

**SCHOOL „SCHULE AUF DER AUE“
Münster bei Dieburg (Germany)**

REDEVELOPMENT / REFURBISHMENT, NEW BUILDING

Client: Da-Di-Werk
Public operation for building and environmental management of the district of Darmstadt-Dieburg

Architects: KKS, Kellner, Kraus, Stark GmbH, Darmstadt

Our services: Full structural design
Thermal insulation
SiGeKo

Brief description: Construction of a new natural science wing with labs, teaching libraries and prep rooms

- 2-storey solid building constructed mainly using reinforced concrete
- rectangular base
- ground improvement using concrete vibro stone columns
- vestibule as a steel construction
- slab span of 5.7m
- high level of installation due to lab equipment
- barrier-free access
- PV system installed on the flat roof
- passive house

Comprehensive refurbishing and reconstruction of the two school buildings from 1970

- 2-storey solid building constructed using mainly reinforced concrete
- floor construction using TT beams spanning up to 15.6m
- damage to the concrete facade, stairs and balconies: E.g. cracks, rust stains, seam damage, blooming, concrete spalling and open armoring
- extensive wall and slab openings
- new timber/glass facade
- in the assembly hall: Partial demolition of the reinforced concrete slabs (TT beams) building of a new sawtooth roof constructed using steel and glass
- new fire escape added to the outside
- additional load on the existing building due to a new air ventilation/conditioning system

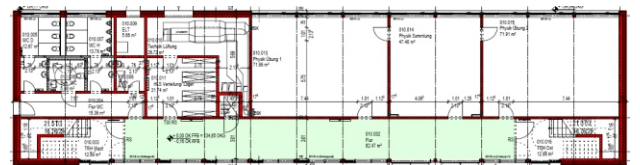
Completion: 2013 New building
2019 Refurbishment



Natural Science Building (Animation)



Natural Science Building after completion



Building before restauration



Damage pictures of concrete - Large area flaking due to reinforcement corrosion

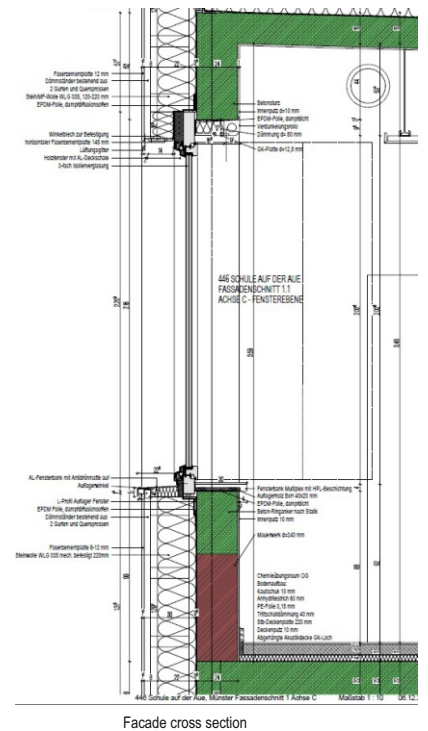


Pictures / Illustrations: ProfessorPfeiferundPartner PartGmbB, KKS, Kellner Kraus Stark GmbH, Darmstadt

SCHOOL "AUF DER AUE"
Münster, near Dieburg (Germany)

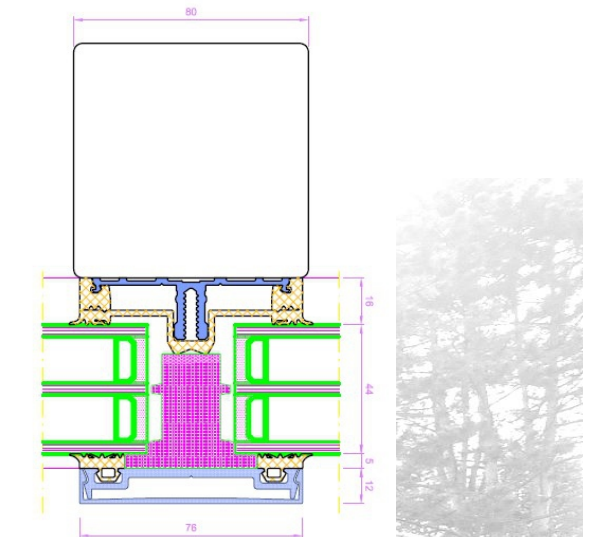
NEW BUILDING

- Client:** Da-Di-Werk
Public operation for building and environmental management of the district of Darmstadt-Dieburg
- Architects:** Planungsbüro Kellner Kraus Stark, Darmstadt
- Our services:** Energy performance in accordance with the Passive House Planning Project (PHPP), proof of thermal insulation and damp proofing
- costing and cost effectiveness analysis for the energetic building measures
 - consultation and calculations with regard to avoidance of thermal bridges to minimise energy loss
 - certificate of equivalence with thermal bridges from publications
 - calculation of the linear loss coefficient (ψ)
 - guidance in the choice of materials with regard to energetic and damp proofing, in particular with regard to the facade
 - consultation and execution of building components, details and connections with regard to damp proofing and air tightness
 - determination of thickness, thermal conductivity, positioning and diffusion resistance of construction layers
 - proof of conformity for summer heat insulation

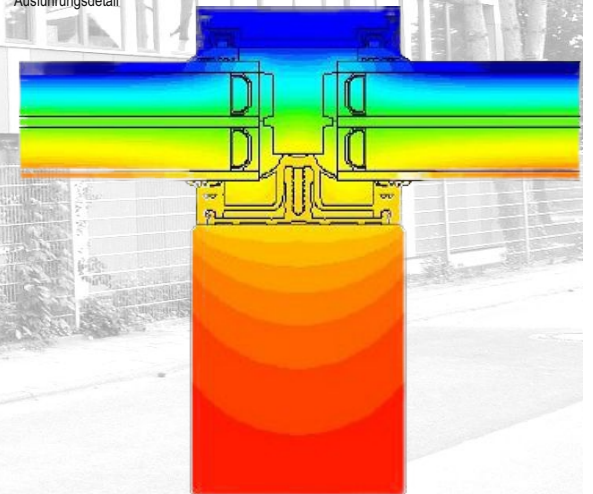


Brief description: Construction of a new natural science wing with labs, teaching libraries and prep rooms, 2-storey solid building constructed as a passive house, controlled ventilation with heat recovery, quality checks with blower door test

Completion: 2013



Wärmebrücke (Horizontalschnitt Fenster/Fensterpfosten)
Ausführungsdetail



Computersimulation Isothermen (Wärmeverlust)

Pictures / Illustrations: ProfessorPfeiferundPartner PartGmbH, Planungsbüro Kellner, Kraus, Stark GmbH, ebök Planung und Entwicklung GmbH