locaux du bâtiment administratif sont, au rez-de-chaussée ainsi qu'aux 2 étages supérieurs, équipés de plaques acoustiques directement collées sur le béton brut des plafonds. Les planchers du rez-de-chaussée soumis à un rude usage (hall d'entrée, halle des employés, corridor, cantine et cuisine) sont revêtus de plaques en grès céram.
L'usine actuelle sera encore développée. Les installations générales électriques, sanitaires et de chauffage sont d'ore et déjà prévues pour les constructions de dimensions maximales.
Volume total de la première étape: 90.000 m³.

Bernard Granet, Jean-Pierre Hardy, Paris

Siège social et station service d'une usine à Ris-Orangis

(page 203–205)

Il arrive très rarement qu'un client-industriel donne à son architecte un programme précis en lui laissant une grande liberté dans la conception des volumes, leur implantation et leur aménagement. C'est à partir de données comme celles-ci qu'une véritable collaboration entre maître de l'ouvrage et maître d'œuvre peut s'instaurer. Ce fut le cas de la société Fruehauf et des architectes B. Granet et Hardy. Le résultat est des meilleurs.
Sans emphase, sans grandiloquence inutile visant d'habitude à metre en œuvre un faux «prestige» de la firme, sans «façade principale» qui d'habitude constitue la carte de visite faussement «riche» d'une société, sans une gamme de matériaux «riches» mais, avec intelligence, simplicité et vérité, l'ensemble Fruehauf contient de nombreuses qualités architecturales.
Face à ces qualités, les quelques défauts mineurs prennent malheureusement trop d'importance: le «pilotis» indécis, qui n'est en fait qu'une surélévation, s'il se justifie visuellement, manque d'affirmation; la disparité modulaire en plan entre le hall de l'entrée et les trois ailes de l'Y du bâtiment siège social.
Les mouvements de terre, les plantations, la signalisation excellente est jamais acceptée telle qu'elle est ici par les «consommateurs», complète utilement l'ensemble avec beauté et intelligence.

Prof. Dr.-Ing. Walter Henn, Braunschweig
Collaborateur: A. Stiller

Halle de fabrication d'une usine de machines à Aerzen-lez-Hameln

Projet 1962 – Construction 1962/63
(page 206–208)

L'usine de machines d'Aerzen est une entreprise spécialisée pour la fabrication de machines à tourner des pistons.
L'intensification de la production et les méthodes d'achèvement exigent de nouveaux bâtiments rendant possible l'incorporation de l'usine-sœur en location à Hameln, y existant depuis 100 ans et éloignée de 15 km.
Les exigeances exprimées clairement par la direction de l'usine sont: Transformabilité optimale dans l'utilisation des nouveaux ateliers de production afin de pouvoir garder le pas lors de toute modification possible dans le processus d'achèvement; des conditions de travail intéressantes pour les hommes et les machines grâce à un aménagement de haute valeur du bâtiment et une bonne atmosphère de travail grâce à une heureuse réalisation architecturale.
La bonne préparation du travail dans l'élaboration des plans eut un soutien important du fait de la bonne volonté de la direction de l'usine à vouloir un vrai travail de collaboration.
Malgré le peu de temps accordé pour l'établissement des plans, l'architecte a réussi grâce à de nombreuses discussions à obtenir sans heurts le déroulement du planning.
Le projet d'un bâtiment plat à ossature métallique fut décidé suite aux exigeances du client.
La surface de production devait rendre possible une fabrication sans heurts grâce à des distances optimales entre colonnes et permettant des extensions futures. Les bureaux annexes à la fabrique devaient être rangés sous le même toit que la fabrication. Pour les manutentions à l'intérieur de l'usine des moyens de levage étaient à prévoir.
Afin de pouvoir accorder la disposition des machines aux exigeances habituelles de la technique de production, indépendamment de la répartition présente des places, de multiples considérations amenèrent à l'établissement de grandes surfaces de production. Les dimensions du terrrain à bâtir permettent dans une utilisation économique l'établissement de deux bâtiments plats de 60,00 × 120,00 m.
Outre une halle pour l'entreposage des aciers et une station de transformation, la première étape de construction comprend une grande surface de fabrication de 5.000 m².

