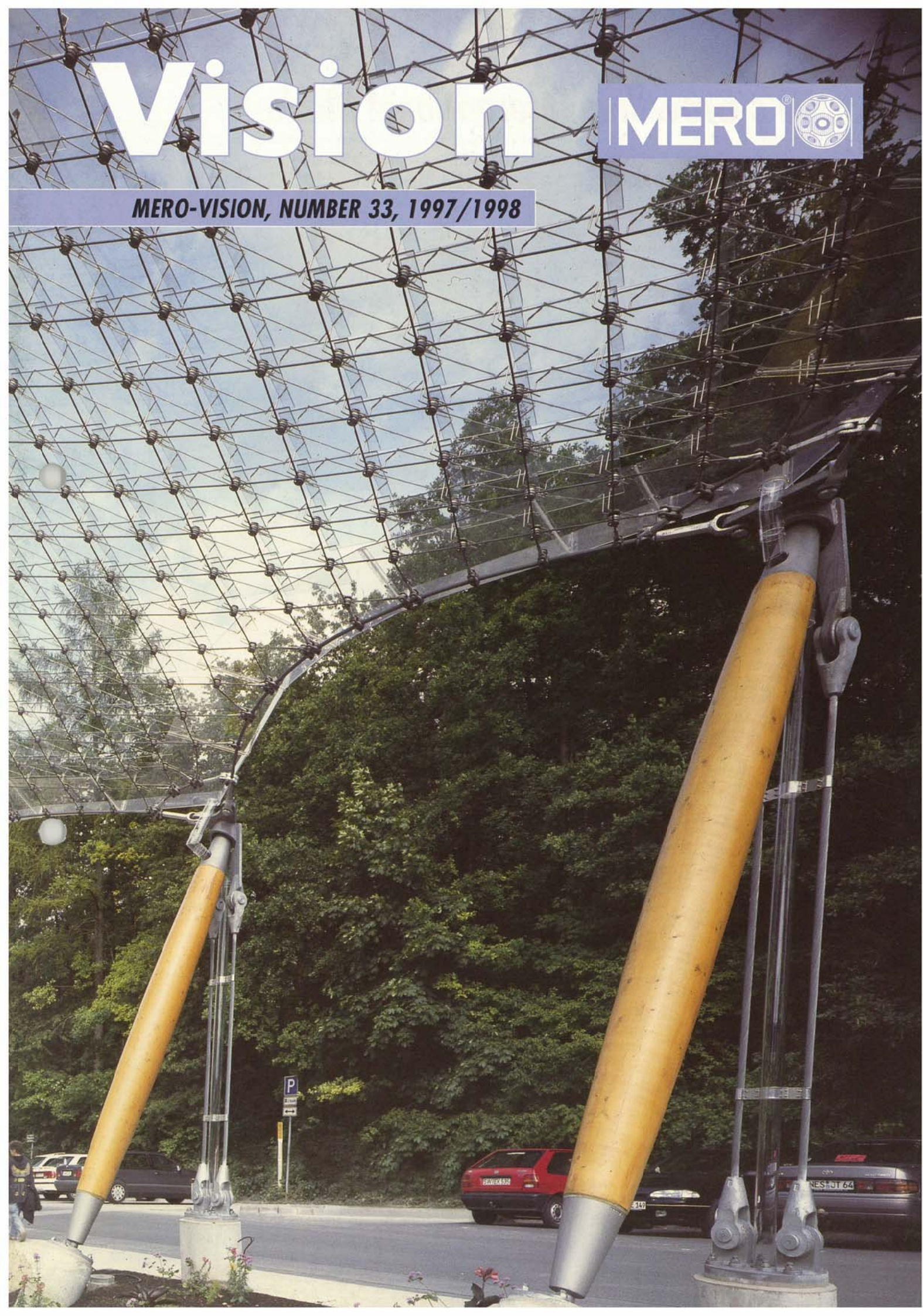


Vision

MERO®



MERO-VISION, NUMBER 33, 1997/1998



MERO's Growth in International Markets

MERO Systeme GmbH & Co. KG Receives Quality Certification According to DIN EN ISO 9001

Being a global company allowed MERO to achieve a number of accomplishments in 1997, which to a great extent, enabled us to succeed despite the lack of economic development in the German construction market. For the first time the total order income of the MERO Group exceeded DEM 300 million, 60% of this amount coming from abroad.

The new organization of our Construction Systems Division with its clear definition on responsibilities, structures and procedures has noticeably increased our efficiency. The most prestigious order received by this division is the „Arts Center“ in Singapore, a cultural center with an approx. order value of SGD 30 million. One of Germany's largest orders is a roof structure for the train station in Berlin-Spandau, currently under construction.

Orders for complete roof structures for the TUAS and Woodlands Checkpoints at the new border stations between Singapore and Malaysia are presently under construction and on schedule. These projects brought our wholly-owned subsidiary MERO Asia Pacific Pte. Ltd. a new level of recognition in the construction field.

The new joint venture MERO Structures (M) Sdn. Bhd. with GEAHIN/Sri Bulatan in Malaysia, one of Malaysia's largest and most modern steel construction companies, will help us to further develop our good reputation in the promising Malaysian market.

In 1997 our Japanese joint venture company NISSO-MERO System Corp. succeeded in obtaining a construction permit. This means that in addition to the sale of products of our Exhibit Systems Division, structural projects can now be undertaken.

