The Art of Engineering – Our Passion

Complete Solutions for Energy, Infrastructure and the Environment
Specialists in Energy, Transport, Industry and the Environment

IM Maggia Engineering AG and IUB Engineering AG are leading consultants and planners delivering sophisticated engineering solutions for major infrastructure projects in Switzerland and internationally. Together we have a wealth of experience in power station construction, tunnelling and hydraulic engineering as well as structural and civil engineering. Our key areas of expertise include the design and construction of infrastructure projects, such as electromechanical equipment for electricity generation and distribution, plant installation, safety and security systems, control technology and telecommunications solutions. Our services include consultancy, feasibility studies and option appraisals, through to project development and project management. We can provide integral construction supervision for certainty of delivery, covering assembly and commissioning of entire projects.

Owned by Our Staff

IM and IUB are wholly owned subsidiaries of the Engineering Beteiligungsgesellschaft AG in Locarno, Switzerland. Its shares are owned entirely by the current employees of the two subsidiaries. Both companies are completely independent of third parties and totally dedicated to the interests of their customers. IM and IUB have about 250 employees at a number of locations in Switzerland, always close to their customers and projects. Both companies are operated under group management to ensure optimum deployment of resources and know-how.

Our Experts – Our Greatest Asset

Highly trained, well motivated employees are the key to our success. Ongoing training ensures that our specialist knowledge is always up to date and that we use the latest tools and procedures. To this end we collaborate closely with universities, public authorities and engineering associations. Most of our employees have years of experience and we value ongoing practical training. Our project engineers benefit from their previous experience as construction managers.

A Competent Team

Our engineers, technicians, construction managers, draughtsmen and specialists in various disciplines all work together in close cooperation. Our teams are geared to individual project objectives and the specific requirements of the customer to ensure provision of all the engineering services needed. Our multidisciplinary approach enables us to successfully tackle even the most complex high-tech projects with seamless coordination. We believe in being honest and open with our partners and customers, and that creating a relationship based on trust is vital to the success of every project. We create innovative and economic solutions because everything we do is focused on your projects and aspirations.
A6 motorway junction Berne. Sliding a new bridge into place whilst the traffic continues to flow freely.
Sectors and Services

Civil and Structural Engineering

- Hydroelectric power stations (all types)
- Hydraulic engineering and flood protection
- Road and rail tunnels
- Foundation engineering and rock consolidation
- Buildings
- Roads, bridges and utilities
- Railway construction
- Surveying and photogrammetry
- Measurement of vibration and deflection, testing and inspection of motorway structures
- Geographical and network information systems
- Building maintenance and refurbishment

Electromechanical Systems

- Facilities for power generation and distribution
- Information & control systems
- Process measurement and control equipment
- Tunnel operating and safety equipment
- Traffic engineering and traffic management systems
- Telecommunication systems, networks, telephony, radio networks and video transmission systems
- Building technology, building management systems and electrical design
- Environmental technology, district heating power plants, combined heat and power generation
- Aerodynamics and thermodynamics, mechanical engineering

Our Services

- Preliminary investigations and feasibility studies
- Concept and detail design
- Tendering documents and evaluation of bids
- Project execution
- Construction management, site supervision and local management
- Client support and project management
- Expert opinions, design assessments
- General planning of multidisciplinary projects
- Evaluation of facilities, financial assessments and -modelling
- Reconnaissance of structural deterioration, life-cycle analysis and rehabilitation programmes
- Numerical simulation with accompanying scale model and in-situ tests
Hydraulic Engineering and Power Station Construction

Water is vital. We all depend on pure drinking water and healthy river habitats; we use its energy to generate electricity in hydroelectric power stations and build flood defences to protect ourselves from its awesome power. We take all of these factors into account when producing innovative and well-balanced solutions for our projects. These projects benefit from the wealth of experience our specialists have gained in:

- Hydroelectric power stations, high- and low-pressure facilities, small-scale hydro-power,
pumped-storage power plants, dams and hydraulic steel structures
- Construction and monitoring of dams
- Hydraulic engineering, river engineering and flood protection
- Revitalisation of rivers
- Natural hazards analysis and flood protection structures
- Flow simulation and hydrodynamics
- Seismic safety verification
- Hydrology and economical assessments

We cover all the phases of a project, from the conceptual design through to project planning, delivery and commissioning, monitoring and maintenance. We draw on our company specialists from the fields of underground construction, foundation engineering, structural engineering and electro-mechanics to form our multidisciplinary teams.

