

## Faculty of Mathematics at Karlsruhe University (KIT)



Location  
Karlsruhe, Germany

Built  
Construction period: 2011–2015

GFA: 14,800 m<sup>2</sup>

## Architectural upgrade of a faculty building

The Faculty of Mathematics building at the Karlsruhe Institute for Technology (KIT) dating from 1964 has been upgraded in terms of architectural design and energy conservation by ingenhoven architects. Based on the innovative energy concept, it has been possible to reduce the consumption of energy by half. The refurbishment of the Mathematics building is a prime example of how to deal with existing German university buildings from the post-war era, a task of some considerable urgency. The overall space and building concept of the conversion succeeds in improving and optimizing communication. Owing to the prominent position of the building at the edge of the university campus, in the direct proximity of the historic Karlsruhe center, it represents the university to the city. The rectangular five-story building encloses an inner courtyard which is raised by half a story and which, on the first floor, is open towards the east and west. Fine art also finds its place here; a group of sculptures called "Family of five semi-spheres" designed by Max Bill was salvaged during the construction phase and then cleaned and re-established in the inner courtyard and outside area ready for the occupation of the building. In order to extend the usable area by 2,200 square meters, additional building volume was placed on top of a set-back mezzanine part of the building. The newly created roof features a lightweight steel construction, with a lightweight membrane covering the inner

courtyard. The courtyard functions as a heat buffer, which minimizes the loss of energy in winter and ensures that the indoor climate during summer is agreeably cool. An important plus point for the research activities is the communication-enhancing interior concept, with meeting rooms for working groups and meeting points for spontaneous meetings on every floor. In this way, the building supports cooperative projects and provides much space for individual plans and new research applications. The inviting bright design, with daylight from all sides, creates an agreeable atmosphere and supports concentrated study and research. The first floor houses all more public, highly frequented areas of the Faculty, such as tutorial and seminar rooms, group work areas, the cafeteria, and the library. The upper floors accommodate Institute offices as well as seminar and meeting rooms, and project areas. Additional seminar rooms, PC pools, and part of the Faculty library are located in the basement. A special focus during the conversion and extension of the building was on the removal and replacement of building components containing hazardous materials, such as ceilings with PCB content, partition walls with formaldehyde, and asbestos parapet boards. The building was given a new facade with significantly improved thermal insulation, and new energy-efficient services installations. The utilization of daylight was improved and passive air-conditioning was introduced to the building. The KIT Mathematics building received the 2016 "Deutscher Hochschulbaupreis" (German university building prize). The prize honors exemplary university buildings and ensembles of particular architectural quality or those that deal with historic building substance in an exemplary way.

## Awards, Nominations

2018

Exemplary Building City of Karlsruhe, Award

2016

German University Architecture Award  
Internationaler Designpreis Baden-Württemberg - Focus  
Special Mention  
Preis des Deutschen Stahlbaus, recognition

## Team

Client

Property and Construction, Baden-Württemberg

Architect

ingenhoven architects, Düsseldorf and Meyer Architects,  
Düsseldorf

ingenhoven architects team

Christoph Ingenhoven, Rudolf Jonas, Elena Berkenkemper,  
Darko Cvetuljski, Ralf Dorsch-Rüter, Kilian Kresing, Yi Li,  
Severin Scheib

Structural design

Prof. Pfeiffer and Partner, Darmstadt

Fire protection

Ingenieurbüro für Brandsicherheit AGB, Bruchsal

Mechanical services installations

Planungsgruppe M+M AG, Böblingen

Pollutant removal

PL2 Pluralis, Meerbusch

Green Building

DS-Plan, Stuttgart

Lighting and electrical design

fc. ingenieure GmbH, Ettlingen