



**SOUTH AFRICA/AFRICA**  
**Pretoria / University Pretoria**  
**Onderstepoort Residences**  
 realized 2012

Holms and Friends



**SOLAR WATER HEATING SYSTEM**

**Description::**

The 336 collectors for this system were installed on top of the campus carport and building roofs. The collectors are 672 sqm of collector surface. On the roof, 3 collectors are always connected in parallel. Two parallel strings are then connected in series, resulting in a thermal length of 12 m. One central feeder tube transports the warm water to a building especially constructed for the SWH-system, situated right next to the carport. This houses the heart of the system: Two 20 000 liters water storage tanks, an expansion tank, membrane expansion vessels (totaling 5400 liters) and 7 external heat exchangers.





The project included energy efficiency & passive design on the buildings with the following objectives:  
 Reduce the water (especially hot water) consumption,  
 Reduce the energy losses on the complete system,  
 Create better central control (i.e. remove the then uncontrolled horizontal electrical geysers distributed all over the buildings),  
 Enlarge well insulated storage capacity to avoid peak demand electricity,  
 Reduce running cost and deliver cheaper accommodation,  
 Reduce the carbon footprint by using renewable energy,  
 Create awareness amongst users (students), maintenance teams & management and

The net effect was the reduction of design hot water consumption from 162 liter per person per day to 72,7 liter (a 55% reduction).

**Geographical position:**  
 Lines of latitude: -25.654161 S  
 Lines of longitude: 28.177682 E



**KEY DATA**

<p><b>COLLECTOR AREA</b></p> <p>672 m<sup>2</sup></p> 	<p><b>SOLAR PEAK PERFORMANCE</b></p> <p>470,4 kW<sub>th</sub></p> 
<p><b>ENERGY SAVINGS</b></p> <p>P/a</p> <p>838 880 kWh</p> 	<p><b>STORAGE CAPACITY</b></p> <p>40 000 liters</p> 



For more information go to:  
[www.holmsandfriends.co.za](http://www.holmsandfriends.co.za)