Karl Heinz Götz

Modèles types d'ateliers pour automobiles à Mexico

(page 209–212)

Dans le cadre de leur service-clientèle-conseil, la Volkswagen Interamericana se charge de la représentation VW en Amérique centrale et aux îles Caraïbes. L'élaboration de plans de fonction pour nouveaux ateliers VW dans ces régions est partie du travail du service-clientèle. Comme il s'agit d'un conseil relatif à la construction et qui a toujours, sous des dimensions différentes, le même type d'atelier, la firme donna l'ordre de développer pour ces régions des prototypes en tenant compte des points de vue suivants:

1. Dimensions d'ateliers entre 6 et 21 places de travail
2. Possibilités d'agrandissement dans ces dimensions
3. Détermination des plus petites dimensions du terrain
4. Possibilité d'interchangeabilité des matériaux de construction correspondant aux données locales
5. Emploi de différentes constructions (spécialement les constructions de halles)
6. Possibilités d'ajustement de l'exécution à des conditions climatiques changeantes
7. Emploi du «système 3 points» éprouvé, c'est-à-dire la coïncidence des 3 fonctions en un seul point:

a) atelier – magasin des pièces de rechange – bureau d'atelier

b) caisse – magasin des pièces de rechange – local clientèle

Les diagrammes et plans-type ici montrés sont la conséquence du terrrain choisi soit à l'angle d'une rue principale et d'une rue latérale. Les dimensions du terrain sont des dimensions minimum. La dimension de la construction sera principalement déterminée par le nombre de places de parcage – 3 à 4 fois le nombre des places de travail de l'atelier – ainsi que par la dimension des magasins des pièces de rechange qui compteront de 15 à 20 m² de surface par place de travail. La flexibilité nécessaire pour ces agrandissements sera acquise par la séparation fonctionnelle et constructive de l'établissement en 2 parties. La première partie se compose de l'atelier, de la tôlerie, de la peinture et des locaux techniques; la deuxième, du magasin des pièces de rechange, des bureaux d'atelier, de la salle d'exposition et de la salle d'attente-clientèle. De cette manière, la possibilité de séparer l'atelier au point de vue construction du bâtiment se trouvant en rue principale a été donnée, l'atelier devant avoir une portée libre (sans piliers) de plus de 18 m. De par l'introduction d'un module de 6/6 m, les deux parties de la construction peuvent être réunies en un ensemble si des considérations économiques y poussent (voir diagrammes de construction). Le module de 6/6 m est dérivé de la dimension de la place de travail soit 3/6 m. Des parties de l'établissement telle que l'installation de lavage appartenant toujours à la station service express qui ne peut de par les dimensions requises être ratachée à la modulation, sont de par leurs fonctions spéciales détachées du complexe. De par la subdivision du grand module de 6 m en petites unités (3 m, 1,5 m, 1,0 m) des matériaux divers tels que des éléments préfabriqués, peuvent trouver leur application.

Summary

Ludwig Mies van der Rohe and Associate Architects, Chicago

Home Federal Savings and Loan Association of Des Moines, Iowa

(page 174–178)

A relatively small corner site in Iowa was to be built on, for an insurance company, in such a way that around one half could be let.
The pavement width was considerably broadened by the recessing of the ground floor on the main street by 46′. Also on the three other sides the ground floor is recessed behind the building line.
In the street elevation the building appears to have 3 stories, with the 2nd floor entirely, the 1st floor partially available for letting. In the basement level there is at the disposal of the tenants a conference room with movable stage, projection room, banquet facilities and kitchen.
The ground floor is wholly taken up by banking facilities with tellers' windows. In the two corners on the street are a board room and the President's office respectively. The first floor houses the administration of the insurance company.
In continuation of his constructive ideas Mies van der Rohe has in this case too created a pure steel skeleton whose pillars have an axial interval of 40′. These supporting pillars consist of an I-section core of steel which is sheathed in concrete and faced on the outside with sheet metal. The lintel fields in the faces are tied in flush with the exterior supporting pillars. Also the aluminium windows are flush with the lintels. The only structural members that project from the level surface are rather small I-sections which are attached in front of the 5 windows along a building axis as reinforcement. Corresponding to them (not for structural reasons) are identical sections standing in front of the wide supporting pillars. In the case of the axes, 2 such sections are to be found at every corner.
The glazing of the aluminium windows on the upper floors consists of $^1/_4$″ thick non-glare grey glass, on the ground floor crystal glass in steel frames.
A combination of light source and ventilator was developed. Next to the air vents (hot and cold) in combination with these lighting fixtures individually adjustable heating and cooling units control the atmosphere of the rooms.

