	1506GS	1507GS	1508GS	1509GS	1510GS
Floor Space (sq. ft)	up to 2000	2000	3000	3500	4000	4500	5000
No. of 1500GS units	4	5	6	7	8	9	10

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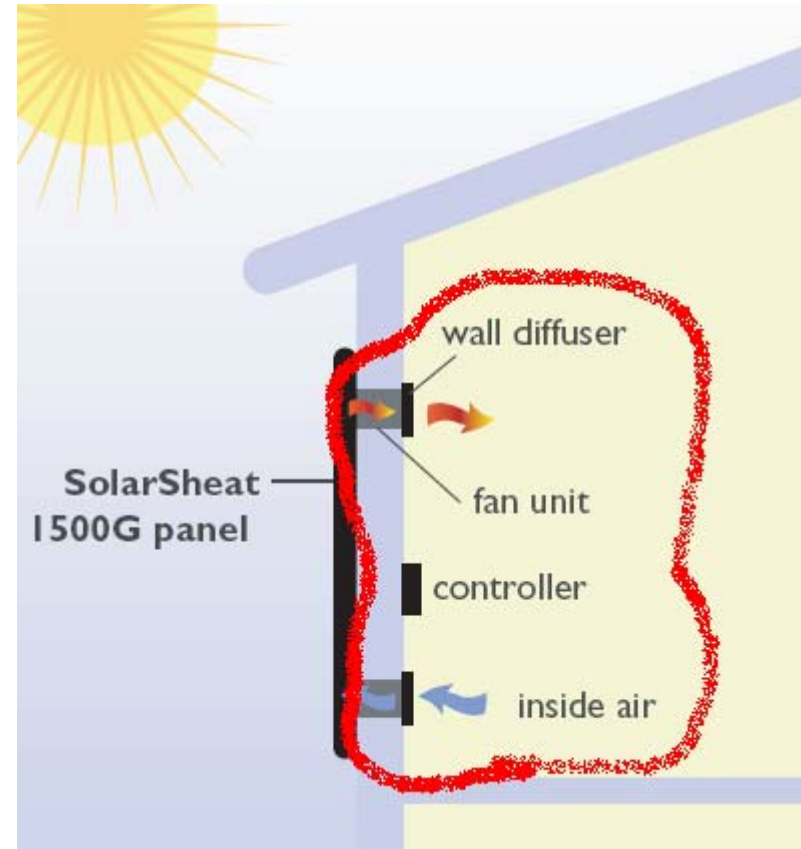
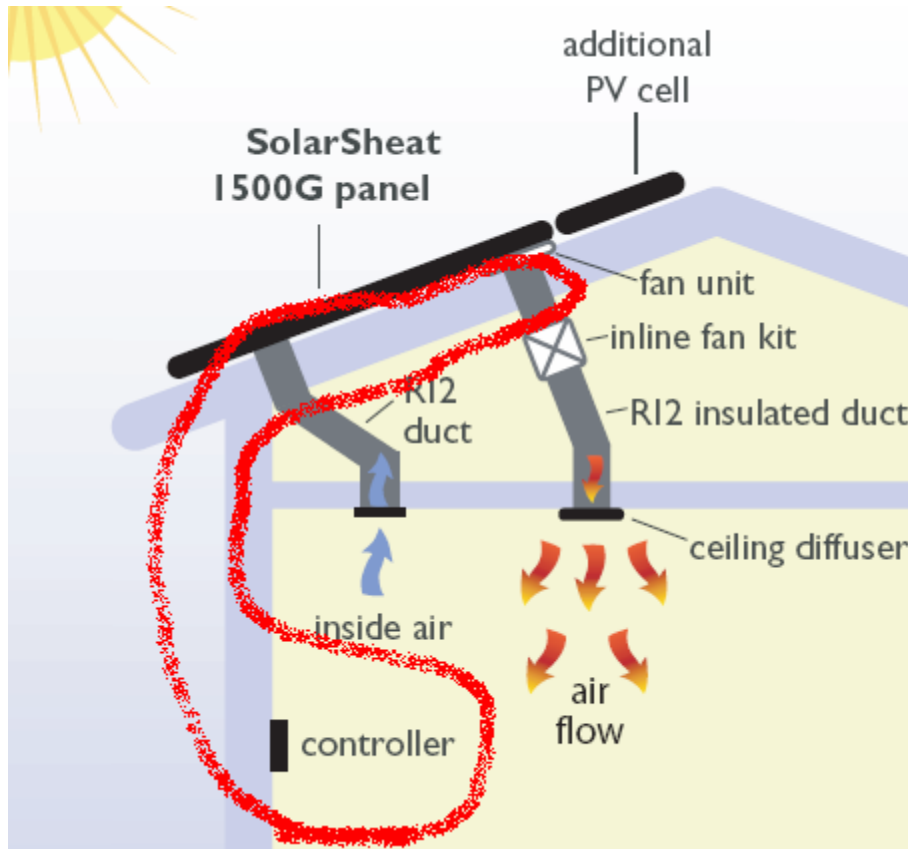
299 Applewood Crescent, Unit 4, Vaughan, Ontario L4K 4E7  
 tel: 905.669.2212 or 866.556.5504 www.yoursolarhome.com



