Zeitschrift: Bauen + Wohnen = Construction + habitation = Building + home : internationale Zeitschrift

Herausgeber: Bauen + Wohnen

Band: 11 (1957)

Heft: 5

Rubrik: Summary

d'acier à supports reculés et plafonds en saillie sur tous les côtés. Murs en briques visibles; chassis de fenêtre en fer galvanisé. Les garderobes et toilettes ont des fenêtres au-dessus de la hauteur des yeux, tandis que le réfectoire est vitré du sol au plafond. La fenêtre nord (côté du soleil) a une saillie protégeant contre l'insolation Sols à carreaux en céramique, portes et chassis de portes en acier. Le bâtiment peut être agrandi pour servir 200 ouvriers. Architecture claire, simple et fraîche.

Bâtiment social des usines de peintures à Francfort-Hoechst
(pages 176-178)

Le nouveau bâtiment social des usines de Francfort-Hoechst prévoit garderobes, lavoirs et douches pour env. 850 ouvriers, plus un réfectoire pour 250 personnes, une salle plus petite à 150 places et un café ayant 150 places assises. Le grand réfectoire et le café au rez-de-chaussée s'ouvrent par des portes vitrées sur toute la hauteur des pièces, donnant sur un beau gazon; du côté de la rue se trouvent l'office et la cuisine à café, avec la petite salle. Le deux salles sont servies par un même office. Accès aux salles et escaliers menant à l'étage se trouvent aux deux bouts du bâtiment. — Le vestiaire et le lavoir au premier étage forment une grande salle unie cloisonnée par des placards-garderobes en 8 boxes dont chacune contient 55 placards, 6 douches et 16 lavabos. L'accès se fait par un couloir au milieu. Il y a en tout 438 placards par étage. — Sauf les murs portants aux deux bouts, maçonnés en pierres Klinker, la construction est en béton d'acier; les remplissages dans les salles de bain sont en briques de verre jusqu'à la hauteur des yeux, où se trouve une fenêtre double étroite. Cages d'escalier vitrées en verre brut et verre clair. Les différents matériaux, le klinker rouge, les piliers de béton gris clair et les différents verres employés, avec les chassis des fenêtres peints bleu acier, avivent la forme très sobre de l'édifice.

Summary

Tennessee Steam Plant Johnsonville, Tennessee Valley (pages 143—146)

To provide supplementary power to compensate for the changing flow of the rivers, TVA has erected a series of huge steam-electric plants. One of the most distinguished architectural examples is this aluminium-sheathed plant on Kentucky Lake in Tennessee. When operating at peak capacity of 750,000 kw. output, its sic units consume a gigantic 300 tons of coal per hour. Hence, it was located for easy access to the lake, railroad and highway.
Bringing these vast building elements into human scale was an architectural challenge. Materials were selected which would symbolize the machine-like character of a modern industrial plant. They were limited in number largely to bases of gray brick and prefabricated aluminum-faced panels consists of 16 ga. (Manufacturers' Standard Gauge) zinc-coated flat steel sheets. The $1^1/_2''$ space between panel faces contains glass-fiber insulation. Panels were welded to adjustable steel girts attached to structural steel.

The Electric Power Station in Buggenum near Roermond
(pages 147-149)

The selection of the site was determined by three considerations: 1. The electrical grid had to be capable of easy extension. 2. There had to be a sufficient supply of cool water. 3. Coal supply had to be possible both by ship and by rail. The station was surrounded by an access canal and a harbour, connected by way of an intermediate basin with the Maas. This intermediate harbour guards against flooding from the canal and the harbour. The construction consists mainly of a steel framework resting upon a reinforced concrete foundation slab. This foundation rests on 1500 pilings. In the turbine room steel portal construction was utilized, but the coal bunkers and the boiler room were constructed of standard steel profiles. The closed walls are of masonry, the frames are of reinforced concrete elements. The roof consists of pumice concrete slabs on which there is poured 12 cm. of reinforced concrete, which above the machine room on the outside was insulated with cork. The station has been built for the time being to house 2 turbines. The site and the plan permit extensions without further ado. The outside walls on the temporary side to be built on are removable, and they are of "Durisol" slabs.