Ludwig Mies van der Rohe, Chicago

"One Charles Center", High-rise Office Building in Baltimore, Maryland

(page 179–183)

"One Charles Center" is the first new structure within the scope of an urban reorganization plan in Baltimore, Maryland. It is located at an intersection, one street inclining steeply. This situation results in differential grade levels exploited skillfully by the architect in that he has built a second tract used in part for shops, beneath the actual lobby, which lies on the same level as the upper part of the sloping street. This lower tract is entered via 2 steps, a long landing underneath one of the narrow ends of the building.
The building has a 3×7=21 m² rectangular plan, in front of one long side of which there has been placed a projecting tract of 3 squares in the plan. This extension of one of the long sides permitted the siting of the communications and installations core toward the long side with the projecting structure.
About half of the ground floor is taken up by public circulation zones. The public passes through beneath the building. Perpendicular to the longitudinal axis of the tower, on ground level, there is a glazed lobby with access to 8 lifts.
The tower structure rears up 21 stories above the ground floor lobby. It is topped by a 2-storey installations superstructure, recognizable outwardly from its horizontal metal slats. Garages are housed on two underground levels beneath the main tower structure.
The above-mentioned plan squares measure 23′ 6$^1/_2$″ on one side. The clearance between floors and ceilings is 8′ 8″.
The building is an aluminium-faced reinforced concrete skeleton structure. The axial interval of the pillars is 23′ 6$^1/_2$″, divided up into 5 elevation fields measuring 4′ 8$^1/_2$″ each. These are formed by aluminium profile sections, I-shaped in section, projecting in front of the parapet spaces. Of particular interest is the corner detailing. The reinforced concrete pillars, in front of which the curtain face as a whole projects about 60 cm, are sheathed with corner facing of sheet aluminium. The outermost I-sections lie in the axis of these reinforced concrete pillars. Whereas when viewed from the outside there can be seen only uniformly wide fields running from one corner to the other, from the inside the terminal fields by the pillars are narrower than the 3 middle fields. Refuse and other installations ducts have been set in front of the pillars.
Of especial interest is the ceiling detailing. It has a kink in the intermediate space between outer edge of pillar and inner edge of curtain face. This arrangement serves the housing of the Ichina equipment set up along the windows.
The aluminium is hardened, the window panes coloured.
The building has combined peripheral and central air-conditioning.

Ludwig Mies van der Rohe, Chicago

New Apartment Towers with garage in "Lafayette Park", Detroit

(page 184–188)

In Issue 11/1960 we published the plan of the Lafayette Park Project in Detroit by Mies van der Rohe, and in addition we at that time presented some already completed tower structures, as well as one- and two-storey single family row houses.
In the meantime Mies van der Rohe has built two further 21-storey apartment towers with intermediate double-deck garage. The plan has in certain essential respects been altered. The present housing complex takes the place of the three towers in the right centre of the model view appearing on Page 393 of the above-mentioned Issue in 1960.
In each of the two towers there are 300 flats, one-room to 3$^1/_2$-rooms. The garage has a capacity of 370.
The buildings are steel skeleton towers faced with aluminium, the latter retaining its natural bright colour.
Two special features should be pointed out in the apartment houses. The curtain-wall elevations are constructed in such a way that individually adjustable air-conditioning equipment can be installed. The lower frame of every single window consists of a grille behind which connections for a special air-conditioning plant are provided in the skirting board heating unit.
The second improvement is that the entrance halls, unlike those in the first Lafayette Park houses and earlier buildings by Mies, are not closed in but are as open as possible. The cellars for the tenants and the technical facilities have been moved into the basement level. The end result is that the buildings no longer stand, as it were, in direct contact with the ground and so create an effect of hovering lightness.