Our US subsidiary MERO Structures, Inc. has reached a new sales dimension with the receipt of two large orders. Namely, a roof structure for „Freedom Ring“ in Manila, an entertainment park in the Philippines, where MERO is providing seven trapezoidal roof structures with translucent cladding for the centennial independence celebrations. The other large order is a roof structure for the basketball stadium for the University of Florida. Following the receipt of an order of a maintenance dock from SAS, Norway, with a value of more than DEM 8 million and various smaller orders

from the US and Egypt, our aircraft maintenance docks division Airport-Technik has shown positive and continuing development.

In our Floor Systems Division the application of access floors has again prevailed over the usage of cavity floors, setting a solid foundation for future development. Orders from foreign markets also contributed to the envisaged future growth of access floors.

With the expansion of the 4D system technology our Exhibit Systems Division has broken new technological ground. The customers at the training and administration center of IBM in Sindelfingen, Germany were intrigued by our glass fixing devices, cable techniques and constructive design elements. MERO's newly designed showroom in Prichsenstadt was not only the center of attraction for foreign and domestic exhibition builders, but has also promoted the increase of export sales of our Exhibit Systems Division to more than 55%.

The MERO International Meeting which was held in Wuerzburg earlier in the year has further improved communication and methods of global cooperation amongst our international subsidiaries. As partners in the „Pacific Rim“ our subsidiaries in the USA (home of many international architects and engineers) and the Far East with its rapid growth in construction are striving for a closer cooperation.

At MERO we are proud of having brought together employees of more than 20 different nationalities into one creative team. We continually strive to provide them with opportunities for their development in our international organization. Through foreign language studies and computer training (MERO is using the SAP business software, an international standard, since 1997) our company know-how, the communication and the transparency of the MERO Group has noticeably improved.



Combined with MERO's technology our customers worldwide shall be addressed in a competent manner in their language and with their cultural background. This service is now also available via the Internet.

The constant endeavor for customer satisfaction and the effort of the employees of MERO Systeme GmbH & Co. KG (Floor Systems, Exhibit Systems and Construction Systems - production) enabled MERO to be awarded certification according to DIN EN ISO 9001 shortly before year end.

Our intention in the new business year is to gain the certification for the remaining divisions of the MERO Group. We want to streamline our organization and its procedures following Dr. Mengerhausen's policy „Aim for Simplicity“ and thus increase our efficiency even further. Another focal point will be the innovation

Freedom Ring

For the centennial independence celebrations of the Philippines MERO received an order for the supply of a semi-circular structure consisting of seven trapezoidal roofs in MERO KK system covering a total area of 33.000 sqm incl. purlins and cladding. The inauguration will take place in June of 1998.

with glass and glazed structures. Through investments into our foreign subsidiaries, our international presence will be further strengthened and expanded.

We are confident that we have created the foundation for continued growth in the years to come.

Dr. Roland Klose
Managing Director

Josef Rossmanith
Managing Director

The roof structure of the „National Theater“ in Kuala Lumpur, Malaysia is shaped in accordance with national building traditions. A folded plate MERO structure with a total surface of 16.845 sqm covering an area of 165 x 107 m is the most efficient solution.

Arch.: ADC Arkitek, Kuala Lumpur/Malays

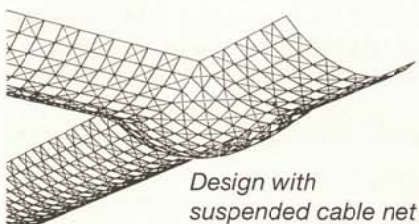


Tensile Structures Supplement the Variety of Forms

The regular convex solids - tetrahedron, hexahedron, octahedron, dodecahedron and icosahedron - are the basic elements of space frame structures. They have the common characteristic that in each case plane faces of equal dimensions form their respective surfaces. If the edges are replaced by tubes and the corners by nodes the results are the typical MERO space frame geometries - a model of crystalline structures.

*Roof structure covering parking lot at Budget Rent-a-Car, New Jersey/USA
Arch.: Mark S. Carelli, USA*

In order to comprehend the world of MERO shell structures, imagine a suspended mesh network which can inevitably only absorb tension forces from its own dead load.

