

# WANGARATTA HIGH SCHOOL

## The project

Located in north-eastern Victoria, Wangaratta High School is one of the Victorian Education Department's Regeneration projects.

The project comprises 3 stages of construction of new State secondary school replacing existing school buildings.



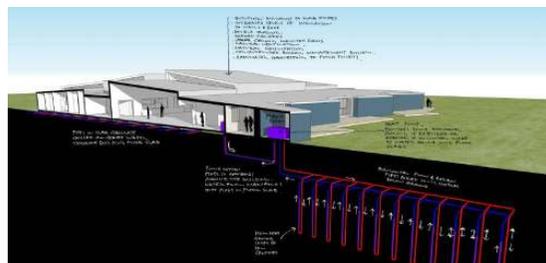
## Innovative district GeoExchange Energy Infrastructure

Unique to the Wangaratta High School, Meinhardt Building Science Group (MBSG) designed an innovative GeoExchange campus wide, district energy infrastructure setup.

24, 100 meter deep ground loops provide efficient cooling energy during summer and heating during winter.

The district GeoExchange system is designed to serve the 3 new stages of the school redevelopment.

*MBSG engineers designed a campus wide system to utilise renewable GeoExchange energy*



## A thermally comfortable building is an energy efficient building

Comfortable buildings are by definition energy efficient.

The use of a radiant floor for cooling and heating, powered by the district GeoExchange system provides high levels of thermal comfort for the teachers and students while minimising the energy use needed to do so.

The radiant floor is supplemented by natural ventilation which provides fresh air and free cooling when conditions suit.

*Radiant floors combined with natural ventilation provide high levels of thermal comfort*

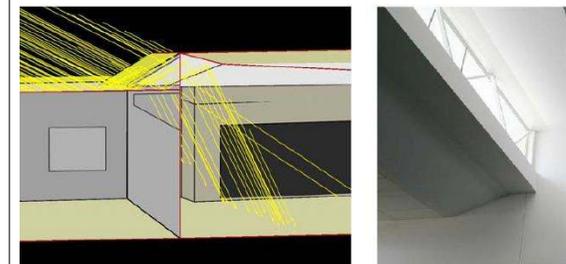


## The importance of passive building design

Building systems alone can not make a building thermally comfortable and energy efficient - the building must be designed in a way from the start to achieve this.

Passive building design refers to the physical aspects of the building (such as shape and form, fabric and glazing) which effect these factors. Extensive computer modelling was used to provide design advice and validation on the effectiveness of the passive building design.

*Computer ray tracing used to assist in the natural lighting design of the building*



**Location**  
Wangaratta, Australia

**Building type:**  
New education building

**NLA**  
2,000 m<sup>2</sup> (stage 1)  
7,900 m<sup>2</sup> (total development)

- Features**
- District GeoExchange renewable energy infrastructure
  - Hydronic radiant floor for heating and cooling
  - Green Star Education Pilot project
  - Awarded 4 Star Green Star