Ludwig Mies van der Rohe, Chicago

20th Century Gallery in Berlin

(page 189–192)

Mies has for many years been concerned with the spatial problems of museum construction. In 1942 he began with his plan for a "Museum in a small town". Here he worked out a method of disposing various wall elements freely beneath a continuous single ceiling giving rise to a flexible flowing-space effect similar to that of the famous Barcelona Pavilion. Subsequently he developed the idea of the universally employable space in the exhibition hall for paintings and sculpture in Houston, and this year his plan for the 20th Century Gallery in Berlin will once again publicize and elucidate his conception of space.
The building consists of 2 parts: first, a hall for temporary exhibitions, second, a museum for the permanent collection of the Gallery. Mies stated, "after study of the most various possibilities I decided on the design of placing the exhibition hall on a terrace over the museum. This solution to the problem permits a clear and strictly articulated building which, in my opinion, is in harmony with the Schinkel tradition in Berlin".
The main entrance is situated on Potsdamer Strasse. A large foyer affords direct access to the exhibition area and, via stairs, down to the permanent collection in the basement level. Low wainscotted cores, housing the cloakrooms and the ticket windows, guarantee a clean separation between foyer and exhibition. Since, moreover, only 2 installations shafts are present on this level, there exists maximum flexibility for the setting up of exhibitions.
The exhibition hall and the foyer have 2 systems of artificial illumination: a luminous ceiling as principal light source guaranteeing uniform illumination, plus spot-lighting for individual paintings sculptures through floor apertures.
The permanent collection gallery on the lower level has 504 continuous meters of display surface 4 m in height and is directly connected with the sculpture court of the Museum. Administration, work premises, storerooms and technical facilities are also located on this level.
The terraces and areaways, paved with granite, are so laid out that visitors can participate in the various events organized by the cultural centre.
Structurally the museum consists of a square roof measuring 64.8 m along a side, made up of an orthogonal grid of welded steel girders with 3.60 m. interval, resting on 4 peripheral beams. Steel plates with bracing are welded to the upper side of the peripheral girders. In order to take up the mounting bending stresses, the girders are reinforced toward the centre; the roof, 8.40 m. above the main terrace, transmits its load from the peripheral beams on to 8 steel columns, cruciform in section, located on the periphery of the building.
The glass and steel walls running around the exhibition hall are recessed by 2 girder intervals, i. e. 7.20 m., from the exterior face of the building. The connection between these walls and the ceiling elements is designed in such a way that it can take up both the bending stress of the roof and the vertical expansion of the steel frames bearing the glass walls.
The museum area in the basement level consists of reinforced concrete on the basis of a unit dimensioned 7.20 × 7.20 m.
The museum and the exhibition hall are fully air-conditioned via a 2-duct high-pressure system with constant humidity control. The walls of the installations rooms have a two-ply construction making for better housing of the ducts. The air-conditioning machinery is located in a basement room south of the service ramp.
Once again the Old Master has succeeded in planning a building of concentrated classical impact by restricting himself to the minimum of architectural and constructional elements.

Dr. med. Hellmut Sopp, Düsseldorf

The man in the factory

(page 193)

The decisive feature of industrial evolution is not, as one might believe, technical perfection and certainly not automation or utmost rationalization of operations, but the placing and the evaluation of the working man. Due to boom conditions, labor management relations in the workshop has become, within the last few years, at least as important as the work of the technician and the salesman. The workman is a determining factor in the profit-earning capacity of the works.

The new trend in personnel management, as expressed in the paper "New crucial points in personnel management", published by the Federal Association of German Manager's Societies, by no means denotes a sudden break-through of ethical principles into the sober and prosaic industrial working-day. The suggestions which are contained therein rather confirm this development, which began many years ago, as a proven factor in productivity.

Architecture, the art of materialization of spirit of the age, has not caught up with this development. In so far as the purpose does not prevent it, style has remained that of the administration building. Otherwise, a rectangular butter-dish cover is dropped over that which one wishes to cover; the interior is neglected in either case. Only the façade is given attention. The architect's task, however, is undisputedly greater than that of suppying a shell. The tyranny of purpose produces a tubular-shaped field of vision which in certain cases leads to partial blindness. But new developments show clearly, that the "purpose" of a factory building cannot be expressed by the number of tons produced nor by the maximum production which can be achieved. There can be no monopoly of mere technical interest. The production capacity of the factory must be optimalized, and the prerequisites are evenly distributed between the technical side of the organisation and the legitimate claims of all persons concerned. Engineering and organisation have to be adapted to the human beings who manipulate them. There is, expressed in other terms, a multivariable optimum which comprises the manifold factors of man, machine and market.