Heating plant and workshops of the Technical College in Delft
(pages 150-153)

The Thermodynamics Institute of the Institute of Technology of Delft had to have: a detached heating plant to serve all extensions in the Institute's building program, a pumping station to distribute the heat, a transformer station, four testing ranges, laboratories, a lecture hall and a drafting room. The under edge of the coal bunkers had to be about 16 m. above that of the heating plant. The floors around the boilers and control equipment in the pumping station and around the machinery in the testing ranges had to be removable and replaceable. The ceilings in all work rooms were to be constructed without ceiling joists. It was decided that concrete was the best material for construction. The four testing ranges along with the laboratories were to be alined on one side, the boilerhouse with the pumping station and the transformer station on the other side. The architectural design was determined strictly by the functions. Construction: The boilerhouse rests on concrete pilings. The pumping station is built on steel columns and is constructed of reinforced concrete. The outside walls have glass concrete panels or steel-framed windows. The laboratory building is built on steel columns like the other buildings, and in addition has ceilings without ceiling joists. The high elevations consist of prefabricated concrete with horizontal sliding windows and parapets of glass concrete. The wall of the main stairs was decorated with a mosaic, which was designed by the artist Elenbaa. The details are clearly conceived but rather heavy and massive, which is a distinguishing feature of the work of these two architects. At the same time this architecture is unmistakably Dutch, coming from the brains and hands of stolid men with both feet on the ground. Van den Broek and Bakema are noted for having held to their original architectural principles when other architects have gone through many phases of development.

Mines in the Ruhr (pages 154-156)

As long as the architect of industrial buildings confines himself to individual buildings, he can keep harmonious pace with new conceptions in design as they evolve over the decades. But in our rapidly developing age, these periods of style replace one another at a bewildering rate, so that the architect is often confronted by a real crisis of architectural conscience when faced with the problem of designing a plant the construction of which occupies slow stages spread out over decades. However, I have had the unusual good fortune to have one single employer and one single project over a long period, and that in the following two cases all mines in the Ruhr: the Bonifacius pit installation at Kray near Essen and the Thyssen 2/5 pit installation at Hamborn. Thyssen 2/5 was to have been completely renovated in 1929, being an over-aged mine. Such a renovation, involving as it does an organic blending of the old and the new, poses almost insuperable difficulties for the architect. In this case construction took only three years. The Bonifacius mine at Kray is also a rather old plant, which did not, however, have to be renovated in a hurry, but was evolved in slow stages over 30 years. I have endeavoured on the newer sections to continue painstakingly with the construction sryle already begun previously. It can be argued whether this sort of procedure is correct; it can certainly not be adopted as a norm. The above-mentioned projects share in one feature: the functional focuses could be made the decisive elements in the architectural conception. The basic structural element is a kind of grid, a steel framework structure built up on the basis of regularly repeated uniform units, which can be glazed or walled up as required. The best material for these units has proved to be steel panels, which are admirably suited to industrial construction with its often windowless cubes.

Artificial Lighting in Factory Buildings
(pages 157-160)

