

architecture / competition / research / germany

Result of architectural competition in Bremen organised in line with § 25 VOF:
ATP Architects and Engineers win 1st Prize

Flexible Spatial Continuity

ATP Architects and Engineers win the invited competition for a research building for the Fraunhofer Institute for Manufacturing Technology and Advanced Materials (IFAM) in Bremen.



Renderings: ATP sphere

location



IFAM

The Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM develops products and processes up to the point at which they are ready for application. Individual solutions are established in direct contact with the client. A philosophy of intense internal cooperation ensures that the expertise of each relevant specialist is available.

Shaping and functional materials: research and development in the areas of biomaterials technology, electromobility, electrical systems, functional structures, casting technology, lightweight materials, materialography and analytics, powder technology, high performance sintered materials and cellular metallic materials

Adhesive bonding and surfaces: research and development in all areas of adhesive bonding technology, complemented by plasma technology, paint/lacquer technology, electrochemistry, molecular modelling, adhesion and interface research, technology transfer and the provision of certified training courses in adhesive bonding technology.

<http://www.ifam.fraunhofer.de>

short

The task of designing the research institute presented the opportunity to treat the entire Fraunhofer site in Bremen as a campus – a decision which was significant for the urban importance of the entire area. The creation of an inviting, transparent entrance situation - of a foyer which is seen as both an element of integration for the entire campus and a display window into the world of research - demonstrates a strong level of integration with the public realm. Areas of open seating, routes through the complex and the physical concentration of the parking all reflect this central campus idea. In order to reinforce this further, the building volume also rejects the opportunity to be overly independent or to rise to the permitted three stories.

The concept proposes a spatial flexibility which goes so far that it is possible to envisage the design being simply mirrored. These flexible spatial realms bring together large laboratory spaces with smaller office structures.

Not only will any future enlargements not change the image which has been developed but these can also be carried out independently of one another and/or phased in such a way that regular operations need not be interrupted.

The architectural and technical approaches of the building meet not only the strictest economic and ecological criteria but also the principles of social sustainability. An example of this is the development of a low-energy double-skin façade which is currently the subject of a patent application.



concept

Text: Marc Eutebach, ATP sphere

Open seating areas



Central Idea

Although the location of this, the third phase of development, had already been determined, the project still offered the opportunity to readdress the entire complex in urban design terms and to reassess the significance of the Fraunhofer site for the wider surroundings. The new building gives the site a new sense of order and equilibrium. The creation of concentrated areas of parking and the development of both open seating and routes through the complex evolve out of a central campus idea. By proposing buildings which are very consciously different from those of the first (and second) phases, this notion of a campus composed from a deliberately variable range of buildings is reinforced. Instead of making a very bold statement, the new building seeks to be a more humble part of an urban ensemble. The barrier-like effect of the Marum building is replaced by a sense of increased connectivity.

The notion of entrance in this project is not – as elsewhere in the vicinity – represented by something resembling a gateway but rather by a sense of invitation and transparency. Together with the newly created routes across the campus this foyer becomes an element of integration for the entire site. As a display window into the world of research it offers views deep into the activities going on in the communicative areas of the new buildings.

This sense of integration with the public realm symbolises the self-assurance of the research activities as well as providing both a transparent entrance and threshold for employees and visitors as well as a highly visible symbolic image for the company.

The World of Work

The laboratory spaces which are accessed from this entrance area permit all forms of research and laboratory configuration. A central idea is that expansion can occur without affecting any ongoing research activities.

The foyer, storage areas and ground floor laboratories connect smoothly with the adjacent office and laboratory area. This very conscious spatial continuity ensures a high flexibility in the composition of laboratory areas as well as bringing employees together.

Flexibility

All activities in the complex can be expanded independently from one another without disturbing the operation of the rest of the building. Any demand for alterations can be met at any time and such alterations can be phased. The atrium-like elements in the building make an important contribution to this flexibility in that they not only vertically connect the various spatial elements but also optimise the creation of independently accessible horizontal units, as well as playing a key role in the emergence of a true research environment.

plans



aspects of sustainability

Sustainability

- Natural ventilation of the deep areas of the building via the atria
- Adiabatic cooling due to areas of water
- Improved microclimate due to the integration into the surrounding green landscape and the green roofs
- Extension of the external areas by the creation of accessible areas of roof
- Improvement of internal communication by the creation of diverse social areas and communicating atria
- Building materials with a good CO2 balance.
- Timber floors in public areas and use of standard local materials
- Park-like external areas as valuable leisure areas for users and visitors
- Creation of regenerative and alternative energy via, for example, a share in a highly efficient wind farm

TECHNICAL PLANT

Façade:

- Low-energy, double-skin façade (currently being patented...)
- Minimising of energy requirement due to excellent u-values
- Maximum thermal protection in summer due to integrated solar protection and excellent g-value
- Possibility of natural ventilation for reasons of hygiene and in order to allow maximum individual control and comfort to guests and users

Energy for Heating:

Use of available geothermal energy (geo-thermal plus groundwater) for the basic operational needs of the heat pumps

Energy for Cooling:

- Use of naturally available groundwater for building cooling
- Adiabatic evaporation cooling in the ventilation plant without consumption of fossil fuels
- Re-cooling of heat pumps and cooling plant via groundwater or underground reservoir

All the above systems make an important contribution to the saving of resources and the reduction of operating costs. Synergies between individual elements of plant are very consciously exploited and save further resources.