# SolarSheat Duct Kit



- Ships with all collectors





# SolarSheat Duct Kit



Includes:

Digital Temp Control,  
wall grills,  
5" Duct  
foam tape,  
backdraft damper

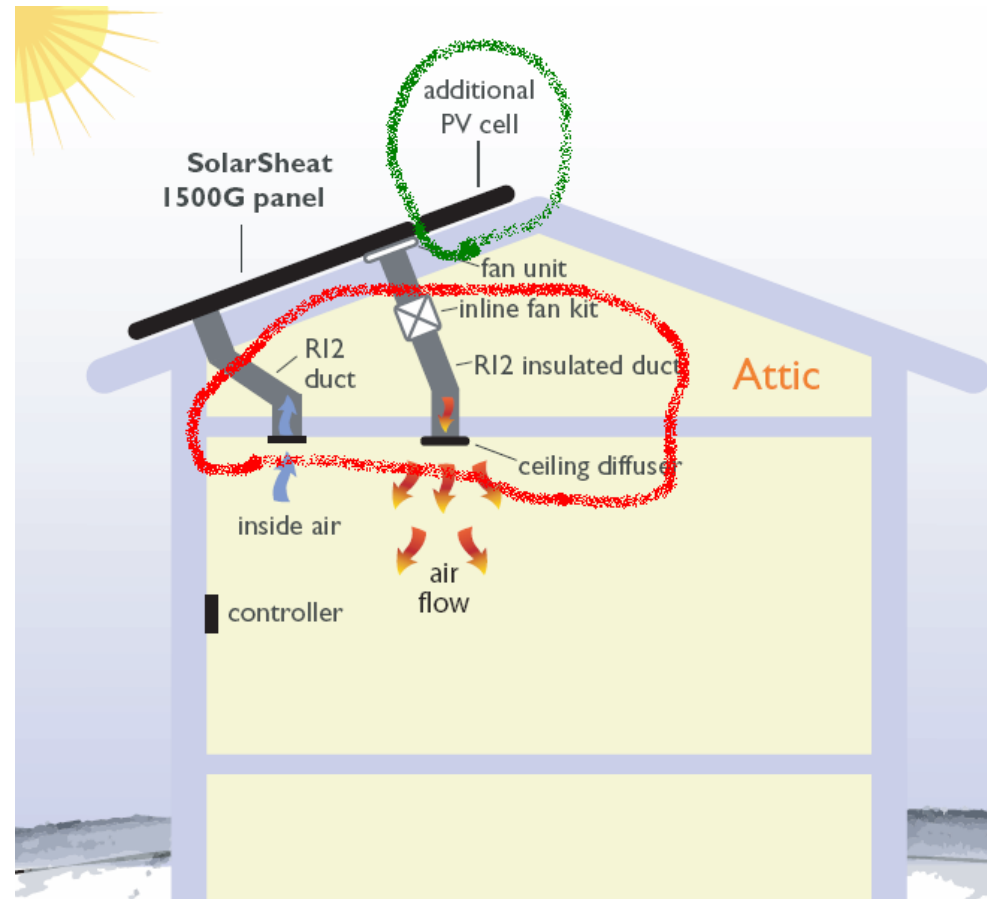




# SolarSheat Attic Kit



- Needed for roof mount SolarSheat
- Includes DC Inline fan, adapter, sensor, R12 flexible duct, 2 ceiling diffusers, AC/DC wall adapter
- Options:
  - PV cell

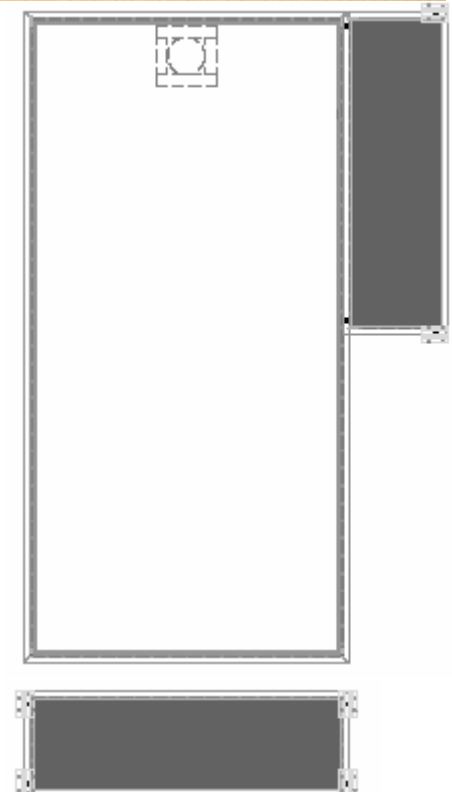




# SolarSheat PV



- Decoupled head for all new SolarSheat systems
- Standalone energy unit can power inline fan for roof mount
- Solar PV can attach to 1500S, 1500GS
- Serviceability
  - can be disconnected and serviced separately