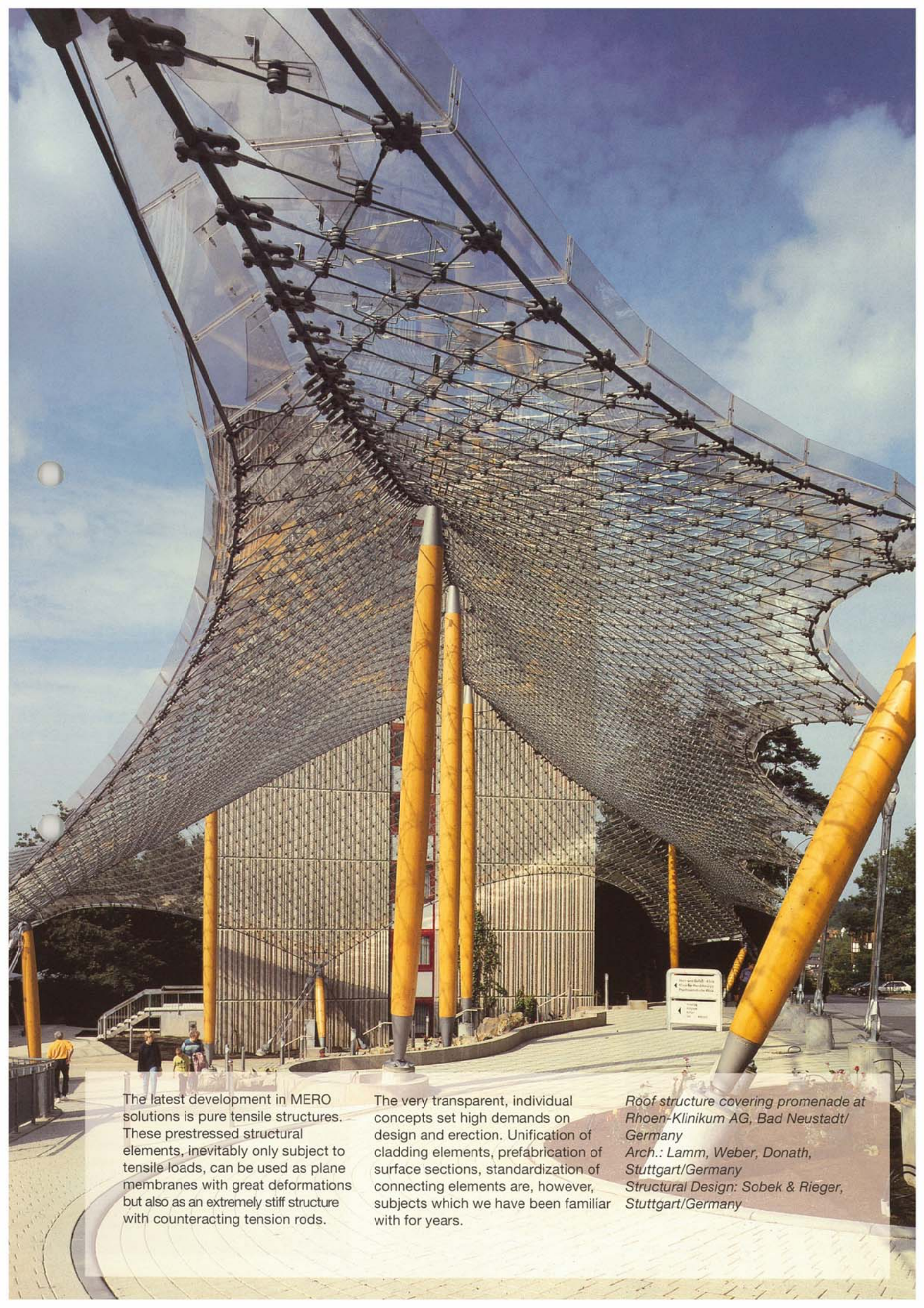


If the net is curved upward, vertical loads only generate compression which, acting as axial member forces, causes minimal deformations of the structure - an important basic requirement for glazed structures. Aside from the structural analysis, an essential task of the MERO engineers consists of designing the surface, i. e. the structural geometry and thus the glazing grid, in such a way that it is possible to work with plane glass panes at a reasonable price in spite of the biaxial curvature.

MERO Tensile System with hollow sections



*Bugis Junction, Singapore Arch.: DP Architects, Singapore
Structural Design: Schlaich, Bergermann & Partner, Stuttgart/Germany*



The latest development in MERO solutions is pure tensile structures. These prestressed structural elements, inevitably only subject to tensile loads, can be used as plane membranes with great deformations but also as an extremely stiff structure with counteracting tension rods.

The very transparent, individual concepts set high demands on design and erection. Unification of cladding elements, prefabrication of surface sections, standardization of connecting elements are, however, subjects which we have been familiar with for years.

Roof structure covering promenade at Rhoen-Klinikum AG, Bad Neustadt/ Germany
Arch.: Lamm, Weber, Donath, Stuttgart/Germany
Structural Design: Sobek & Rieger, Stuttgart/Germany

The Way to Distinctive Design

At the International Furniture Fair in January 1997 the Cologne Fair offered additional exhibition space to their customers (Hall 9) and a spacious glazed passage as a recreation area to their guests. A single-layer shell structure was the chosen solution for the glazed structure realized as a MERO Tensile Structure with rectangular hollow profiles.

The tubes form a rectangular grid with elements of approx. 1.5 x 1.5 m. They have concealed screwed connections with MERO block nodes. The function of the shell is ensured by pairs of prestressed diagonal cable trusses. As a result of the unfavorable support conditions, the shell structure had to be stabilized by additional girders at intervals of 12 m each. In summer the solar/heat protection glazing with an energy transmission of only 34% provides a pleasant room climate even without further sunshades.

Warm air and integrated facade heating is provided for in winter. The roof glazing was sealed with the



Integrated Facade Heating

MERO Vario Clip System, with lowered horizontal profiles facilitating the unimpeded drainage of rain water.

The same static concept as for the glazed passages may also be observed in the case of the platform roofs



