

# AMBIRAD

HEATING AND VENTILATION SOLUTIONS

## Testing & Commissioning Facility Bombardier Transportation, Derby Case Study

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 **NORTEK**<sup>™</sup>  
GLOBAL HVAC



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Case Study

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Says CPMG Project Director Paul Bodill



Paul Bodill  
CPMG  
Project Director



In early 2014 Transport for London (TfL) confirmed they had signed a contract with Bombardier Transportation for the delivery of rolling stock for Crossrail; covering supply, delivery and maintenance of 65 new trains.

The new trains will be manufactured & assembled at Bombardier Transportation's plant in Derby with the first due to be delivered in May 2017, thus supporting 760 UK manufacturing jobs and 80 apprenticeships with an estimated 74% of contract spend remaining in the UK economy.

Nottingham-based architect firm CPMG has produced the design of the £12.5m Bombardier Transportation facility; the design of the 10,400m<sup>2</sup> building features a 250m-long testing hangar for up to 4 complete trains and office space for up to 90 staff.



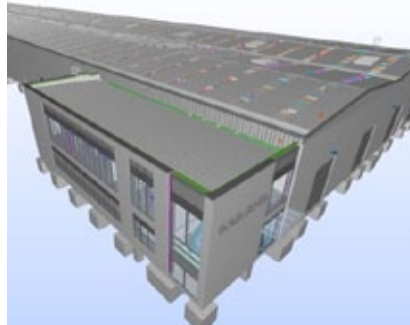
CPMG project director Paul Bodill said **"The building allows for newly built train carriages to be fully assessed in a safe environment before they commence commissioning and entry into service."**

**"Its thermal enclosure means it will be energy-efficient, the roof-light panels will provide plenty of natural daylight and the building itself will be very low maintenance."**

Keeping energy efficiency in mind, with large, constantly open doors, train maintenance sheds, factories and other rail facilities are notoriously difficult to heat and even more difficult to keep warm. With the added heating of the platforms and a requirement for low maintenance energy efficiency the Nor-Ray-Vac continuous gas fired radiant tube heating system was ideal.

The installation of the Nor-Ray-Vac system will avoid the significant wasted energy associated with heating vast internal spaces suffering from fluctuating temperatures – perfect for contemporary rail sheds. The system design layout at this proposed

building provides heat along each platform between the trains, which has an estimated fuel saving of 40% over equivalent warm air systems.



AmbiRad worked exclusively with Emeg Electrical contractors who were selected by the main contractor Balfour Beatty, on the radiant design. A total of 40 x 46LR burners suspended at 7.8m above the platforms, with 6 flued discharge points being chosen and arranged in 5 branches across the width of the train facility, providing 10 operational temperature zones.

The design of the burner/system along each walkway is arranged to allow optimum zoning capabilities, both for client operational flexibility to minimise running costs and to ensure the capability of being able to rapidly respond to changed conditions. Nor-Ray-Vac radiant tubes are designed to focus all their heat exactly where it is needed - at the lowest two metres of the building. Personnel feel comfortably warm at all times, while the intense chill is taken off the trains preventing the build-up of potentially hazardous condensation.

### Installation Summary

- > Bombardier Transportation in Derby invested in a Nor-Ray-Vac continuous Radiant Tube heating system for their train maintenance facility.
- > Flexible heating.
- > Heating along each platform has an estimated fuel saving of 40% over equivalent warm air systems.
- > Zoning capabilities produces considerable fuel economies and cost reductions

### Technical Summary

- |               |   |
|---------------|---|
| > Product     | Nor-Ray-Vac system installed suspended at 7.8m above the platforms. |
| > Heaters     | 40 x 46LR Nor-Ray-Vac burners in 10 operational temperature zones.  |
| > Controllers | AmbiRad SmartCom <sup>3</sup>                                       |
| > Dimensions  | 10,400m <sup>2</sup> building featuring a 250m-long testing hangar. |



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