

**1. PRODUCT NAME**

**InSpire® & InSpire® HP  
SOLAR COLLECTOR  
BWS390, BWS392**

**2. MANUFACTURER**

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**3. PRODUCT DESCRIPTION**

**Basic Uses:**

The InSpire solar collector is a metal wall system used to collect and distribute solar-heated outside air for ventilation or processes such as drying. The concept is simple:

- Perforated collector panels are installed several inches from an appropriate wall, creating an air cavity.
- Sunlight heats the solar collector surface.
- Fans create a negative pressure and draw warmed air through the perforations into the plenum.
- Heated air is distributed into the building through the existing HVAC system or separate, perforated ducts. The wall system should be considered whenever outside air is being heated. Energy savings depend on several project-specific factors and can be predicted by computer modeling. Factors that influence system effectiveness include the ventilation requirement of building, length of heating season, utility rates for heating and the available wall area facing south, southeast or southwest.
- There are six ways to save energy:
- Solar energy is captured by the collector.
- When the fan is running, building heat loss through the main wall is recaptured in the plenum.
- The air space creates an insulating effect on the building inner wall.
- In industrial buildings, solar heated air distributed through perforated duct destratifies and utilizes hot air trapped at the ceiling.
- With lower ceiling temperatures in industrial buildings, less energy is lost through ceiling exhaust systems.
- Solar collector panels shield the inner wall from direct sunlight during the summer season.
- Typically, each square foot of solar collector contributes 1.0 to 2.0 therms of energy per year. Annual heating costs are usually reduced by \$1.50 to \$5.50 per square foot of collector, depending

- on the type of fuel replaced.
- Ideal applications include:
- Industrial buildings
- Hospitals and other institutional buildings
- Schools and gymnasiums
- Arenas
- Laboratories
- Maintenance facilities
- Government and military buildings
- Warehouses
- Theaters and conference centers
- Restaurants
- Other commercial buildings
- Major system components may include:
- Wall panels
- Standoffs and canopy components
- Fans, controls, dampers and ducting
- Trim and closures

**Composition and Materials:**

InSpire cladding is available in .028" (Select Finish only), & .032" aluminum.

**Sizes and Profiles:**

InSpire cladding incorporates 1 ¼" high ribs. Aluminum panels are 41 ¼" wide with 39 ¾" coverage. The panels can be specified in two orientations as illustrated. Panel lengths are cut to customer specifications up to 40' maximum. Profiles contain proprietary lanced perforations for air intake. The airflow rate through each square foot of collector panel is tailored to meet specific project objectives:

- 1 to 3 cfm/ sq ft for high temperature gain
- 3 to 6 cfm/ sq ft for standard operation
- 6 to 10 cfm/ sq ft for high efficiency

**Solar Efficient Colors/Solar absorptivity**

Black .95	Forest Green .72
Select Blue .94* (InSpire HP)	Rocky Grey .72
Select Black .94* (InSpire HP)	Charcoal Grey .70
Classic Bronze .88	Teal .70
Dark Bronze Anodized .85	Hemlock Green .70
Redwood .78	Slate Blue .69
Hartford Green .75	Medium Bronze .67
Antique Patina .74	Siam Blue .66
Chocolate Brown .74	Slate Grey .65
Regal Blue .73	Brite Red .63
Boysenberry .72	Patina Green .54

\*Denotes absorptivity rate is .94 ±2.

**Limitation:**

InSpire solar collector panels heat fresh air during the day time and are not designed to replace conventional space heating system. InSpire must be installed over non-combustible wall material. Consult fire codes for use in multi-story applications.

**4. TECHNICAL DATA**

**Applicable Standards**

Solar Collector System

The technology for perforated solar air heating

systems was developed through extensive testing at The National Renewable Energy Laboratory of the U.S. Department of Energy, and in Canada at the CANMET Energy Diversification Research Laboratory, an agency of Natural Resources Canada. Detailed project performance monitoring has been conducted under the auspices of CANMET to validate computer feasibility software.