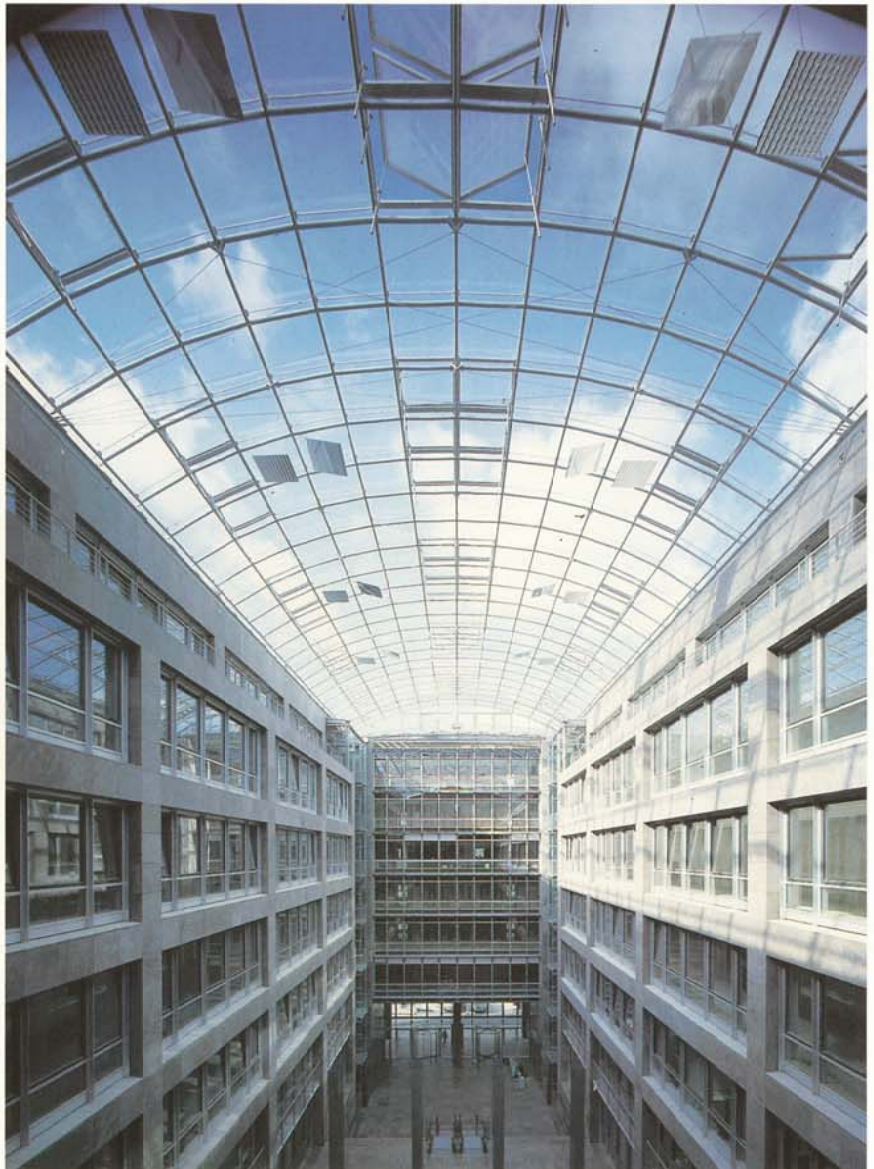
Arch.: Z + P Prof. Zerbe + Partner,
Cologne/Germany

for the train station in Berlin, Spandau. A roof area of approx. 20.000 sqm follows the curved railroad tracks with a continuously expanding span. Shell structures are ideally suited to this kind of natural design. According to specifications, the structural solution is based on massive steel profiles screwed together with butt straps at the crossing points.

Arch.: gmp, Hamburg/Germany
Structural Design: Schlaich, Bergermann & Partner, Stuttgart/Germany



The ideal solution does not always have to be a shell structure. The roof of the „Atrium“ in Berlin consists of a bending-resistant frame structure of round sections assembled on site with concealed screwed connections. Prestressed vertical cable sections, each stabilizing several arched girders, permit only minimal bending moments and allow the high transparency of the structure. Another substantial contribution to this result is made by the glazing system which is supported in the corner points only and sealed with silicone without penetrations of the glass panes.



Arch.: gmp, Hamburg/Germany



Solutions of high aesthetic value are also produced by a combination of point-supported glass with the MERO ball node system. A single-layer dome of laser-welded stainless steel tubes screwed together with stainless steel cable trusses to form a shell structure is the decorative focal point in the foyer of Lino Santi in Bassano del Grappa, Italy.



Arch.: Ing. F. Iess,
Bassano del Grappa, Italy



New Designs and Proven Solutions Strengthen Worldwide Market Position

A clear turnaround in the air traffic sector has shown a positive development in turnover in passenger transportation and cargo services. The increase rate (6% in 1995) is now moving towards a two-digit figure.

In 1996 the number of orders for aircraft was substantial - showing a growing demand in 1997. Aircraft manufacturers, therefore, are not able to meet their delivery schedules, even though their monthly output has doubled since 1996.

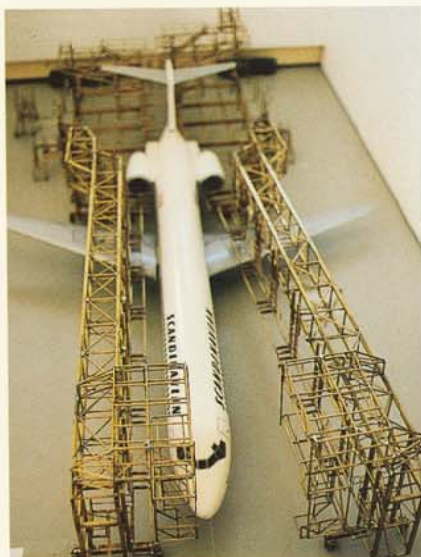
This means that a surplus of aircraft maintenance equipment in the early 90's has almost been exhausted. New maintenance equipment is needed for wide-bodied aircraft such as A 340, B 777 and B 747-400 and also for short-distance aircraft such as B 737-600 and MD 90. Experts are talking about a possible increase of aircraft maintenance work of approx. 40% within the next eight years.

This is one of the reasons for the recent accomplishments of the Airport-Technik department and we are proud to have gained acceptance against a constantly increasing number of international competitors. In addition to a competitive pricing policy we offer a full service package which includes design, manufacturing and installation. We have achieved our success through experience in project management, a high level of engineering expertise and the superior quality of our products.

