



1. PRODUCT NAME

InSpire™
SOLAR COLLECTOR
BWS390, BWS392

2. MANUFACTURER

ATAS INTERNATIONAL, INC.
Website: www.atas.com
Email: info@atas.com
Corporate Headquarters:
Allentown, PA 18106
Phone: (800) 468-1441
Western Facility:
Mesa, AZ 85204
Phone: (480) 558-7210

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 .032" aluminum and .027" pre-weathered zinc.

Sizes and Profiles:

InSpire cladding incorporates 1 1/4" high ribs. Aluminum panels are 41 1/4" wide with 39 3/8" coverage, and zinc panels are 33 3/8" wide with 31 1/2" 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	Redwood .71
Classic Bronze .91	Teal .70
Dark Bronze Anodized .85	Hemlock Green .70
Forest Green .75	Slate Blue .69
Hartford Green .75	Medium Bronze .68
Regal Blue .75	Siam Blue .66
Antique Patina .74	Brite Red .63
Chocolate Brown .73	Slate Grey .61
Charcoal Grey .72	Patina Green .57
Boysenberry .72	
Rocky Grey .72	

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
- Zinc: EN988
- Coil Coating: ASTM A 755
- Load Tables available upon request.

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 manuals 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
- Additional product information is available from the manufacturer upon request.

Stand Alone Destratification

FACTORY COLLECTOR 6, BWS392

ATAS INTERNATIONAL, INC.
www.atas.com
1800.453.3333
103.395.8443
395.3542
85204
103.556.2710
508.7277

FACTORY DESCRIPTION
The solar collector is a metal in metal enclosure for ventilation or such as drying, the concept

With HVAC

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 frame wall. In industrial buildings, solar heated air distributed through perforated ducts 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 inhibit the inner wall from direct sunlight during the summer season. Typically, each square foot of solar collector contributes 1.0 to 2.0 Btus 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 greenhouses, Awnes

Integrated with HVAC

severe recesses were an appropriate one, creating an air cavity. Sunlight heats the solar collector surface. Fans create a negative pressure and draw warm 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 the building, length of heating season, utility rates for heating and the available wall area for 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 frame wall.
- In industrial buildings, solar heated air distributed through perforated ducts 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 inhibit the inner wall from direct sunlight during the summer season.

Typically, each square foot of solar collector contributes 1.0 to 2.0 Btus 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 greenhouses, Awnes

Inspire cladding incorporates 1/4" high ribs. Aluminum panels are 41 1/4" wide with 39 3/8" coverages and the panels are 31 3/8" wide with 31 1/8" 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 beveled 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 Collector Colors/Solar absorptivity

Black 05	White Grey 25
Black 06	White 26
Black 07	White 27
Black 08	White 28
Black 09	White 29
Black 10	White 30
Black 11	White 31
Black 12	White 32
Black 13	White 33
Black 14	White 34
Black 15	White 35
Black 16	White 36
Black 17	White 37
Black 18	White 38
Black 19	White 39
Black 20	White 40
Black 21	White 41
Black 22	White 42
Black 23	White 43
Black 24	White 44
Black 25	White 45
Black 26	White 46
Black 27	White 47
Black 28	White 48
Black 29	White 49
Black 30	White 50
Black 31	White 51
Black 32	White 52
Black 33	White 53
Black 34	White 54
Black 35	White 55
Black 36	White 56
Black 37	White 57
Black 38	White 58
Black 39	White 59
Black 40	White 60
Black 41	White 61
Black 42	White 62
Black 43	White 63
Black 44	White 64
Black 45	White 65
Black 46	White 66
Black 47	White 67
Black 48	White 68
Black 49	White 69
Black 50	White 70

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

4. TECHNICAL DATA
Applications Standards
Solar Collector Systems
The technology for permanent solar air

