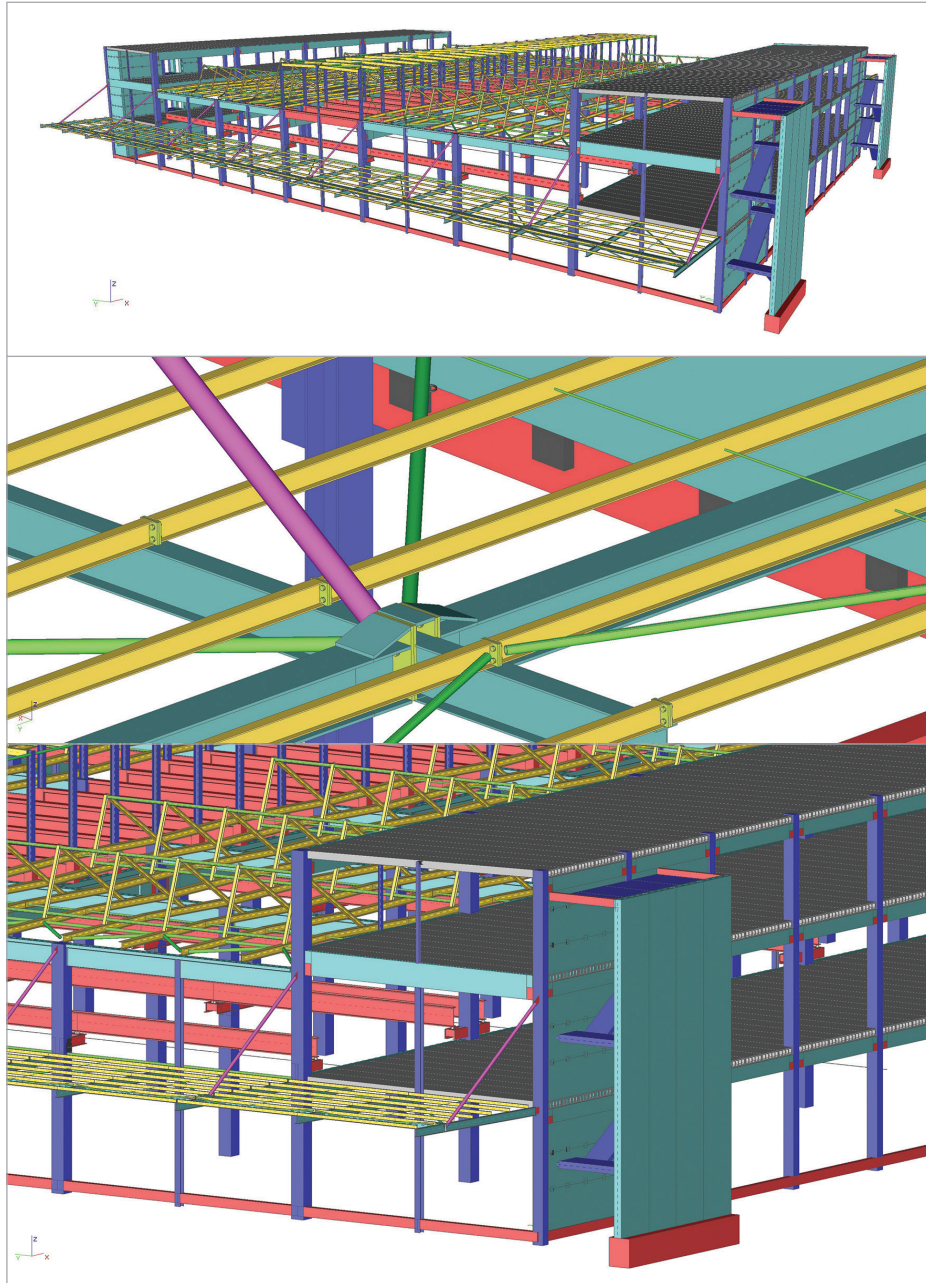


Production Hall 090b - České Budejovice, Czech Republic



Bj090b is a continuation of the existing factory building Bj090a at the company R. Bosch spol. s.r.o.

The new factory building with the ground plan parameters of $5 \times 12 + 13.5 + 12 = 85.5 \text{ m} / 5 \times 12 = 60 \text{ m}$ is based on the large-diameter piles heads and cups for the restraint of concrete columns.