The basis for our achievements is the ability to provide our clients with an ever increasing number of new ideas, offering solutions in accordance with individual tender requirements and new intelligent designs on a custom basis to guarantee complete customer satisfaction.

A distinctive solution based on tender requirements resulted in the receipt of an order to equip 4 bays with docking installations for aircraft types B 737 and MD 90 by SAS, Oslo/Norway. In contrast to the SAS order, a new design was the decisive factor for an order by Egypt Air - a combined overhaul dock for aircraft types A 300, A 340, B 767 and B 777 by various manufacturers.

New solutions were also provided on two projects which MERO executed for AMECO in Beijing. They were welcomed by our client, since they fulfilled all their requirements. Also, this order put us in a good position against our competition for future work.



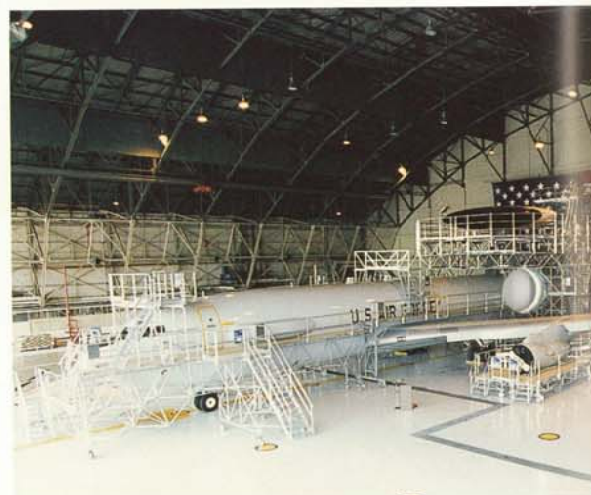
Model of docking installations for B 737/MD 90, SAS, Oslo/Norway

We also were awarded two nose dock units by Tinker Air Force Base in Oklahoma, USA for scaffold structures with the traditional MERO tube/node construction system in aluminum. Our most recent accomplishments underline our policy of offering and supplying individual docking systems of the highest quality.

The new abbreviation for our department, "BPW" (Bausysteme Projekte Wartungssysteme = Project Maintenance), indicates that service for all sorts of maintenance equipment, e. g. aircraft, buildings and industrial equipment (see photos) is centrally handled by one department - MERO Airport-Technik. From glazed structures with cleaning gantries as package solutions to platforms for maintenance and assembly of machinery, BPW,



which previously had been subject to the highs and lows of the aviation industry, now offers a broad range of services.



Maintenance Docks for AWACS E 3-A US Air Force observation aircraft at Tinker AFB in Oklahoma, USA



Assembly platforms for gas turbines 100-165 MW at ABB, Mannheim/Germany



Universal tail dock for maintenance of any size passenger aircraft. This picture shows lifting of the working platforms by means of a chain drive. The equipment is in accordance with council directive 89/392 /EEC and therefore CE-certified. Inspection with final approval was carried out by DEKRA (German Quality Certification Authority) in Beijing in September 1997.



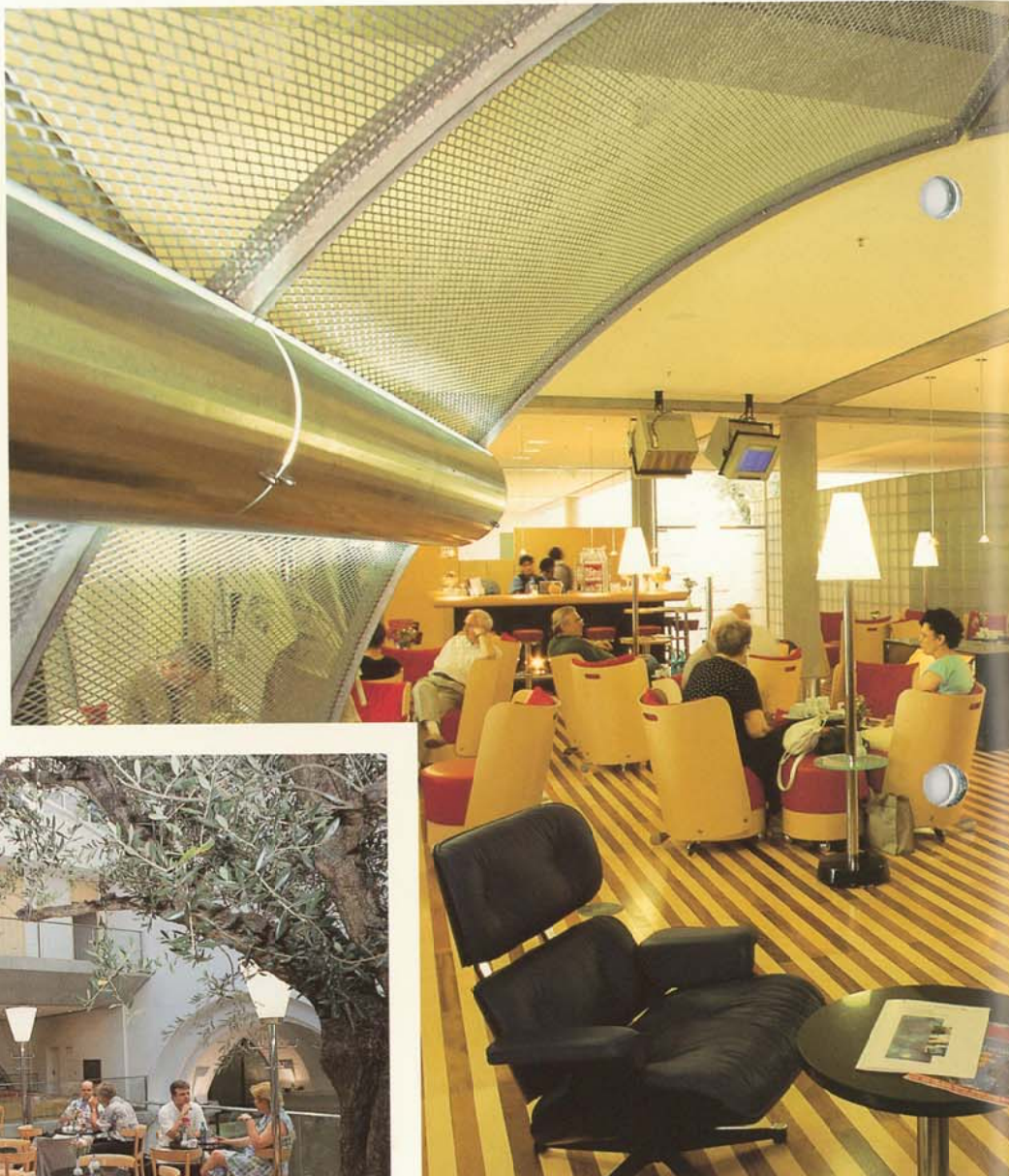
Remarkable Renovations with MERO Access Floors