There is no universally ideal factory building, but certainly an ideal solution for any particular factory provided that a harmony between inside and outside can be achieved.

The decisive factor in the marriage of interests of both architect and owner of the propriety is information. In many cases the order given to the architect comprises merely the available amount for the building, the number of square meters to be covered and the wish to have a story height more than the competitor.

In practically any partner relationship, money is the overwhelmingly disturbing element, and a contract comes into being at the moment diverse standpoints can barely be reconciled. According to my experiences, conflicts are exclusively due to insufficient pre-planning. Owner and architect easily agree on the façade but diverge greatly as use of the space available inside. To merge the ideas of management and architect, prerequisites have to be met, both on the technical and human level to comply with the conception of modern efficiency planning.

This coordination is the task of the top level management. Obviously technical details have to be supplied from a lower level. In this respect, it is difficult to prevent these functions of auxiliary character from assuming decisive character due to the overwhelming power of objective figures. It is almost a rule that any information given to the top management is carefully dosed and is delivered only after psychological cast has been given to it. It seems strange, but it is a fact that even absolute figures are able to be made to mislead. The tyranny of experts was the end of many a good plan. A new building gives the top management the very opportunity to stand the test.

A democratic way of thinking is by no means incompatible with an authoritarian structure of the organisation. The tolerances permissible for a crankshaft cannot be put to the vote. Any industrial production depends on a clearly established decision making hierarchy. Now, any authority depends on perfect information. The ordered way should not be a single-direction way. On the contrary, the order pyramid of the inside organisation should take into account the geographical arrangement of the factory. Not only the transportation, handling and storage conditions should be, straight from the beginning, carefully planned and find their structural expression.
Mr. Freiberger (Osram) was certainly right in stating: "Size of stocking availability and handling costs determine the quality of the factory". Besides the obviously required rational inside organisation which, architectonically speaking, requires a judicious "side by side location", there are the claims of industrial psychology. Thus, the productivity of a group of women doing assembly line work may be greatly influenced by the number of WC's, of the number of mirrors and by a lounge located in another story. Operational performance as to both quality and quantity is considerably influenced by the feeling of well-being on the working place. The incentive of the pay envelope does not create qualified performance alone. The western man is unable to work without his mind being engaged at the same time, and the value of the work is dependent in a high degree upon the emotional climate of the working room.

Prof. Heinrich Schmitt, Ludwigshafen
Gerd. V. Heene, Ludwigshafen,
Werner Böninger, Peter Biedermann, Munich

C. F. Boehringer & Sons, Pharmaceutical Works, Mannheim-Waldhof

Construction period 1961–1963

(page 194–197)

The new construction is the first building on a previously unutilized industrial site. The planned final structure will comprise four parts, the first two of which have up to now been erected:

a – A production plant for pharmaceutical products

b – A division for the temporary storing and inspection of products

c – A building for the packaging of finished and inspected products

d – A six-storey laboratory building

Parts a–b–c are continuously interconnected on the operational level. It was determined in the plant planning that production, inspection and packaging ought to be carried out on one single level. This level was given a height of 1.0 m. above the ground, which is here entirely flat. 1.0 m. is the ramp height required for the loading and unloading of trucks. The plant has in many places doors where goods are received and dispatched, partly via trucks, partly via electric-powered vehicles communicating with the other tracts of the concern. In order also to facilitate transport into the basement areas, a street, running round the plant, was sunk beneath grade level along one long side of the building. The inspection wing bridges over this sunken road. Since large interconnected areas free of supports were required on the production level, there resulted, owing to the necessary girder height, an attic level, which houses all the air-conditioning equipment and corresponding ducts. The production tract (a) is wholly air-conditioned, and above and beyond this, special ventilation facilities were required for a number of rooms; thus the roof space is fully utilized.
On a basement level beneath the production floor are storerooms, additional technical installations and all the lounge facilities. A large staff lounge adjoins a sunken garden court. A cellar beneath the central tract is the lowest part; it houses mains.