# SolarSheat Mount



- Easy to install
- Easy to look at
- Locate anchor holes wherever you want
- Ships with all collectors
- Powder Coated Aluminum for long life



# SolarSheat 2 Stage Zone Control System



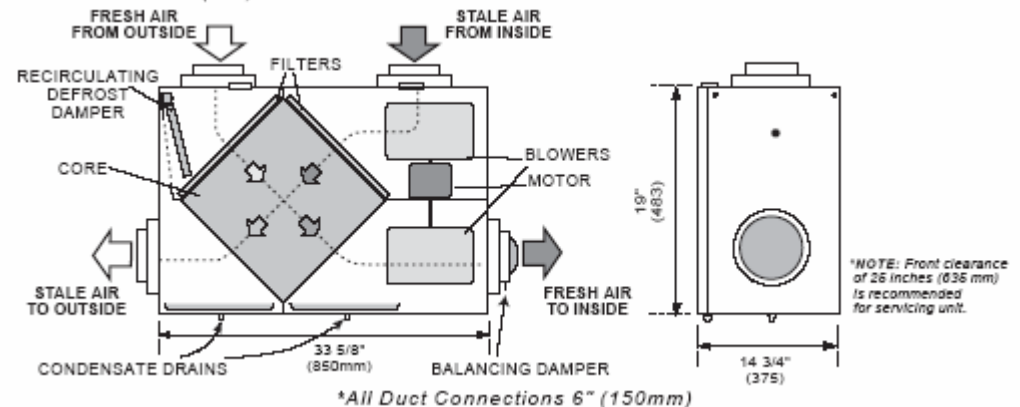
- Used to connect multiple SolarSheats to 2 zones where one zone is more important than another.
- Gives one zone heating priority over another.
- Example:
  - Living room: Primary
  - Insulated, sealed crawl space: Secondary
- Used when collectors are oversized for the primary zone
- Both zones have their own digital thermostat
- SolarSheat 2 Stage Zone Control System includes:
  - 3 – way Electronic Damper
  - Extra Digital Thermostat



# Solar HRV



- Solar preheating for HRV
- Whole house preheating and ventilation
- Allows fresh warm air into residence
- Increases efficiency of HRV
- Automatic damper manages temperature
- Switch for Summer/Winter operation
- High quality name brand HRV modified for solar heating





# Solar HRV



- Solar preheated intake air + heat recovery = More savings in winter
- Aluminum HRV Core –
  - 81% efficient @ zero deg C
- With 2 SolarSheats
  - >100% efficiency possible
- Includes 2 configurations
  - 2 1500S
  - or
  - (2) 1500GS-FA
  - Intelligent 3 Way damper
  - Manual dampers
  - \*ECM Motor Option





# Applications



- Space Heating
  - 1500G (self-powered),
  - SolarSheat Pak 1500G,1500GS
  - 1 SolarSheat per room
  - Supplemental
  - 500 - 1000 sq ft/panel (1500G or 1500GS)
  - Retrofit
- Multiple Room Heating or Partial House
  - 1502GS,1503GS, 1504GS Systems
  - Partial House, or multiple rooms
  - Homes that don't have duct work (radiant heat) can use this configuration
- Ventilation
  - Solar HRV, 1500S or 1500G – FA, 1500GS – FA
  - Solar HRV efficiency Heat Recover Efficiency over 100%
  - Self powered 1500 can ventilate a room by itself
  - SolarSheat Pak(1500 + 1500S) – higher temp than just one 1500
- Whole House Heating
  - SolarSheat Furnace Retrofit Pak
  - 4 -10 SolarSheat 1500GS collectors with fan, controls, dampers



# Technologies



- Two stage zone control
- Solar ventilation/make up air
- Furnace integration/retrofit pak
- Roof and wall mounting systems
- Off grid solar supplemental heating
- AC Fan Centre and controls



# Support & Testing



- 1 888-556-5504 YSH Support
- [Technical Manuals and Installation](#)
- Each collector is QC at factory
- Planning on having CSA certification for collectors in Canada (new standard)
- SRCC Testing Underway – September 06