

Indoor Air Quality



Ford Australia - a driving force in air quality

The Lara Facility at Ford Australia's Proving Ground is the largest of the company's three vehicle testing centres. **CCN** investigates a facility where the air must be constantly laundered for the sake of workers' health.



Air quality, whether it be indoor or environmental, may be compromised by microbial contaminants, chemicals, allergens, or any mass or energy stressor that can affect peoples' health. One of the most acutely toxic air contaminants is carbon monoxide - a colourless, odourless gas that is a by-product of incomplete combustion of fossil fuels. A common source of carbon monoxide comes from vehicular exhaust. In the worst case, depriving the brain of oxygen, high levels of carbon monoxide can lead to nausea, unconsciousness and ultimately - death. The dilution of pollutants through ventilation with outdoor air is effective to the extent that the indoor environment can be free of harmful pollutants.

Based at Ford Australia's Proving Ground in Victoria, the Lara facility is truly massive, sprawling over an area of 730 hectares. It comes complete with its own series of road testing tracks and other complex test facilities that enable "on road" climatic conditions to be

simulated inside test cells with such factors as temperature, humidity, wind speed and sun load accurately controlled to simulate real road driving.

The emission test laboratory located on this site contains a rebuilt test cell measuring 7m by 12m where petrol, diesel and LPG vehicles are tested for emission compliance to Australian design rules. Highly complex measurement procedures are used to evaluate exhaust gases and diesel particulates as well as interior air quality.

The cell should maintain a set temperature of 22°C (+/- 2°C) without anomalous disturbances. The original emission test cell was totally stripped and rebuilt during the upgrade with the existing HVAC Chiller /LPG heater system no longer able to condition the area with the accuracy required and proved to be expensive to operate and maintain.

Air Systems Engineering Pty Ltd specified a more efficient HVAC system with heat recovery to service

this laboratory test cell. An Air Change, 125kW Roof Top Package Unit was installed in the upgrade to provide up to 100 per cent outdoor air and has proven to be around 40 per cent more energy efficient than the previous water-cooled HVAC system. The introduction of 100 per cent outdoor air into this enclosed emission cell allows for more accurate measurements to emission standards, as air is not recirculated.

Emissions testing ultimately leads to improved environmental and interior air quality through reduced vehicular emissions. The higher accuracy required for emission testing to meet these standards is made possible through the provision of clean supply air (free of toxins) to the cell prior to testing with the Air Change Roof Top Package unit.



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