Structural articulation

Of the interdependent tracts a–b–c there now stand a and b, i. e. production and inspection. The production tract is subdivided into two approximately equal halves, which face each other along a central common corridor. This passageway is utilized not only by personnel but for internal goods transport. Although fire walls separate the corridor from the production rooms, visitors can observe operations through glassed openings. For this express purpose there has also been installed along the exterior wall of one half of the building a visitors' gallery, from which the largely automated ampule manufacture can be watched. At the focal point of the building is the main stair well and the main entrance to the plant. The open lawn in front is elevated one meter, this arrangement resulting in a grade level entrance. On this open area the laboratory building is to be erected as final construction stage.

Construction system

All supporting parts of the complex are of reinforced concrete, and that in accordance with a combination of concrete poured on the site and reinforced concrete elements prepared on the site, party pre-stressed. This combination was selected for both structural and economic reasons.

Ready-made elements are:

Ceiling slabs of the basement ceiling. Girders, double-T in section, about 20 m. span.
Concrete purlins, laid between girders, to anchor the suspended ceiling on the ground floor and to buttress the air-conditioning ducts, etc.
Roof flabs.
Untreated concrete parapet slabs.
The depth of the building and the girder interval of 6.0 m. resulted for the cellar part in a module unit of 6.0 × 6.60 m. At the intersection points of the module are concrete supports, which support a system of sleepers running in both directions. Along the longitudinal faces the supports are continued upwards the full height of the building. All the ready-made parts of the roof structure are of concrete poured on site and are firmly tied in with the basement supporting system; they rest on the above supports. The buildings are reinforced by the concreted gable walls having no window openings as well as by the perpendicular fire walls along the central corridor.
The pre-fabricated slabs of the basement ceiling have in section the shape of an inverted U. They are placed at intervals of 14 cm. The interstitial cavities are designed, even later on, to accommodate all eventually necessary power lines, at any point of the ground floor, from the basement level – without imperilling the static system of the ceiling. The roof is likewise composed of similar slabs, though laid without intervals. The pre-stressed reinforced concrete girders are comb-shaped on their upper edges. Thus the roofing slabs can be laid on and at the same time air-conditioning conduits can be run from one girder interspace to the other. The air-conditioning equipment stands on a solid deck above the central passageway, which is sunken beneath the suspended ceiling of the production rooms.
Above the concrete slabs the structure of the roof is made up of porous roofing felt, 3 cm. thick heat insulation and finally a skin of Opanol plastic. The roof has no pitch. On this level roof surface there is constantly kept a sheet of water 3 cm. deep, designed mainly as a heat shield in summer. Splash-guards and upturned edges prevent the water from being blown off in high winds.

Faces and interiors

The exteriors of the buildings are composed mainly of unrendered concrete walls and elements. Only the spaces between the supports are, above the windows, faced with coloured corrugated asbestos-cement panels. The openings in them are the air intake and exhaust vents of the air-conditioning system.
Owing to the severe climate, wood was selected for the window frames, and multi-ply insulating panes. Slatted blinds running on the outside serve as brises-soleil; when not in use they are housed behind the corrugated facing.
The interior rooms were as far as possible to be furnished with dirt-repellent washable surfaces. Ceramic flooring tiles were installed in all premises except the offices, lounges, etc. The masonry walls were lined with tiling. Intermediate partitions which did not have to be solid are of concrete pre-fab frames, glazed.
Square plaster acoustic panels constitute the ceiling, into which the lighting fixtures, anemostats of the air-conditioning system, air exhaust vents and public address system are built.

Max, Peter und Günther Manz, Stuttgart
Campbell Engineering, Inc., Detroit

Assembly Plant of an American engineering concern in Wendlingen on the Neckar

Planned 1960
Built 1961 (1st Stage)

(page 198–199)

An assembly plant has been erected by an American engineering concern directly adjacent to the Karlsruhe-Munich superhighway.

The 1st construction stage, now in operation, comprises an assembly shed measuring about 2,800 sq. meters, a 1,300 sq. meters wing for offices and a technical wing with utility premises.

The main shed can be extended east and south, the office wing west and south. The building was designed on the basis of a 6×6 m. unit. This is divided into four parts in the office tract so that the unit there comes to 150 × 150 cm.

Visitors' entrances are situated on the west side of the office building, employees' entrances on the north side of the same building. This is also where the cloakrooms and lavatories are located. Toward the north in the shed structure are sliding doors giving access to the warehouse facilities.

The construction is based on a system of steel profile sections. The shed has 2 bays, each having a span of 18 m. Each bay has a travelling crane installation with lifting capacity of 20 tons.

