

BATTLE McCARTHY ©

Consulting Engineers & Landscape Architects



PROJECT:

Bartholomew Central Middle School, Indiana, USA

CLIENT:

Bartholomew School Board

ARCHITECTS:

Perkins & Will

BM SERVICES:

Schematic Building Services (MEP) Engineering,
Sustainable Design & Landscape Architecture

CONTRACT DATES:

1998 - 2001

VALUE:

\$40million (approx)

DESIGN BRIEF

To create a demonstration sustainable school design for the new Middle School for Bartholomew School Board, Columbus, Indiana. The design team wanted to deliver a school design that not only met best sustainable practice, but also provided a didactic teaching tool for students and teachers to interact with alike, either on an informal (by assimilation) or formal (classes) basis.

DESIGN INITIATIVES/ACTIONS UNDERTAKEN

The design combines a series of sustainable technologies and systems and was informed by the following key objectives:

- The building should be day lit.
- The building must be climate responsive.
- It should be ultra low energy.
- MEP systems should be easy to install and run, have low running costs and be flexible to future needs and demands.
- Renewable energy systems should be integrated wherever possible.
- The landscape should be natural, a learning tool, and environmentally responsive.

Battle McCarthy worked closely with the architectural team and CSO Engineers to develop an integrated design that matched building form, massing, orientation and layout to climate.

Detailed climate analysis was carried out which indicated that cold winters and hot, humid summers characterise the climate. Winds are fairly constant and prevailing from the south west in summer and the north west in winter. There is plentiful daylight all year round and strong sun in summer.

In response, a main street running north-south was designed to pick -up eastern sun and provide passive solar heating in winter. This area employs displacement ventilation for summer cooling and winter heating, and natural ventilation during the midseason period when large rotating wind towers are used to capture the power of the prevailing winds. The west side is protected from excess solar gain but a bank of classrooms and the east side has external shading set to allow winter solar heating but to deflect summer solar gain.

London UK Office
T: +44 (0)20 7440 8282
F: +44 (0)20 7440 8292
E: admin@battlemccarthy.com
www.battlemccarthy.com