



## AIRA HCVR units heat, cool and ventilate; the envy of regional Victoria, the new Bendigo Stadium

**Project Address:** 134 Marong Road  
West Bendigo, Victoria

**Consultant:** Waterman

**Senior Mechanical Engineer:** Ray Dempsey

**Mechanical Engineer:** David Mathers

**The \$16.5 million Bendigo Stadium upgrade brings regional Victoria the very best in sporting facilities. Featuring three new indoor basketball courts, spectator seating, kiosk/bar, retail space, crèche, administration areas, meeting rooms, change facilities, an internal café and AIRA HCVR units.**

### Project requirements

The Bendigo Stadium expansion project was a large project that included investment from the Victorian State Government, Bendigo Stadium Limited and the City of Greater Bendigo. The venue is unique to regional Victoria with plans to host international events such as basketball, volleyball, trampolining and a capacity of 4,000 people gives the flexibility to convert into a concert venue.

The project requirements included the supply of heating, cooling and ventilation to the stadium during both regular and event mode operation. The main challenge was to design a heating and cooling system that was not only suited to the stadium but also within the project budget.

Due to the project's high capital costs, a refrigerated heating and cooling system was not a suitable option.

**“Due to their high capital costs refrigerant based heating and cooling systems could not be considered.”** – David Mathers, Waterman

### Solution

Evaporative cooling was determined to be the perfect solution to cool and ventilate the stadium. In regards to both cost and energy-efficiency, in combination with gas heating. This heating, cooling and ventilation system is available with the AIRA HCV and HCVR units.

[aira.com.au](http://aira.com.au)

## Installation

The stadium is served by four HCVR-60 units, the largest in the HCVR range and located at each corner of the stadium. Supply air to the stadium is via concealed rigid ductwork risers and exposed fabric ductwork installed at high level over the seating areas. The fabric ductwork is provided with jet nozzles specifically designed to supply air to the occupied stadium and seating areas. Computer software was used to model the stadium heating, cooling and supply airflow requirements in lieu of the traditional air change method used for evaporative cooling systems.

The systems were designed with return air connections for heating mode, a standard feature with the AIRA HCVR units, with modulating outside air and return air dampers. The dampers control the amount of outside air introduced to the space during heating mode based on the carbon dioxide levels within the stadium.

The system's ability to reduce outside air supply when it's not required reduces the system energy consumption and CO<sub>2</sub> emissions and provides life cycle cost savings to the stadium.

**“In addition to the individual unit benefits, our office has been involved with the AIRA HCV and AL range on similar projects with successful outcomes.”** – David Mathers, Waterman

## Results

The AIRA HCVR HVAC design that was installed met all project requirements including low capital costs, the supply of cooling and ventilation, the supply of heating for the cold winter periods, the provision for outside air ventilation for a stadium capacity of 4,000 people during event mode, low running costs and improved energy-efficiency.

The AIRA HCV and HCVR units make the HVAC system design flexible as they provide cooling and heating within a single unit. The high supply air range of up to 16,000 L/s was also beneficial to the project, allowing fewer units to be installed in the stadium.

## The Advantages

- Full fresh air (HCV) or optional return air heating (HCVR)
- Modulating atmospheric gas burner with dual sensing (room and duct air outlet) for optimum temperature control
- Heavy duty, marine grade aluminium cabinet
- Mini-Cell<sup>^</sup> Chillcell<sup>®</sup> pad technology
- Motorised outlet damper for low speed cooling and heating
- External water connection, solenoid, float and transformer pre-fitted
- Long life stainless steel heat exchanger

Model	10	22	35	45	60
<b>Heating Capacities</b>					
Gas input MJ/hr	106	232	369	422	633
Output kW	23.4	51.6	82	93.8	140.6
Min. air qty. L/s	650	1410	2450	2810	3800
<b>Cooling performance (L/s against external resistance)</b>					
125pa	2130	4220	7180	10600	16000
200 Pa	1950	3840	6730	9800	15200
<b>Blow (fan) Motor</b>					
Power (kW)	1.5	3.0	5.5	7.5	15.0
Phase	1	3	3	3	3
FL amps	8.5	6.9	11.0	14.0	28.0

Only a small range of HCV standard models are shown here. For full range details or HCVR specifications please contact Seeley International.



For more information, please call 1300 991 245 or email [commercial@seeleyinternational.com](mailto:commercial@seeleyinternational.com)

Seeley International Pty Ltd ABN 23 054 687 035  
112 O'Sullivan Beach Road, Lonsdale, South Australia 5160  
Phone (08) 8328 3850 Fax (08) 8328 3951



**We provide full technical support to ensure optimal design for each application.**