Work in factories and workshops is extremely various and more highly differentiated than work in offices, schools, etc. Therefore much greater demands are made on artificial lighting. The industrial worker spends a great deal of his time in the plant. And his often exacting work puts a great strain on his eyes, involving both physical and mental exertion. There is a close connection between worker morale and lighting, and this is especially true with artificial lighting. For this reason great economic importance attaches to the question of lighting in factory and workshop. The financial out-lay for good lighting facilities is more than offset by increased production figures and higher quality. In particular, the lighting facilities should permit good discrimination among light intensities and shades as in reading blueprints and checking parts, etc. Also colours, as in dye works, have to be accurately distinguished. The planning of a lighting arrangement presupposes a precise knowledge of the production processes in the given plant. And modern construction in reinforced concrete, steel and glass calls for the collaboration of specialists in lighting and electrical installations. The largest economies are effected by the utilization of fluorescent tubing, which also best meets all the technical requirements. It provides uniform illumination over the largest working area and its flexibility makes it possible to avoid glare. The light usually falls vertically, which is generally the best angle for most operations. The white light harmonizes best with ordinary daylight. Therefore the two sources can be used in conjunction. The arrangement and distribution of light is in the first instance determined by the type of work in the plant and the site of the working place, but the architectural design of the plant is also a decisive factor, whether multi-storey building with lateral windows, hangar buildings with lateral windows and perhaps skylights, and buildings with shed roofs. Since fluorescent tubing came to be used, the problem of varicoloured light has entered a new phase. By combinations of the gas in the tubes, the most varied shades can be created. The greatest emphasis has been laid on utility and economy in industrial illumination. Even today, however, it is widely believed that the lighting of factory rooms is less important than that of offices. But we have already pointed out that factory work makes even greater demands on the eyes than office work. Modern artificial lighting is, however, efficient only if it is properly and regularly maintained. The number of units per unit of area has become greater, and therefore the accumulation of dirt and dust has become a major problem. So much dust can accumulate on the tubes that their efficiency can be sharply reduced unless they are regularly cleaned. Their very length favours this accumulation. Measurements have revealed that the dust layer in the lamps and tubes can cut light down by 30%. The economic implications of this problem are obvious.

Factory for Pressed Steel Company at Stratton St. Margaret (pages 161—163)

In this case two controlling factors were revealed during planning—shortage of local skilled labour and limited accommodation it it were to be imported and the extreme importance of early completion. With these two factors in mind comparative costing showed there was an overwhelming case for frame and panel construction wholly of precast concrete.
The superstructure framing could be erected in three main operations, i. e. erection of columns, roof beams and purlins. After this roof covering and glazing could proceed immediately, followed by the installation of mechanical services and factory plant.
The wall cladding consists of precast concrete panels with exposed aggregate finish, in different size for the assembly, the press shop and the steel store. To relieve monotony in the elevation the architect, introduced rubble walling on the south and north ends of the steel store.

New Cigarette Factory, F. J. Burrus & Co., Boncourt (pages 164—167)

The new construction program embraced the following: 6,000 sq. m. working area for cigarette manufacture, mechanical and electrical workshop, warehouse for cigarette and packing paper, employees' cloakrooms, plant for all power generation. All secondary operations were concentrated on the south end of the site in two point-houses. One-storey construction, which is desirable from a functional point of view, could be reserved for the factory rooms proper. The secondary buildings have been located along the south boundary of the site. In this way the factory can later be extended toward the north without difficulty. The first point-house contains in the basement parking space for bicycles and motor bikes, on the ground floor at grade level the mechanical and electrical workshop and a cloakroom section, and on the 1st and 2nd stories the storerooms for paper and advertising material. The power plant is likewise of several stories. As to plan, it is clearly subdivided into a section for power generation, into a section for power storage and into a section for power distribution. This building contains all the equipment and machinery for generation of heat, refrigeration, etc. as well as the transformer station. The working area is housed in the shed structure. The manufacturing process is disposed along a U-shaped line of flow. If the daily production of cigarettes were laid out end to end, it would measure 500 km.! From the factory the finished the cigarettes reach the packing department and then the shipping department, which constitutes the end of the U in the south-east section of the factory building. Special air-conditioning arrangements had to be made, for cigarette manufacture is most ticklish depending on subtle gradations of temperature and humidity. The air-conditioning plant was installed by the firm of Sulzer. Both multi-storey buildings are of reinforced concrete. All windows are of Anticorodal. The walls of the warehouse building consist of Durisol masonry rendered. The complicated air-conditioning installations entailed a shed construction, steel being chosen on the basis of comparative studies with reinforced concrete and steel. The ground floor has been artificially raised as the site is subject to floods.

