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

Herausgeber: Bauen + Wohnen

Band: 16 (1962)

Heft: 5

Rubrik: Summary

camions. Les conditions fondamentales constructives sont:

1. Construction métallique
2. Construction de toiture simple
3. Parois extérieures simples
4. Charges utiles, jusqu'a 10.000 kg/m²

Chaque halle possède un pont roulant dont la charge utile est de 5 tonnes. L'envergure des bâtiments étant considérable, il fallu réduire au minimum les charges constructives inutiles. Les vitrages supérieurs correspondent parfaitement aux besoins du trafic interne à sens unique.

G. Graubner

Extension de la fabrique H. W. Appel, Feinkost AG, Hannover

(pages 220—221)

Le bâtiment en question est une extension des anciens bâtiments. Les escaliers et les différents services sociaux des anciennes constructions ont pu être repris. La construction de l'extensio est fort bien conçue.

Courtois et Montois

Unité industrielle ADB à Zaventem

(pages 222—224)

L'unité industrielle en question s'occupe de la fabrication de matériel d'éclairage de scène, jeu d'orgues pour théâtres studios TV etc. Le terrain est situé sur le territoire de la commune de Zaventem, en bordure de la chaussée de Louvain; sa superficie est de 15.000 m² environ. Le programme divisait l'activité de l'industrie en deux secteurs: le secteur administratif et le secteur atelier. Le secteur administratif groupe les services suivants: la direction, les services techniques, les services commerciaux, certains services auxiliaires pour le public et le personnel: réception, attente, parloirs, salle d'exposition, cafétéria et infirmerie. La plus grande flexibilité en plan et souplesse de construction sont évidemment exigées. Dans le secteur industriel, le facteur extension ou flexibilité extérieure est certainement capitale: il est plus difficile à résoudre que celui de la flexibilité intérieure qui suppose un volume achevé et la possibilité relativement simple de modifier un cloisonnement. La flexibilité extérieure ne permet pas d'aboutir à des volumes «finis» dans le cas d'une extension par allongement des bâtiments existants ou par addition sauf si le projet est directement établi sur le futur; une extension par répétition (addition de bâtiments indépendants) serait certainement plus souple quoique demandant la détermination «a priori» d'unités de grandeur.

Les ateliers se présentent comme un parallélipipède rectangle parfait, presque totalement fermé en façade et implanté derrière le bâtiment administratif et à 15 m de ce dernier. La fabrication se déroule sur un seul plan en suivant un principe de bouclage, l'entrée des matières premières et l'expédition des produits finis se recoupant en un même point.

Les techniques utilisées dans chacun des bâtiments sont souvent fort différentes et répondent directement aux données du programme et au parti du plan. Les formes expriment les fonctions. La liberté dans la création est d'abord une forme de respect.

Prof. F. W. Kraemer

Centre récréatif de la fabrique de couleurs Hoechst SA

(pages 225—228)

A l'occasion du jubilé de sa fondation, la fabrique Hoechst SA décida de construire un centre récréatif pouvant contenir 1.000 à 4.000 personnes. Le programme du projet prévoyait l'adaptation du bâtiment comme théâtre, salle de concert, de variétés, de sport, d'assemblées, de banquets ainsi que comme cinéma.

Les architectes Zehrfuss de Paris, Rainer de Vienne, Kraemer de Brunswick et Weber de Munich furent invités à présenter un projet. Le jury opta pour le rendu de Kraemer.

Ce dernier prévoit une coupole d'env. 85,00 m de diamètre retenu par 6 points. Le grand voile repose sur un soubassement contenant les locaux adjoints: foyers et vestiaires, les installations techniques, les dépôts, les loges et vestiaires pour artistes et sportifs, locaux pour sociétés de 400 pers. max. restaurant, cuisine pouvant servir jusqu'à 1.500 repas et 8 jeux de quilles.

Les réflexions de Kraemer furent les suivantes: pour réaliser une œuvre dont les buts sont multiples et très différents celà nécessite une construction de forme neutre, afin que chaque manifestation garde son caractère propre. L'intérieur devra reflêter l'expression spéciale du lieu, alors que l'extérieur devra être le centre rayonnant de toute une population.

Kraemer est parvenu à la conviction qu'un voile sphèrique conviendrait aux nécessités du problème.

