

## Our Philosophy

Empirical work on building envelopes, with partners managing different disciplines – from the building physics to the solar technology - provides GROUP5F with a basis for our constructive approach. The origin of this evolving process is not restrained on a given design as GROUP 5F is dedicated to the development of sustainable solutions, in cooperation with innovative delivery partners within the facade industry.

In cooperation with climate and lighting designers, and framework engineers for the "Frauenhofer-Institute for Solar Energies Systems", we are capable to develop shell constructions, in which all sub-systems of the building technology are integrated as scalable and dynamically regulated elements. By the use of modern materials and optimized energy concepts, under utilization of Solar energy gains; considerable savings within both building overheads and long-term maintenance costs are achievable.

Climate control and service engineering of new buildings are merging within the envelopes as key components for the modern developer and building owner.

Seamless integration of planning and design tools finds their determination of the creation of production data by means of parametric 2D or 3D applications. Each building intention requires a project-specific approach on the basis of a decision for a 2D, 3D or hybrid planning solution.

In the creation of production data, planning efficiency and adaptation are the guarantors of successful process management. Orthogonal and recurring building structures are therefore transferrable by means of a feature-based 2D-CAM process. For spherical or free-form bended building envelopes the generation of CAM-data out of parametric 3D Assemblies, by means of CATIA / Digital Project, provides a more efficient solution.

The facade of a building represents the interface between the external environment and the end-users of the interior building space. It fulfills many physical requirements as well as climate and acoustic protection. Architecturally, it serves as a filter between the interior and the exterior. With its membrane-like behavior, a modern facade reacts with its own dynamics on both internal and external influences.

The basic demands placed on a modern building envelope are Summer and Winter protection from daylight, glare protection, as well as natural or mechanical ventilation possibilities and contact to the outside world. A facade functions as an integrated system and must be calibrated in all aspects in order to inhibit mutual impairment.

Within the development of new facade concepts, the engineering company is challenged to retain architectural qualities by not compromising potential energy savings or the climactic functionality of the envelope.

The creative and technical possibilities of building envelopes using small or large sized panes or panels are endless. For its new designs, GROUP 5F mainly develops elementized or unitized Curtain Wall systems for physical and constructive advantages. Factory production also enhances quality as well as health and safety aspects of design focussing on the principles of CDM.

Materials for cladding range from terracotta, slate, wood and fiber-cement; across ceramics and metal up to the massive emerging textile and GRP-products. By combining different materials within one system, cladding designs are easily adaptable to the preferred architectural aesthetics and technical performance.

Curtain Wall systems, mostly attached to the load bearing slabs via brackets, are composed of panel/glazing combinations, based on the usage of stick-, element- or hybrid systems.

GROUP 5F is capable to develop facade systems with all types material and construction alternatives, analysing combinations in respect of performance and to generate design proposals based on a parametric 2D or 3D CAD-process.