Waiting Made Pleasant

People missing their train at Frankfurt's main railway station may now wait for their next connection in a very pleasant atmosphere. Next to the new travel center, the Deutsche Bahn AG (German Railway) in Frankfurt presents a comfortable waiting zone enhanced by round stucco arches, a glazed roof and MERO access flooring.

The visitor is welcomed by elegant surroundings, inviting rest and relaxation. Here travelers may spend their waiting time in a most pleasant way.

Renovation of the old building required installation of approx. 2.000 sqm access floor type 4 anhydrite. 1.250 sqm were covered with stone tiles or loosely laid carpet tiles on site. An additional 750 sqm of MERO access floor type 5 was installed in the counter area. The special chipboard panels have a parquet covering which was applied at the MERO production plant. MERO's challenge was to safely bridge the underfloor space which was already limited by air conditioning and heating pipes.



The first DB (German Railway) lounge was opened at Frankfurt's main railway station. Here travelers may spend their waiting time in a relaxed, comfortable atmosphere.



Modern Technique and MERO Access Floors Give Monument New Life

*Deutsche Bank, Berlin/Germany
Unter den Linden*



The story of the Deutsche Bank began in 1870.
In 1997 - more than a century later - the building was refurbished.
MERO reconstructed the office area by equipping approx. 6.000 sqm with

access floor type 4 anhydrite with loose covering tiles and 3.000 sqm with access floor type 6 (mineral panel with substructure), screwed and covered with an overall carpet stretched over the surface.

We Keep Communication Flowing

Rectangular office areas encircle the perimeter of the MDR building in Halle/Germany, creating an inner round core of studios and technical rooms.

At the new radio station of the „Mitteldeutscher Rundfunk“ (MDR) installation included 8.500 sqm of MERO access floor type 4. In accordance with the requirements, the access floor panels provided by MERO included self-adhesive carpet tiles as well as factory-applied textile carpets, stone and linoleum coverings.

Nearly every product MERO Floor Systems offers was used in order to accommodate ten different construction heights ranging from 120 mm to 820 mm, including a special sound insulation as well as the use of seven different kinds of floor coverings.



Creative Designs with Glass



*Mitteldeutscher Rundfunk,
Halle/Germany*

Our newly developed glass floor panels allow a harmonic application in interior and exterior design.

The example shown depicts LED projecting square pictures on the opaque surface of the glass.

With their various types of panels, MERO Floor Systems offers assistance in modern construction. The cavity beneath the access floor provides space for installation of power supply and service ducts.

Installation in Only Three Weeks

Within record time a clean room was installed at ABB in Switzerland.



Perforated steel panels with a free airflow of 23.7% were applied to an area of 1.850 sqm. The panels and stringers were powder-coated and enameled at our plant in Prichsenstadt; pedestals were galvanized and chromitized. The floor covering chosen was Colorex 5000 EL.



Checkpoint Charlie, Berlin/Germany

At „Checkpoint Charlie“, the former border crossing in Berlin, Germany, four new office buildings, also referred to as „quarters“, are currently under construction.

Since MERO Floor Systems was able to successfully complete the initial building with a total of 17.000 sqm of access floor type 4 anhydrite on schedule, MERO was awarded the order for an additional 12.000 sqm of the same type access floor. MERO's special task was the connection to the modular air conditioning and heating system in the facade area.



Glass Applications for the Exhibition Industry

Glass has already proven its potential in the facade sector as a translucent, protective covering with more and more daring static functions. Now MERO Exhibit Systems applies this advanced technology, along with their experience advantage, in designing exhibit and interior constructions, to present their clients with a well thought out range of fixing devices.