The office tract is covered with a system of steel lattice girders with supporting span of 12 m.

All roofs are entirely flat. They consist of sheet metal pile planking sections, heat insulation and roofing felt with gravel layer.

The exterior walls of the shed are composed of sheet metal pile planking sections with plastic facing.

Behind these sheet metal walls is a 5 meter high, 25 cm. thick brick wall protecting the sections from damage from within. Above there is a row of windows (requested by the company authorities for psychological reasons).

The exterior walls of the office tract consist of prefabricated aluminium elements, which again are partly glazed, partly furnished with enamelled aluminium panels. This tract has no windows that can be opened and for that reason is fully air-conditioned. A continuous luminous ceiling gives 1,000 candlepower light at all points. Air-conditioning ducts are installed between this ceiling and the roof.

Nearly all interior partitions can be disassembled and are constructed of sheet metal elements.

The office tract has plastic tile flooring, the production tract 8 cm cross-cut timber slabs.

Burckhardt, Basel

Machine Tool Plant at Pratteln near Basel

Construction 1961/62

(page 200–202)

The factory site of the Rüegger plant is located 10 km from the city of Basel near the main Basel-Olten highway. The establishment comprises administration, production plant, garage, raw material and finished product stores, parking areas and green zone. The factory proper is subdivided into three groups:

- production-stores
- welfare facilities, offices
- administration

These three functions are revealed clearly in three construction tracts. The two dominant buildings, the production plant and the administration building, are logically functional and clearly designed, and are also connected with the low-silhouette intermediate tract housing the welfare facilities.

The production shed is subdivided into 3 zones, respectively 1 × 30 m. and 2 × 15 m. in width. The length of the shed is 80 m. The shed is equipped throughout with travelling cranes with load capacity of 10 and 20 tons with hoisting height of 10 m. For 70 m. the north zone of the shed has a railway siding. In the west part of the production shed are two raised areas for the storage of small stores. The south tract of the shed, measuring 15 × 80 m., is over basements. The basements are used for the storing of semifinished products. The basement levels, the ground floor and the two raised areas are interconnected by a 3-ton freight lift.

The production plant structure is entirely of steel. The exterior walls are of prefab self-supporting insulating panels. There is corrugated Eternit roofing. Heat insulation is effected by the use of perforated plaster slabs with interposed fibreglass matting, the whole being suspended from the roof proper. The shed tracts facing east are equipped with Difulit reinforced glass, which cuts out glare. The window strips 1.50 m. high running along the faces are fitted on the south and west faces with heat-absorbent grey panes. The floor is covered with asphalt tiles in the work site area, with a concrete top coat in the warehousing areas.

The heating and the ventilation of the 70,000 cu. m. production shed are effected by six automatic hot air blowers. The evacuation of air fouled by the gases from the welding operations is effected at floor level, where the gases are carried out via a system of underground ducts.

The administration building as well as the intermediate building housing the various technical and business offices of the company. The canteen for all the personnel is located on the ground floor. On the lower level are the cloakroom, the sanitary installations (lavatories, showers, WC), the area earmarked for records as well as the heating plant for the whole complex.

The supporting skeleton of the administration building is entirely of reinforced concrete. The cavity slabs of the ceiling have a free span of 13.50 m. The window parapets serve as longitudinal beams and are tied in with the exterior pillars. Except for the corridor and stairwell walls, which are of solid construction, the walls of the office tract consist of movable glazed partitions. The window frames are of wood, furnished with Thermopane glass and equipped with exterior Venetian blinds. The rooms of the administration building are, on the ground floor as well as on the 2 upper floors, equipped with acoustic tiles glued directly on to the raw concrete of the ceilings. The flooring on the ground floor areas subject to heavy wear (lobby, employees hall, corridor, canteen and kitchen) consists of artificial stone slabs.

The present factory will be further developed. The general electrical, sanitary and heating installations are even now envisaged for constructions of maximal dimensions.

Total volume of the first stage: 90,000 cu. m.

Bernard Granet, Jean-Pierre Hardy, Paris

The administration building and repair shop of a cargo truck manufacturing in Ris-Orangis

(page 203–205)

It seldom happens that a manufacturer gives his architect a precise building programme and at the same time full liberty as to the design of the various structures, their disposition and equipment. However, this is a way to achieve fruitful cooperation between architect and builder as is shown by this practical example which has been carried through with full success.