The building consists of 2 three-storey annexes which formed the western and eastern facade and of single-storey shop between them, which has a penthouse for the machine room in the middle module. The first floor with level ± 0.000 consists of the production shop and warehouse handling. The second and third floors of the annexes on levels $+5.250$ and $+10.500$ with the utility load of 4.5 kN/m^2 are areas of social and administrative facilities building. The total height of the outbuilding is $+14.87 \text{ m}$. The production shop has the height of 9.6 m to the upper level of girders. The machine room floor in the centre of the shop, a 12 m ship located at $+9.750$ with a useful load of 7.5 kN/m^2 , has a steel structure covered by the metallic roof and facade. The internal prefabricated staircase is located at the eastern facade. Two outside prefabricated stairs, located at the western facade, leave the outer contour of the building.

The prefabricated concrete structure consists of:

- Prefabricated columns
- Prefabricated girders of the machine room under the roof superstructure
- Prefabricated beams of the machine room under the roof superstructure
- Precast roof girders of the shop
- The prefabricated ceiling- and roof beams of the annexes
- Circumferential bracing of both annexes
- Ceiling panels (Spiroll), thickness 320 mm
- Wall panels of staircases
- An intermediate landing platforms and
- Staircase shoulders
- Roof panels of the outside staircases
- Roof trims of the staircases
- Reinforcing membrane of ceilings and roofs on the panels (Spiroll)

The steel structure creates of the following parts of the building:

- The roof superstructure machine room $+9.750$
- Roof purlins of the shop including supporting structure of skylights
- The steel staircase in the eastern annex
- Gable columns in the facade - row 40
- Supporting roof sheets of the shop and of the penthouse/superstructure machine room
- Special profiled roof sheets for the watering concrete floor slabs of the machine room
- The north shelter suspended from the concrete facade columns
- Internal columns of annexes
- Lining trapezoidal sheets

Based on experience with similar big-box structures, we resolved the problem of cladding shear deformation, which occurred due to long-term deformation of concrete structures. We came to the solution that consists of an indirect anchorage facade profiled on concrete columns through auxiliary C profiles of bent sheet metal. Thus, we have eliminated solid connections of the facade to the supporting concrete structure and thereby prevented unwanted deformation of the facade.

Inside the building we also implemented a structure for the design of the future building clean room.

The supporting structure consists of steel frames in the transverse axial distances of 3 m . The outer steel frames have the axial distance of 2.42 m . The overall external dimensions of the structure are $38 \times 9.8 \times 4.24 \text{ m}$. The joints of the structure of the area are welded in order to maintain cleanliness in the area. The frame corners are designed to be welded with tapered columns and mullions. Other connections have been designed using hidden welded brackets, which will be fitted with supporting elements. The structural elements of the hidden brackets will be welded to the bottom flange for attachment on the bracket. In order to facilitate the assembly of steel frame mounting, frame joints are designed. Mounting connections are positioned with regard to the bending moment diagram at the zero bending moment.

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APP Projekt s.r.o., a comprehensive design and engineering company with headquarters in České Budejovice, Czech Republic, was established in April 1992 as a private company. APP Projekt s.r.o. has a team of well-educated, skilled and flexible specialists with long-time branch experience in the construction of industrial buildings. The team itself, or in cooperation with partners, offers an integral architectural and engineering service system in project preparation and construction management at a respected level of European quality. Thanks to this professional structure, APP Projekt s.r.o. has become a well-equipped engineering company that is able to satisfy a wide spectrum of clients' requests within deadlines, at reasonable cost and in high quality.

References: Bosch, A.Pöttinger, Engel, Kern-Liebers, Umdasch...
More at: www.app-projekt.cz

Project information

Owner	Robert Bosch s.r.o.
Architect	Bosch CRE department in cooperation with APP Projekt
General Contractor	Berger Bohemia
Engineering Office	APP Projekt s.r.o.
Location	České Budejovice, Czech Republic
Construction Period	09/2011 to 09/2012

Short description | **Production Hall 090b**

The architectural design was prepared on the basis of the assignment from the client and the future user with regard to the parameters of the technological use. The current proven concept, i.e. the concept of an open-plan hall with administrative and social built-in rooms separated from the production shop by open galleries, was observed during the building of new production shop extension 090b.

APP Projekt s.r.o. provided complete design work in all stages of documentation, engineering, creative and technical supervision, including cooperation in final acceptance and putting the building into use.