New Construction at Durban's Works in Milan (pages 168—169)

The site is nearly square and is bounded by three streets. The new works consists of a two-storey office building, a twostorey factory building and a one-storey annex with welfare services. These three structures form three sides of a courtyard. The office building with main entrance is situated on the main street. In general the buildings are recessed by around 5 m. from the boundary so as to leave space for a small front garden. In the front third of the office building there is a stair-well, and narrow fire stairs are situated on the gable ends of the buildings, and also, at regular intervals, in the factory building. The factory itself has a U-shaped plan and consists of three sheds. In order to shield the fabrication rooms as much as possible from direct sunlight, the north-east and north-west elevations were given a sawtooth plan in which in each case the west and the east side of the sawtooth is closed up, whereas the elevation sections facing north are completely glazed. A prominent feature of the elevations are the plinth columns covered with light blue glass mosaics.

The E. Muller AG Sheet Metal Works Munchenstein (pages 170-171)

The plan called for a new building to provide additional fabrication area, on a factory site, which is practically entirely built over with sheds and small brick structures. But production should not be interrupted by construction. And the building must be oriented in such a way as to allow as little light as possible on the ground floor. Building in several stories. It had to be erected in stages: Stage 1, not shown here, contains the utility services. We present Stage 2 with new fabrication and warehouse space. Construction: reinforced concrete skeleton structure. Good light distribution, no shadows from girders, i. e. clear ceilings. Lines to machines introduced simply under the ceilings and lead to connections on next floor above. This will facilitate shifting of machinery as need arises.

Stamping Works of Carl F. W. Borgward & Co. (pages 172-173)

The stamping works is situated in the south-east corner of the site and covers an area of around 129 x 136 m. The stamping works proper measures 25 m. wide x 15 m. high x 136 m. long from north to south with a large glass wall on the east side, the upper part of which is glazed all the way across without putty. It also houses large air vents. The front wall of the factory shed is also entirely glazed on the north side, whereas the south side is for the most part closed in to avoid sun glare. The adjoining buildings on the south and west front house the lavatories, etc. The factory offices on the south front were shielded against sun glare with thermopane glazing and awnings. The windows of light metal come from Marcus & Co. of Berlin. The stamping works shed proper, for reasons of economy and to save time, was constructed of steel by Schellhass & Druckenmüller, Bremen. The whole lay-out is surrounded by green areas and is sharply set back from the boundaries of the site.

Welfare and workshop building of two gasoline companies in Sydney, Australia (pages 174-175)

This is a welfare building for two gasoline companies. On the first floor there are two cloakrooms each and two shower rooms each for 60 men each and a common dining-room seating 120 persons. In addition there is a small wash-up room and snack kitchen adjoining. Also the lavatories on the ground floor consist of two groups of rooms. Moreover each floor contains a greasing room and a workshop. The building is accessible from the main street in a passageway with time-clock and offices adjacent to the stairwell. This is a reinforced concrete building with recessed supporting columns and ceilings projecting on all sides. Outside masonry of untreated brick. The windows are of galvanized iron. All cloakroom and lavatory spaces have air vents at eye level, whereas the dining-room is glazed down to floor level. The north window of the dining-room (in Australia the sunny side) is furnished with a sunbreak. All floors are tiled. Doors and door frames are of steel. The building can be enlarged to make room for 200 workers. Architecture is clearly conceived and of simple design.

Welfare building of dye works in Frankfort-Hoechst (pages 176-178)

Work with chemicals, poisons and also the fabrication of pharmaceutical products calls for special hygienic measures. In the new welfare building for the dye-works in Frankfort-Hoechst there were to be housed dressing-rooms, wash and shower rooms for around 850 men. Also: a dining-hall for 250 persons and a coffee room seating 100. The building is situated within the factory area and is a three-storey free-standing structure. The large dining-room and the coffee room were installed on the ground floor. The windows here are glazed down to floor level; French doors can be opened up wide so that workers can enjoy the lawn during pauses. The dressing-wash room, with no partitions, is divided by wardrobes into 8 stalls. Construction: Reinforced steel structure with supporting clinker walls at main ends. The static support interval amounts to 5.95 m. in the outside walls and to 7.90 m. in depth. In the bath rooms the reinforced concrete structure is glazed from floor to ceiling. There is a narrow double window at eye level, the remainder is closed with glass bricks.

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