Spider fixtures with bolted and magnetic attachment for meroform M12 and MERO 4D

A Challenge for Our Developers: The IBM Think Tank

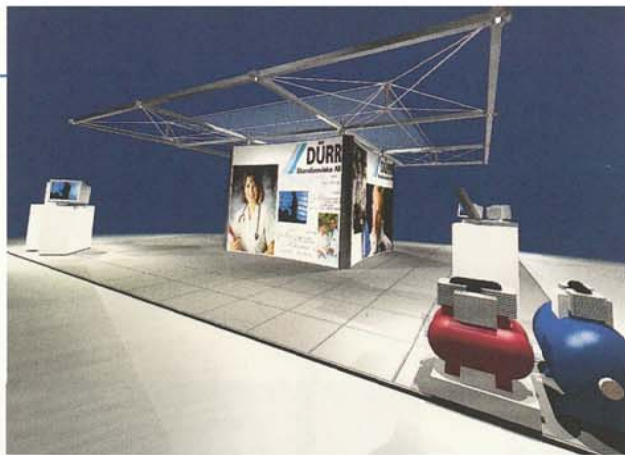
The strict criteria applied to modular construction technology by the architects designing for IBM could only be met by a system like MERO 4D:



Variable ground plan designs through hinge support, a ceiling grid spanning 4 m with cable looms concealed in the girders, fastest possible replacement of panel elements through magnetic adhesion, complete screening of the skeleton construction.

*Kammerer und Belz, Stuttgart/
Germany*





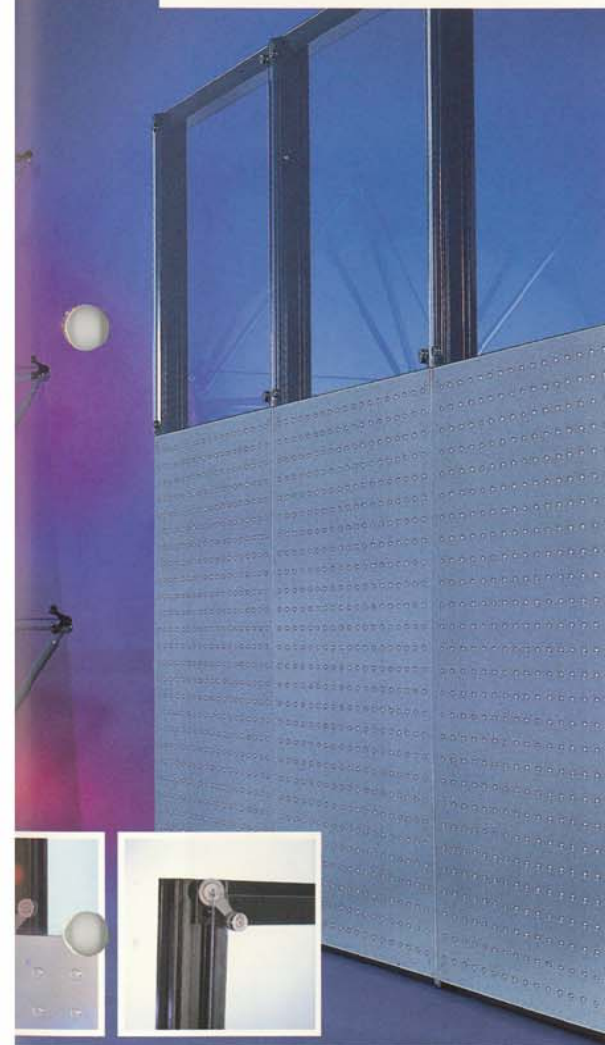
Landmark Design

Individual yet Systematic Design

A communication island with plenty of space around it for people and products. Large photo-decorated walls made from MEROLITE pop-up displays are covered by a MERO 4D construction made of steel cables with integrated lighting.

Well-designed fair applications made from MERO 4D are characterized by an almost timeless elegance. These frame elements and projections individually produced for use on the HEAD fair stand prove that the modular program can also be „personalized“.

Design and Realization: Bartsch AB, Sweden



At the BAU '97 Fair in Munich, Heidelberg Zement presented themselves in their new outfit with a MERO 4D Construction System
Planning: Lauterbach, Nuremberg/Germany

Design and Realization: Schnaitt, Bergheim/Germany

Performance - The New Trade Fair Stand Idea by MERO

Think global, act local! To meet its target groups a company must increasingly be present at regional trade fairs. If you for example frequently appear at technical congresses, organize in-house fairs or would like to use existing structures in your own company foyer between fair appearances, it is worth while buying your own exhibition stand.

With Performance MERO offers top German design and a system technology that can be flexibly expanded. Performance is tailor-made for exhibitors with small stand surface areas, who generally do without the services of an exhibition builder. Complete stand solutions and individual pieces of furniture have been created with a circle of main dealers who have contributed their design and system experience.

*CAD design and computer animation
by Loth & Partner, Duesseldorf/
Germany*

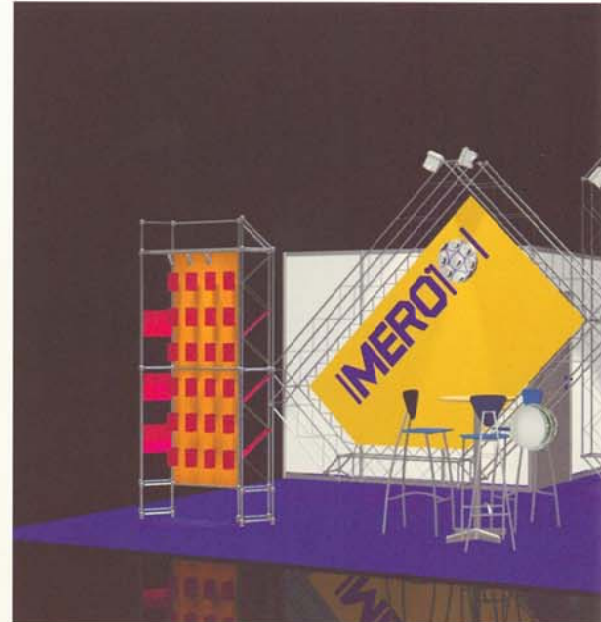
*Products presented in this modern
showcase made from R8 system
components attract particular attention*