Pour accentuer la forme dominante du dôme, celui-ci a été placé sur une dalle située 4,00 m au-dessus du parking et s'adossant vers le nord aux courbes du terrain. L'entresol fut utilisé pour les locaux adjacents que l'on atteind directement depuis le parking. L'avantage qu'offre cette solution est l'élimination complète de bâtiments annexes. Il a été ainsi possible de sauvegarder la forme pure de l'œuvre tout en exprimant son principe statique.

Dimensions:

Entresol

136, 0/96, 0/4,0	= 13.148,0 m²
surface utile	11.200,0 m²
volume	52.600,0 m³

salle

volume	72.000,0 m³
portée	86,0 m
hauteur	15,0 m
surface	4.520,0 m²

Construction:

Entresol

Piliers et sommiers en béton armé disposés sur une grille de 8,0/8,0 m. Les sommiers sont préfabriqués.

Coupole

Voile de béton armé de 13 à 15 cm retenu par 6 ancrages.

Inst. techniques:

Inst. d'aération et de chauffage. L'énergie pour cette dernière étant fournie par la fabrique (vapeur). Scène mobile avec accessoires pouvant s'adapter aux différentes réunions. Grilles acoustiques contenant les projecteurs, les bouches d'aération, les décors.

Parterre pour 2.500 places. Balcon pour 900 pers. Tribunes supplémentaires pour 450 places. Cabines d'opérateurs et de régisseurs. Le cinéma, l'éclairage, le son et la télévision.

Summary

F. W. Kraemer

Industrial Construction and Architecture, Essence and Limit

(pages 189—190)

The phrase "industrial construction" makes us think immediately of the golden age of modern architecture, which, transcending all historical traditions, succeeded in throwing an alarm into 19th century academicism. The main features of this development are not without interest.

A visit to the National Gallery of Berlin (East), where the paintings of Menzel and Feuerbach (Metallurgical Industry and Plato's Banquet) were exhibited, is sufficient to prove the existence of the immense distance separating the two worlds: the industrial world with its tragic countenance and the idealized world, prettified, of the classicists. The architects of this period could have tried to establish a connection between these two worlds—at any rate they sought a new style, a new form—but instead of that they are going on with the cultivation of façades (Early Modern Style). At the very moment when the architects applied themselves to the problem industrial construction had already been created. The engineers had taken the first step. The year 1907—when Behrens became artistic consultant of the firm of AEG—is generally recognized as the beginning of industrial architecture. It was at this time that account was taken of the possibilities of renewal in architecture. The outstanding result of this renewal was the rediscovery of the function and also of the enhancement of building materials, principally the materials that it was thought necessary to face: steel, concrete, glass. Moreover, there had been rediscovered the principle of rhythm, the principle of repetition of similar elements, corresponding logically to the needs of use and of construction. And suddenly sophisticated modern architecture was born in all its vigour; everywhere we encounter the same pragmatism of architectural design, in Berlin, New York, Tokyo, Sydney. Everywhere—whether in hospitals, schools or office buildings—we find the logic proper to industrial architecture. In the meantime of course non-industrial architecture found again its proper elements; the construction of industrial buildings, nevertheless, remains the basis of this movement of formal pragmatism. It is our view that automation will not change at all this state of affairs: certain changes will occur for economic reasons but not in the design sector.

In the future industrial architecture will know how to hold its ground without, however, representing the essential domain of all modern architecture, as is confirmed by its practitioners. It is true that the position occupied by industry is increasingly vast. All consumer goods, all capital goods are, so to speak, produced industrially. Who would have thought 100 years ago that bread would be made in our day in factories? There is no doubt we shall see the same process of industrialization as regards building or agriculture, to cite but two large sectors of economic activity. Here too a certain industrialization of architecture will be inevitable.

Non-industrial architecture will profit likewise from the rationalist trends followed in industrial construction. Beauty and elegance are not diametrically opposed—as is often believed—to economy and rationalization. Architecture, moreover, has no connection with cost. Good architectural design can be very economical; by the same token bad architecture can be very costly indeed! We should point out in this connection that specialization is not always favourable. Large American firms possessing their own architectural offices have their plans drawn up by architects who are not familiar with the given operation.

