Kiefer
Seit 1877
Luft- und Klimatechnik
Neue Wege mit Luft

Concrete Core Cooling with Air - CONCRETCOOL

Sebastian-Lotzer-Middle School, Memmingen

Photo © Klaus Mauz

Front view of the Sebastian-Lotzer-Middle School in Memmingen. The CONCRETCOOL Concrete Core Cooling Ventilation System from Kiefer combines component tempering and ventilation.

The planning concept for the ventilation and air conditioning equipment was developed by the planning office Güttinger Kempten. The CONCRETCOOL ventilation system from Kiefer, which combines the positive factors of a component temperature control and a ventilation system, played a central part for the implementation of the energy concept.

Innovative Ventilation Concept

The CONCRETCOOL ventilation system provides fresh air and cooling to all 16 classrooms, three multipurpose rooms, the Chemistry, Biology, Physics and IT labs and the Craft, Textiles and Art studios, as well as the staff rooms, Board of Governors room and secretarial office.

The CONCRETCOOL concrete core cooling ventilation system is particularly suitable for schools and educational facilities where plenty of fresh air is needed for a lot of people in a relatively small space. Continuous replacement of the ambient air prevents the CO_2 level in the room from rising. This is essential for concentration and therefore successful learning outcomes. A comfortable ambient temperature is also ensured through the combination of supply air and an activated ceiling for cooling. The CONCRETCOOL system maintains a high level of efficiency, whilst satisfying all of the main requirements for creating an atmosphere that is conducive to learning.

Visually, this project called for a smooth concrete ceiling throughout. This meant replacing the discharge elements. The outlet boxes were cast into the ceiling, leaving a gap to the lower edge, whilst the discharge elements were recessed, above the lower edge of the ceiling, and covered with a perforated metal plate mounted flush with the ceiling.

Kiefer
Seit 1877
Luft- und Klimatechnik
Neue Wege mit Luft

Concrete Core Cooling with Air - CONCRETCOOL

Sebastian-Lotzer-Middle School, Memmingen

Installation of Concrete Core Cooling CONCRETCOOL.

Photo © Klaus Mauz

Classroom with discharge elements.

Function CONCRETCOOL

In contrast to conventional systems, in which supply air is fed directly into the working areas, the air first flows through aluminium cooling tubes cast into the ceilings. Thereby the supply air cools the ceiling. At the same time the gain of heat is used to warm up the supply air.

System Advantages

- Optimal thermal comfort
- Additional ceiling cooling with water is not required
- Free cooling provides energy saving of up to 50 %
- Full flexibility due to modular positioning of cooling tubes
- Cooling with outdoor air without use of recirculation air
- Reduction in building costs through low floor height

Technical data

Building:	Sebastian-Lotzer-Middle School, Memmingen
Proprietor:	City of Memmingen
Architects:	Consortium/MPRDO Mauz Pektor Architekten, Munich Herle + Herrle Architekten, Neuburg/Donau
Planning office:	Güttinger Ingenieure, Kempten
Completion:	2016
Product:	Concrete Core Cooling CONCRETCOOL
Energy efficiency:	KfW 55 to EnEV
Total floor area:	7.717 m²
Construction volume:	28.793 m³

E3013-26_04/17

Maschinenfabrik Gg. Kiefer GmbH Heilbronner Straße 380-396 70469 Stuttgart, Germany
Tel.: +49 (0)711 8109-0 Fax: +49 (0) 711 8109-205 E-Mail: info@kieferklima.de www.kieferklima.de