*R8 aluminum system and light-colored
wood - you cannot find a more modern
and up-to-date combination*



*The computer desk made from
meroform M12 components provides
sufficient space for monitor, printer
and other hardware*

*Computer animation by Loth &
Partner, Duesseldorf/Germany*



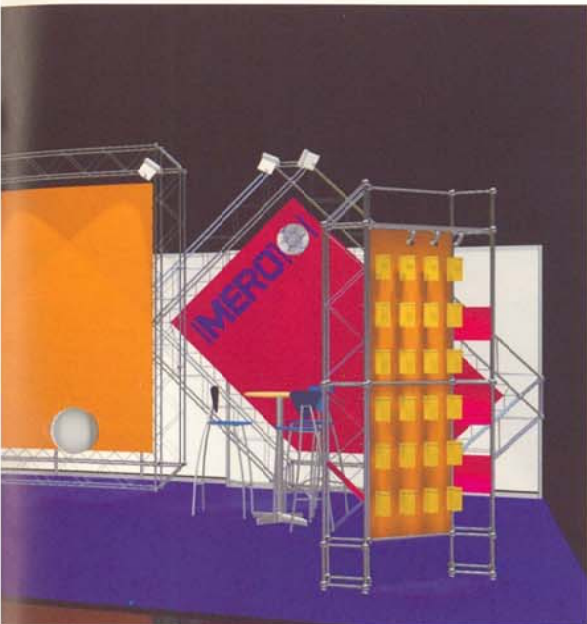
*meroform M12 frame girders, complete
with lighting and textile covering*



MERO International Partners

Outstanding achievements in spite of difficult conditions.

The examples illustrated on this page show the outstanding results our sales partners in South America, Africa and Eastern Europe are capable of in spite of bottlenecks and tight budgets.



Design and Realization:
Revyco (formerly known as Lotech),
Czech Republic



Design and Realization:
Arpro Equipamentos, Brazil

Fairs - Events - Visitors - Memorabilia

Globalization, Intermodality (the complete integration of all transportation methods) and Communication were only a few catchwords heard at the Interairport 97 in Frankfurt this September.

At this fair MERO Airport-Technik presented themselves with a booth in the shape of a hangar made from meroform M12 construction system components. The interested visitor was able to become acquainted with the principals of MERO's maintenance docks by means of models.



MERO Structures, Inc. at the AIA Show in New Orleans/USA

Partner Meeting at MERO Asia Pacific, Singapore



The meeting of MERO Asia Pacific's partners took place on August 14th and 15th at their offices in Singapore. It was attended by 27 partners from 12 Asian countries. Objective of the meeting was to introduce new products of our Exhibit Systems Division and at the same time point out certain product highlights such as quarter circle tubes, panel connectors, cable techniques and double-deck structures made from 42M12 material. Also of importance was the exchange of information amongst the sales partners of MERO Asia Pacific. During the event the partners also had the opportunity to present their latest projects.



At the AIA Show, which took place in New Orleans from May 14th to 19th, the Structural and Exhibit Systems Divisions of MERO Structures, Inc. presented their latest ideas with glass, glass fixing devices and tensile structures in combination with MERO supporting structures.

Wharton Powers from the Philippines received an award for „best success stories“ and C. D. Associates from Malaysia for „best design“. All meroform Service & Design Partners were also honored.

Performance Dealers Meet in Prichsenstadt

On October 17th domestic Performance dealers met at the showroom of MERO Exhibit Systems in Prichsenstadt for an exchange of information.

German Stamp Features MERO Structure



The special issue „500 Years City of Leipzig“ shows the glass hall at the New Leipzig Fair - the new symbol of Leipzig and focal point at the fair grounds - built by MERO Construction Systems. The edifice required 2.070 tons of steel and 30.000 sqm of glass. This special issue is already the second stamp that features a MERO structure.

Malaysian Banknote Shows Performance Made in Wuerzburg



MERO on the Internet Since June 1997



You can find us on the Internet at
<http://www.mero.de>



MERO Receives Galvanization Award for the Glass Hall at the New Leipzig Fair



voluma Design Award

20 years ago the Swiss Ruedi Zwissler developed a product that was timeless in design. The product voluma represents a new generation of exhibition systems that is characterized by functionality and ease of handling.

Just in time for this anniversary voluma was awarded the Busse Longlife Design Award. We are proud to now have added the second design classic to our credits as our MERO node was awarded this prize in 1993.



Participants at a workshop in Prichsenstadt which took place on June 27th



Divisions:

Construction Systems

- Space Frames
- Glazed Structures
- Aircraft Maintenance Docks

Floor Systems

- Access Floors
- Cavity Floors
- Services

Exhibit Systems

- meroform
- MERO 4D
- MEROCOM
- MEROLITE
- R8system
- voluma

Imprint

MERO-Vision No. 33, 1997/98

Title:
Tensile Roof Structure
Promenade Franken Health Clinic
Bad Neustadt/Germany

Publisher:

MERO GmbH & Co. KG

Max-Mengeringhausen-Str. 5
97084 Wuerzburg
Germany

Phone (+49) 9 31/66 70-0
Fax (+49) 9 31/66 70-2 16
Internet <http://www.mero.de>