Simplicity and intelligence of design and a strong feeling for veracity were able to achieve here a building of high architectural concept.

That one finds a few small faults here is not so important. The pillars, upon which the building stands, do not seem to make much sense: they simply raise the building above the ground. The outline shows an administrative building of a Y-shaped ground plan which is different in the entrance hall and the office wings.

What may be called beauty which appeals to the intelligence is achieved by an adequate formation of the site, the garden plot and the excellent signals and panels.

Prof. Dr.-Ing. Walter Henn, Brunswick
Associate: A. Stiller

Production shed of a machine tool plant at Aerzen near Hameln

Plan 1962 – Construction 1962/63

(page 206–208)

The Aerzen machine tool plant is an enterprise specialized in the production of rotating piston machines.

The stepping up of production and the rationalization of the finishing process required new buildings rendering possible the incorporation of the branch plant in Hameln, in existence for a hundred years and 15 km. distant.

The requirements clearly expressed by the management of the factory are the following: Optimum transformability in the utilization of new production shops with a view to keeping in step with any possible modification in the finishing process; working conditions acceptable to the men and for the machinery thanks to optimal disposition of the works and a good working climate made possible by a happy architectural design.

Effective preparation of the work in the working out of plans was promoted greatly by the fact that there was at all times a definite will on the part of the management to create a congenial working atmosphere.

Despite the limited time available for the drawing up of the plans, the architect has succeeded thanks to numerous discussions in evolving a smoothly functioning programme.

The plan of a flat-roofed building with steel skeleton was decided on following the specifications of the owner:

The production area had to make possible smooth production owing to optimum distances between columns and permitting future extensions. The offices attached to the plant had to be installed beneath the same roof as the production shops. Cranes were installed for transport internally.

In order to adapt the machinery installations to finishing requirements at any given time, independently of existing spatial dispositions, numerous different considerations resulted in large interconnected production zones. The area of the site allowed for the erection of two buildings, flat-roofed, with dimensions of 60 × 120 meters.

Besides a shed for the storing of steel and a transformer station, the first building stage comprises a large production area of 5,000 sq. meters.

Karl Heinz Götz

Model Types of Garages in Mexico

(page 209–212)

Within the scope of their customer service programme Volkswagen Interamericana handles VW agencies in Central America and in the West Indies. The working out of functional plans for new repair garages in these regions is part of the customer service. Since what is involved is construction advice related always to the same shop type of varying dimensions, the firm has given the assignment to develop prototypes taking into consideration the following points of view:

1. Plant sizes between 6 and 21 work sites
2. Extension possibilities within these sizes
3. Determination of minimal site areas
4. Possibility of exchanging building materials in keeping with local requirements
5. Employment of differential constructions (special shed structures)
6. Possibility of adaptation of architecture to changing climatic conditions
7. Application of the tried and tested "three point system", i. e. the convergence of three functions in one point:
   a) Workshop – spare parts stores – plant office
   b) Business office – spare parts stores – customer area

Definite sites are taken as the basis of the diagrams and type plans shown here, i. e. on corners of main thoroughfares and side streets. The site areas arrived at are minimal sizes. The size of the total lay-out is essentially determined by the number of parking sites – 3 to 4 times the number of work sites in the plant – as well as by the dimensions of the spare parts stores, which will come to from 15 to 20 sq. m. per work site. The flexibility necessary for extensions was achieved by the functional and also structural separation of the plant into 2 parts. The first part consists of the repair shop, the body work plant and paint shop and the technical facilities; the second of the spare parts stores, the plant offices and the display and customer area. This also makes it possible to separate the workshop, which has to have a support-free span of over 18 m., structurally from the wing located on the main street. Owing to the introduction of a module of 6/6, both wings can, however, be integrated within one construction system, if economic considerations call for it (cf. diagram). The module of 6/6 is derived from the work site dimensions of 6 × 6 m. Sections like the car laundry or the express service station, which owing to their required dimensions are not included within the module system, are separated from the rest of the plant in keeping with their special functions. The large module units are subdivided into smaller units (3 m., 1.5 m., 1.0 m.); thus the most various materials, such as prefab elements, can be employed.