

## CASE STUDY: THE RICHMOND PLUNGE

### Overview



Located in the San Francisco Bay Area, the Richmond Municipal Natatorium is Northern California's oldest and largest indoor swimming pool. The natatorium, otherwise known as the

Richmond Plunge, was built in 1925 as a public swimming pool for its local residents. However, due to maintenance costs and seismic retrofits, the Plunge was forced to close its doors in 2001.

Through private and public partnerships involving city contributions, grants, fund raising drives and private donations, over \$7.5 million was raised to rehabilitate the dilapidated historic building. Todd Jersey Architects, a Berkeley based firm spearheaded the campaign to revive the Plunge and modernize it with environmentally friendly upgrades.



Photo courtesy Sun Light & Power

*"It's almost like a church., "It's a healthy public space, where everything that happens is beneficial. People leave relaxed, happy and rejuvenated. I'm thrilled we're bringing it back."*  
– Todd Jersey, Todd Jersey Architects

In order to accomplish this, Bay Area based Sun Light & Power was brought on board to design and install a solar water heating system that could heat the massive 324,000 gallon pool. To meet the heating load, a solar thermal system consisting of 80 Heliodyne GOBI collectors working in conjunction with 2 flat plate commercial grade heat exchangers would be installed.

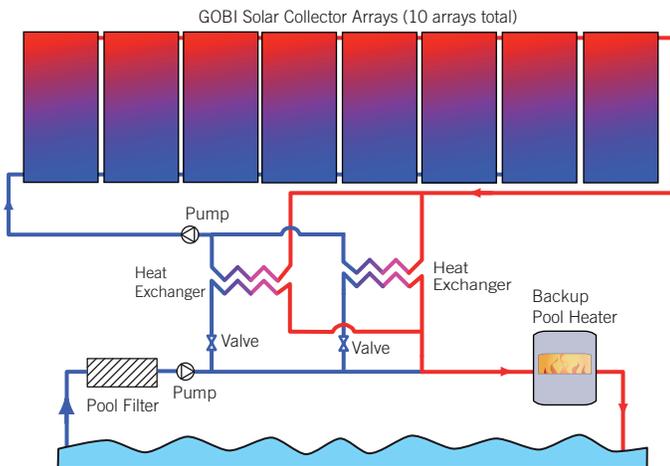
The renovation project was completed and the Plunge was reopened to the public in August of 2010. The solar hot water system was one of several green upgrades done to the facility. Other upgrades include a 30kw solar PV system (also installed by Sun Light & Power) to help generate electricity for the building and an ultraviolet disinfectant system which is utilized to provide chlorine free water for the swimmers. All of these green building upgrades help make the Richmond Plunge one of the most environmentally friendly swimming

## System Description

80 GOBI 410 solar collectors are mounted flush to the eastern side roof of the natatorium. There are a total of 10 arrays which heat the solar fluid housed inside them. When this solar fluid is heated, it is pumped down to the building's mechanical room where 2 heat exchangers transfer the heat to the water in the pool. This process will continue through out the day as long as there is solar radiation to be harvested.

It's estimated that the solar hot water system will save over 10,500 therms annually in heating costs and offset nearly 72 tons of carbon dioxide each year.

Sun Light & Power will be able to remotely monitor the system via the web using a Heliodyne Delta-T Pro controller. The controller stores the energy production data which can then be shared with the city and the public.



## System Components

- 80 GOBI 410 Blue Sputtered flat plate collectors
- Custom built flush mount collector hardware
- 2 Gasketed, flat-plate heat exchangers
- Grundfos 80-160/2 three-phase circulator pump
- Delta T Pro controller with web based monitoring system
- Propylene glycol solar fluid

## KEY NUMBERS AT A GLANCE

System size	80 GOBI 410 collectors
Total collector surface area	3,200 ft <sup>2</sup>
Solar storage capacity	324,000 gallons
Estimated average energy produced	10,591 therms
Annual CO <sub>2</sub> offset	14,400 lbs (72 tons)



August 2010 ribbon cutting ceremony

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