The specialist is often "blind". The Volkswagen works have not been able to escape from a certain Nazi monumentalism, not knowing how to get away from the "do it yourself" method. On the other hand, the General Motors buildings by the universalist Saarinen in Detroit are perfect both from the point of view of architecture and that of function. The latter example takes us directly to the "marriage" that has taken place between industrial construction and architecture. Each has given and taken at the same time, and each has gained. We have today arrived at a state of synthesis which is most beneficial and which has produced the "style" in keeping with our civilization. The early extremes are now meeting; architecture as a whole is at the service of man.

Harro Freese

Klippan Safety Belt Factory in Hamburg

(pages 195—196)

For economic and technical reasons the factory shed has only one floor whereas the office building has three or four. In this way it is possible to extend the factory shed on the given site. The architect and the builder have attempted to create a simple and original architecture especially adapted to the publicity needs of the Swedish firm of Klippan. The building in question—thanks to the invaluable cooperation of the management of the firm—corresponds perfectly in plan and elevation to the needs of production and administration.

Walter Henn

Machine Plant in Munich

(pages 197—202)

The Friedrich Deckel machine plant in Munich specializes in precision machine tools. The site in question is situated to the south of the city by the express highway to Mittenwald. Increase in production as well as rationalization of manufacturing methods obliged the management to build new buildings, all the more as the old buildings were considerably damaged during the war. So as not to interrupt work, construction has proceeded in several stages.

The program was clear and precise: maximum flexibility of utilization of the new buildings, perfect technical equipment, pleasant working atmosphere owing to an architectural conception with this end in view. The owner being an engineer himself, he allowed the architects to work on the plan as long as was necessary. Thus there was time to compare the different plans so as to end up with the plan that was all but ideal. The plan is based on the conception of large horizontal utility surfaces. Unfortunately, as the site was far too narrow, it was necessary to allocate the utility areas on several levels. Large pieces are processed in the large one-storey shed, while production and assembly of small pieces are carried out in the building having several stories. The complex is rounded out by supplementary workshops, an office building and a canteen. The core of the complex is formed by the factory building whose outside length attains 82 m. The main production level located on the first floor allows for smooth communication with the other wings of the buildings. Flexibility is assured by the large "shed" without pillars having spans of 60 x 60 m. The final stage of this shed will attain a length of 120 m. and will be surrounded by a zone 10 m. high at the minimum. This zone will be taken up by secondary shops and warehouses. The shed is uniformly lighted by skylights. The foundations are concreted to avoid any vibration, while the superstructure is carried out in tubular steel. This construction is economical and simple. The elevations are of light metal and reflect the spirit of precision of the firm.

The building of several stories is 130 m. long. The owner here too wished a continuous utility surface of at least 100 x 15 m.; the fixed points of the structure are located at the extremities of the building. Despite the considerable service loads, the span of 15 m. was maintained thanks to prestressed concrete slabs. The steel pillars are placed on the outside and lend the whole complex an effect of lightness.

The large 5.40 m. windowpanes are possible owing to the general air conditioning throughout the buildings.

Walter Henn

Construction Offices of a Turbine Plant

(pages 203—205)

Siemens-Schuckert AG intend to build a new administrative and social centre together with a canteen, the complex as a whole to be incorporated into their general planning programme. The land available is to the north-east of the factories on Mellinghoferstrasse, that is on the main traffic artery of the centre of Mülheim. The buildings will be erected in various stages, the first of which will cover approximately one third of the total volume of building. For reasons of planning the programme selected will extend to the following: technical services (construction offices), commercial services and canteen. In the first stage the construction offices are being built in the form of a three-storey atrium building. The administrative building will be 15 storeys high, which will provide a suitable form of accentuation for the total complex. The layout will follow the orthogonal grid employed in the older sheds, which will leave a space of approximately 130 x 120 m. for the restaurant building.

The atrium plan for the building given over to construction services was selected so as to ensure a maximum of light and as great a flexibility in plan as possible. The handling of the atrium allows for optimal use of corridors and secondary rooms, thus leaving a maximum of elevation for the principal rooms. The construction rooms are 56 m. long and 13 m. wide and their one span obviates obstructive pillars. In all, the building offers 400 work sites. The reinforced concrete grid is based on a 7 m. x 7 m. system. The interspacing elements appear extremely light. The technical installations are a perfect match for the requirements of the plant; the air-conditioning will be added later.