Materials of the External Skin

The predominantly horizontal volume makes an additional contribution to the materiality of the surroundings. The research role is communicated by the innovative detailing of the brick façade as a semi-transparent external skin which acts as a form of solar protection.

The indentations in the façade create spaces for free seating while giving the building an additional horizontal layering.



Open research and working environment with high levels of daylight



East Elevation



South Elevation

project information

Promoter:

Fraunhofer Gesellschaft zur Förderung der angewandten
Forschung e. V., Munich
<http://www.fraunhofer.de>

Competition Team:

Christoph Achammer, Marc Eutebach,
Paul Ohnmacht, Matthias Wehrle, Karoline Winkler,
Linus Stolz, Gerhard G. Schmid, Michael Haugeneder
(ATP sustain)

Extract from

DECISION OF THE JURY

dated 30.09.2010

Fraunhofer Institute for Manufacturing Technology and
Advanced Materials IFAM

New Building, 3rd Phase in Bremen, Project Number
028/755320

VOF-Process – Published in EU Official Journal under the
number 2010/S 104-158502

Participants:

27 Participants, of which four qualified for a second phase:

kister scheithauer gross, Cologne

Jourdan & Müller, Frankfurt am Main

HPP Hentrich Petschnigg & Partner, Hamburg

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Corporate Communications

ATP ARCHITEKTEN UND INGENIEURE

Text: ATP ARCHITECTS AND ENGINEERS, ATP sphere

Renderings, Plans: ATP sphere

company profile

architects and engineers for excellent buildings

With around 420 employees, **ATP Architects and Engineers** is one of Europe's largest integrated design offices. The company specialises in complex building projects in the areas of production, logistics, retail, offices, tourism and health. The target of ATP is to create innovative, intelligent buildings of a sustainable quality. ATP has its headquarters in Innsbruck with integrated design offices in Innsbruck, Vienna, Munich, Frankfurt and Zurich and additional offices in Zagreb and Budapest. Research subsidiaries and a special programme of cooperation with the Technical University of Vienna complete the spectrum of services.

- Founded 1951, Integrated Design Office Since 1976
- Employees approx 450
- 7 European Offices
- Specialist Design Areas:
 - Production
 - Logistics
 - Retail and Entertainment
 - Offices
 - Tourism
 - Health
- Partners (Shareholders): Christoph M. Achammer, Ulf Bambach, Marc Eutebach, Gerald Hulka, Robert D. Kelca, Horst Reiner, Dario Travas

ATP ARCHITECTS AND ENGINEERS

- ATP Innsbruck • ATP Vienna • ATP Munich • ATP N+M Frankfurt
- ATP Budapest • ATP Zagreb • ATP kfp Zurich

RESEARCH AND DEVELOPMENT

- ATP sphere
- ATP sustain
- Professor Christoph M. Achammer has been Head of the Department of Industrial Building and Interdisciplinary Construction Management of the Technical University of Vienna since 2001. www.industriebau.tuwien.ac.at

PRIZES

2010 1st Prize AEG MIS, Ulm, D (invited competition)
2010 1st Prize IFAM (Fraunhofer I.), Bremen, D (invited competition VOF)
2010 1st Prize aspern IQ, Vienna (EU wide, limited competition)
2010 1st Prize Bürostadt Niederrad, Frankfurt (open realisation competition)
2009 1st Prize SISKKA Shopping Centre, Ljubljana, Slo (invited competition)
2009 1st Prize Peace Pentagon New York (open worldwide competition)
2009 European Architecture Prize 2009 Energy+Architektur, Hon. Mention. (Hilti)
2009 Energy Globe Award Vorarlberg, Hon. Mention (Hilti)
2009 1st Prize Refurbishment, Faculty of Architecture and Engineering, University of Innsbruck
(open EU-wide competition)
2009 1st Prize Maximarkt Anif (invited competition)
2009 1st Prize Crown Resort Montafon (invited competition)
2009 1st Prize ICSC Best-of-the-Best Award/Sustainability (Atrio)
2008 The Ring - iC@ward, Interior Design, Hon. Mention (EDEKA, E-Center)
2008 International Design and Development Award, ICSC, Phoenix (Atrio)
2008 1st Prize TRIGOS Prize for Sustainability and CSR/Ecology (Atrio)
2008 ReSOURCE, Supporting Sustainable Development, ECSC (Atrio)

CONSULTANTS

- REDSERVE GmbH real estate development services
- PMP Project Management Partners GmbH
- PLANDATA Datenverarbeitungs-GmbH

Integrated Design

As an integrated design company ATP Architects and Engineers offer "from a single source" all necessary planning design services – from the project idea to the completed building. This culture of simultaneous and interdisciplinary cooperation is highly influenced by the fact that architects and engineers work alongside full time on specific projects over a period of years. ATP architects lead this Integrated Design Process. Their close cooperation with ATP engineers leads to innovations in all design phases which make a major contribution to the sustainable quality of the architecture of our buildings. ATP architects and engineers invest their experience and expertise in producing innovative, resource-saving and energy-optimised buildings of a higher aesthetic quality. Our vision: We want to change our world positively with excellent buildings.

The ATP Partnership Model offers commercial responsibility - and the opportunity of sharing in the success of the company - to a wide number of employees. Partners, Associate Partners and Associates represent the corporate culture of ATP. Members of the partnership are recognisable as much for their commercial and professional ability as for the way in which their engagement transcends their own area of responsibility. In 2010 ATP Architects and Engineers has 7 partners (and hence owners and company shareholders), 19 Associate Partners and 59 Associates. This means that around 20% of employees are part of the partnership.