**Collector Cladding 70% PVDF based finishes tested by paint supplier for:**

- Dry Film Thickness: ASTM D 1005, ASTM D 1400, ASTM D 4138 or ASTM D 5796
- Specular Gloss: ASTM D 523
- Pencil Hardness: ASTM D 3363
- T-Bend Flexibility: ASTM D 4145
- Mandrel Bend Flexibility: ASTM D 522
- Impact Resistance: ASTM D 2794
- Adhesion: ASTM D 3359
- Water Immersion Resistance: ASTM D870
- Abrasion Resistance: ASTM D 968
- Acid Resistance: ASTM D 1308
- Acid Rain Resistance (Kesternich): ASTM G 87 or DIN 50018
- Salt Spray: ASTM B 117
- Cyclic Salt Spray: ASTM D 5894 and ASTM D 5487
- Humidity Resistance: ASTM D 2247
- Accelerated Weathering: ASTM D 822 and ASTM G 23, ASTM G 151 or ASTM G 153
- Color Retention, Florida Exposure: ASTM D 2244
- Chalking Resistance: ASTM D 4214
- Cleveland Condensing Cabinet: ASTM D 4585
- Cure test, MEK resistance: ASTM D 5402
- Alkali resistance, sodium hydroxide: ASTM D 1308 Procedure 7.2
- Flame Spread Rating: ASTM E 84
- Organic coatings meet requirements of AAMA 2605 when applied to aluminum

**Panel testing/ratings:**

- Aluminum: ASTM B 209
- Coil Coating: ASTM A 755
- Load Tables available upon request.

**Low-emissivity surface, called InSpire HP**

- SRCC (Solar Rating and Certification Corporation)
- Solar Keymark Certification
- Select Finish - Select Blue, Select Black

**Environmental Considerations**

The InSpire solar collector is a renewable energy system that benefits the environment by:

- Supplying 1 to 2 therms of energy per square foot of collector per year
- Collecting solar energy at a typical efficiency of over 60%
- Reducing annual CO2 production by 40 to 60 pounds per square foot of collector
- Utilizing metal components that contain recycled material and are recyclable at the end of their life cycle.
- Projects with InSpire technology may

qualify for LEED® credits in renewable energy, optimizing energy performance and other areas.

## 5. INSTALLATION

InSpire cladding is generally installed 4 to 8 inches from the main wall and can be installed over or around existing wall openings. Installation details and project specific installation drawings are available. Contact ATAS technical service advisors for more information. If required, additional air distribution equipment is installed using standard practices.

## 6. AVAILABILITY & COST

### Availability:

The InSpire system is available through product distributors. A complete line of related components and trim accessories is available to complete the wall system. In addition, a complete line of rainware and perimeter roof edge trims can be supplied by ATAS to complement the wall system. Flat sheet and/or coil stock is available in matching color for fabrication of related components by the installing contractor.

### Cost:

Cladding cost is comparable to a brick wall. Contact product distributors for current pricing on system components. Many state and federal incentives are available. The typical payback is 3 to 8 years, sometimes 1 year or less.

## 7. WARRANTY

Products coated with a fluoropolymer, 70% PVDF finish carry a limited warranty against chalking and fading.

## 8. MAINTENANCE

InSpire collector panels are virtually maintenance free. Surface residue may be easily removed by conventional cleaning methods. For painted products, minor scratches should be touched up with a matching paint, available from the manufacturer. The balance of system components contain no liquids or moving parts, except for intake fans and dampers, which require normal maintenance.

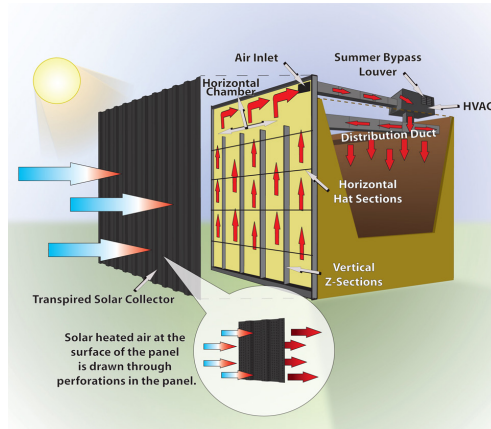
## 9. TECHNICAL SERVICES

Complete technical information and literature are available from ATAS International. System design specifications depend on individual project requirements, such as the amount of ventilation air required and the available wall area. The ATAS technical staff may assist by performing feasibility studies to determine potential energy savings and define air collection and distribution requirements for specific projects. ATAS will assist with design ideas and shop drawings.

## 10. FILING SYSTEMS

- [www.atas.com/inspire](http://www.atas.com/inspire)
- Additional product information is available from the manufacturer upon request.

### Stand Alone Destratification



### Integrated with HVAC