Walter Henn

Turbine Factory at Wesel

(pages 206—208)

Siemens-Schuckert AG have had a factory built at Wesel for the manufacture of small turbines. The land available was 160,000 m² in area, which allowed complete freedom in its utilization. The one-level working area has, in the final stage, to reach 50,000 m². In the first stage the construction sheds come to 10,000 m²; both the cloakrooms and the office building are included in this initial stage. The second stage is still under construction.

The general layout is based on the siting of the various buildings. Each production section must be allotted an access point to the railway track. This gives rise to a "single file" system of layout which is advantageous when it comes to production. Each production sector can be enlarged independently of the others. All the buildings have reinforced concrete skeletons.

Walter Henn

Experimental High-tension Laboratory in Berlin

(pages 209—210)

The circuit-breaker factory of Siemens-Schuckert in Berlin has for several years been manufacturing various types of contact-breakers and commutators for all manner of uses; high-tension electricity power stations, hydraulic plant, etc. From 1958 it was obvious that an experimental high-tension laboratory was imperative. A 45,000 m² plot of land adjacent to the factory was available to the clients. It was found possible to save a considerable number of attractive trees, so that the scientific nature of the complex is heightened by the verdure. The total complex consists of the following elements: generator building, electric field, experimental booths and control station. The experimental tension may reach 1.7 million kilowatts. A this point we should indicate for the purposes of comparison that the whole town of Hamburg at peak moments only requires 0.9 million kilowatts! The programme of the various laboratories is tremendous and necessitates the perfect organization of the different functions, that is the different buildings. The complex comprises one large and two small sheds, several laboratories and various offices. The large shed is the core of the complex. The parabolic shape chosen corresponds to the necessary electric field. This form of construction makes it possible to obviate any "dead" point in the shed. Moreover, it allows for the setting up of a Faraday cage. It should be pointed out that the handling of the laboratory we are illustrating in this issue can be considered a true masterpiece in industrial architecture.

Van den Broek and Bakema

Spijkenisse Contracting Company

(pages 211—213)

The extension plan for Spijkenisse envisages a huge industrial plot of land between the port and the express highway running from Rotterdam to Brielle. It is on this plot of land that the first stage of the contracting company covering a total area of 4.15 ha. is being carried out. The layout comprises various workshops for furniture and mechanical operations, stores of all kinds, garages for building machines, repair shops, canteen, cloakroom, lavatories and offices.

For the time being the administrative building is housed in a hut. Both this building and a cement factory will be constructed in a future stage. Here again we find the principle of flexibility in the plan. Throughout we can discover the same construction elements and standard spans; this also holds good for the roofing. The bearing skeleton of the buildings is of steel. A considerable number of elements are carried out in wood or glass. We should also notice the very individual "saw" shape of the roof.

Karl Kohlbecker

Loading hall for cars

(pages 216—217)

The platform of this loading hall for cars is covered with a wide roof so that the operations are sheltered from the weather. About 1,000 cars can be loaded in a day. The solution adopted is in the form of a two-storey mobile platform. A number of tracks facilitate flow. The various movements and operations have been rationalized down to the last detail. It should be noticed that this is an excellent example of industrial architecture.

M. Farner

Storehouse of an Steel-constructing firm

(pages 218—219)

The firm of Pestalozzi having combined with several other industries in the region has succeeded in acquiring a site of considerable dimensions. The first factory shed was constructed by the architect E. F. Burckhardt, who was at the same time the originator of the underlying principles for the whole complex. As the shops of the old site were to be completely eliminated, it was decided to construct the second stage, unfortunately without the aid of Burckhardt, who had in the meantime died. The location of the new shops is dictated entirely by the needs of internal and external traffic; moreover, the shops are to be roofed to protect the metal goods from rust. The goods arrive almost entirely by rail, whereas redistribution is effected almost wholly by truck. Circular traffic in the shed is handled by a strip 9—10 m. wide on both sides. The average span runs from 27.5 m. to 10.0 m. Metal goods are distributed, from the smallest to the largest, in the direction in which the trucks move. The basic structural conditions are as follows:

1. Metal construction
2. Simple roof structure
3. Simple exterior walls
4. Utility load up to 10,000/kg²

Each shed possesses a mobile platform with utility load of 5 tons. As the buildings are quite extensive, it was necessary to reduce to a minimum useless construction costs. It should be pointed out finally that the upper windows correspond perfectly to the needs of the internal one-way traffic.

