

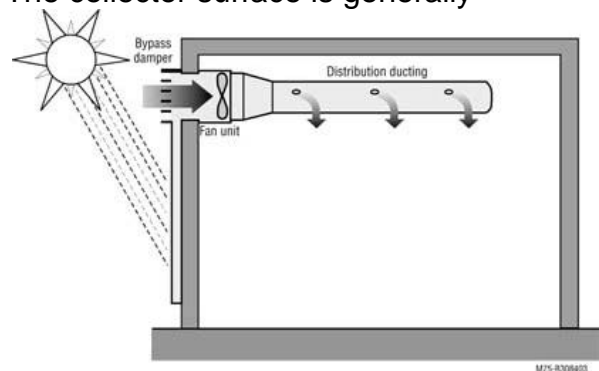
TRANSPIRED SOLAR COLLECTORS

A simple, efficient and cost effective solar technology.

The transpired solar collector is an air preheating system. Sunlight strikes and warms a south facing vertical wall. Heat is transferred to ventilation air as it passes through tiny holes or slits in the wall. The result is a model of simplicity and efficiency. These systems conservatively collect 60-70 percent of the incident solar energy.

During the heating season, the system collects both solar energy and recaptures wall heat loss. During the cooling season, collector bypass vents can be opened allowing the wall to dump heat, thus reducing cooling loads.

This technology is ideally suited for buildings that have a south-facing wall near with access to the building ventilation system. The collector surface is generally corrugated steel or aluminum and can be any dark color.



Application Prerequisites

- Suitable south-facing wall
- Ventilation load
- The absence of a heat recovery system

Payback of system in Central Oregon

Building Occupancy:	Daytime, 7 days/week
Collector Area:	30 ft tall by 60 ft wide
Energy Savings:	$150 \text{ kBtu/ft}^2 \times 1,800 \text{ ft}^2 = 270 \text{ MMBtu}$
Cost Savings	\$2,880 per year (75% heating system, \$0.80 per therm)

Collector Cost:	$\$11/\text{ft}^2 \times 1,800 \text{ ft}^2 = \$19,800$
State Tax Credit	33% of \$19,800 = \$6,534
Federal Tax Credit	10% of \$19,800 = \$1,980 (IRS Form 3486)
Accelerated Deprec.	Varies ~10% ~ \$2,000 (IRS Section 168)
Net Cost	< \$10,000
Simple Payback:	< 4 years

For more information:

Oregon Office of Energy www.energy.state.or.us or call (800) 221-8035

US DOE <http://www.eren.doe.gov/femp/prodtech/tranfta1.html>
<http://www.pnl.gov/techguide/36.htm>

Conserval Inc. <http://www.solarwall.com> (system manufacturer)



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