G. Graubner

Extension of Feinkost AG, Factory Building, Hanover

(pages 220—221)

This building is an extension of former constructions. The stairs and the various social areas have been incorporated from the older buildings. We should notice that the construction of the extension has been handled very well.

Courtois and Montois

ADB Industrial Unit at Zaventem

(pages 222—224)

The industrial unit in question is concerned with the production of theatrical lighting equipment and organs for theatres, studios, TV, etc. The site is located on land belonging to the commune of Zaventem and is adjacent to the Louvain highway; its total area amounts to about 15,000 m². The programme divided industrial activities into two sectors, one for administrative purposes and the other connected with the workshops. The administrative sector comprises the following services: management, technical services, commercial services, and various ancillary services for the general public and the staff: reception, waiting-rooms, conference rooms, display room, cafeteria and infirmary. It is apparent that a maximum in flexibility of plan and construction has been demanded. In the industrial sector the factor regarding extensions and external flexibility is of capital importance. It is more difficult to handle internal flexibility, which requires a definite volume and a relatively simple way of partitioning off. External flexibility does not allow for "finished" volumes in the case of the elongation of existing buildings or in the form of additions except where the project is deliberately carried out with an eye to the future; extension by way of repetition (adding independent buildings) would certainly be more flexible but this requires the a priori establishment of units of size.

The workshops assume the form of a perfect parallelepiped with an almost entirely closed elevation and set 15 m. behind the administrative building. Production is carried out on one storey on a coupling principle, raw materials and finished products being received and despatched at the same point.

The techniques employed in each of the buildings often differ considerably one from the other and correspond directly to the programme requirements and to the plan section. The shapes utilized express their functions with the utmost clarity, and this holds good for the techniques and materials used; this is the first but not the sole condition of all architecture; in the first instance creative freedom is a form of respect of this initial principle.

Prof. F. W. Kraemer

Recreation Centre of the Hoechst Paint Factory

(pages 225—228)

At the time of its 100th anniversary celebrations, Hoechst Ltd. decided to build a recreation centre to hold from 1,000 to 4,000 people. The project envisaged the building being used for sports, meetings, banquets and film evenings.

The architects invited to submit projects were Zehrfuss from Paris, Rainer from Vienna, Kraemer from Brunswick and Weber from Munich. The jury decided upon Kraemer's work.

The latter had planned a dome about 85 m. in diameter supported at six points with the huge skin resting on a substructure which contains the appropriate rooms: lounges, cloakrooms, technical equipment, storerooms, dressing-rooms for performers and athletes, club rooms with a maximum seating capacity of 400, a restaurant, a kitchen capable of serving up to 1,500 meals and 8 skittle alleys. The considerations that influenced Kraemer were the following: a project serving a number of different purposes requires a neutral shape so that each activity may retain its own character. The interior must reflect the special nature of a place of assembly, whereas the exterior should be the focal point of an entire population.

Kraemer came to the conclusion that a spherical skin would best meet the requirements of the assignment.

In order to stress its predominant shape, the dome has been located on a platform; this is 4 m. above the car park and to the north it backs on to the slope of the terrain. The mezzanine has been used for the subsidiary rooms, which one reaches from the car park. The advantage this solution possesses is that annexes are totally unnecessary; and thus it has been found possible to preserve the work's purity of form whilst accentuating its static character.

Dimensions:

mezzanine 136/96/4 =	13,148 m²
working surface	11,200 m²
volume	52,600 m³
hall volume	72,000 m³
span	86 m
height	15 m
area	4,520 m²

construction mezzanine

pillars and girders in reinforced concrete set on a 8.0/8.0 m. grid. The girders are prefabricated.

dome

13—15 cm. reinforced concrete skin held at six anchor points.

Technical inst.

Air-conditioning and heating, the energy for the latter being supplied by the factory (steam). Moving stage with accessory equipment for various types of meetings. Acoustic grilles holding the projectors, air vents and lights.

Floor to hold max. 2,500 seats. Balcony for 900. Supplementary galleries for 450. Projection and direction booths. Cinema, lighting, sound, and television.