1) Dam and sedimentation basin for the catchment of Cerentino small hydro-power plant. 2) KWO, Gerstenegg cut-and-cover tunnel. 3) Driftwood retention basin Ettisbühl. 4) Intake construction Solis dam. 5) Büyükdüz hydro-power station, Turkey. 6) Revitalisation of the Gürbe river for flood protection.
Hydro-Power Projects
- New 1,000 MW Limmern pumped-storage power plant
- New 1,200 MW Ilisu power station, Turkey
- Refurbishment of the Kaiserstuhl and Unteraa power stations, EW Obwalden
- New Büyükdüz power station, Turkey
- Renewal of the Aarau power station with new catchment
- Renewal of the Limmat power stations at Aue, Kappelerhof and Schiffmühle
- Upgrading of the Oberhasli power stations (KWO plus): extension of Grimsel 1, Handeck 2a, Innertkirchen 1a
- New Lago Bianco pumped-storage power plant (client support and project work)
- Refurbishment of the Amsteg power plant, Uri
- Replacement of pressure conduit for the Oberrickenbach power plant

Flood Protection Projects
- Thunersee and Sarneraa flood relief tunnels
- Aare flood protection and revitalisation, section Olten–Aarau and mouth of Gürbe
- Uri valley flood protection, RUAG debris collector
- Linth and Escher canal flood protection and revitalisation
- Replacement of the Reuss weir, Lucerne
- Kleine Emme flood defences
Underground Construction

The underground construction department has comprehensive experience in all categories of tunnel, gallery and cavern construction. Our company has worked in all geological formations in Switzerland so we are thoroughly familiar with the appropriate construction methods, from unstable slopes and in ground water to squeezing rock. Among our references are various gallery systems in the High Alps, large cavern and gallery systems in hydro-power schemes as well as long road and rail tunnels. Where necessary we undertake complex rock mechanics computations with three-dimensional finite element modelling and non-linear material laws, to optimise excavation and support. Thanks to our ongoing dialogue with contractors and experts in the sector we are able to develop cost-effective and time-saving solutions for logistics and construction.

Projects
- NEAT Alp Transit Lötschberg base tunnel
- A9, Visp bypass
- A13, Roveredo bypass
- Zentralbahn Lucerne underground project, Hubelmatt tunnel
- A8, Interlaken–Brienz, tunnel refurbishment and rescue gallery
- A8, new Lungern bypass tunnel
- A2, refurbishment of the San Salvatore tunnel
- Underground mining project for Läntigen Stein AG
- Jungfrau summit circuit gallery (Sphinx Hall–Ice Palace), Jungfrau railway Buechiwald tunnel
- Construction of caverns for the pumped-storage plants Limmern, Amsteg, Unteraa and Innertkirchen

1 Excavation for the powerhouse of Ilisu hydro-power plant, Turkey. 2) A9, Visp bypass tunnel. 3) A4, Flüelen bypass tunnel, tunnel boring machine 4) Relocation under ground of Zentralbahn Lucerne. 5) A16, Les Gorges Tunnel. 6) Jungfrau summit circuit gallery, Sphinx Hall–Ice Palace.
Structural and Civil Engineering

Our company is active in civil and structural engineering and specialised foundation projects. We concentrate particularly on concrete construction, road and rail construction, bridge building and commercial/industrial building construction. We design new facilities, undertake structural investigations of existing infrastructures, process redevelopment and renovation schemes, supervise construction work and advise clients at all project phases. We advise on life-cycle management, especially in the infrastructure sector, where our specialists create custom-designed solutions for maintenance and for the planning and delivery of rehabilitation projects.

Projects
- A9, refurbishment of the Kaltwasser gallery, Kulm tunnel and Josef gallery on the Simplon Pass
- A6, replacement of the motorway bridge at Wankdorf junction, Berne
- A8, cut-and-cover tunnel Zollhaus, Giswil
- Redesign of the Bundesplatz, Berne
- Second track addition to the RBS railway line BKW–Worblaufen
- Redevelopment of the cable railway Thunersee–Beatenberg
- BKW, new power substation Mühleberg Ost
- Sewage treatment plant Worblental
- A9, Visp bypass twin-tunnels, construction of Staldbach bridges

Utility Construction

Utilities are a specialist area in civil engineering. In this department we handle projects for the renovation and expansion of networks for gas, water and electricity, telecommunications, district heating and sewers. We work closely with specialists in electro-mechanics to provide single source integrated solutions in the fields of electricity and telecommunications. With their wealth of experience our engineers deliver complex projects in highly congested urban areas.

Projects
- Supply and discharge lines for the waste incineration plant Berne Forsthaus
- River crossing of the Weyermannshaus-Lorraine sewer using micro-tunnelling techniques
- Water supply pipelines, Berne region
- Waldau Canal, Berne
- Gas fuelling points for municipal buses, Berne
Measurement and Surveying

Our specialists undertake engineering and construction surveying and special measuring projects in construction. The focus is on defining the specific problem and consulting with the client. Our practical experience and technical know-how enable us to create tailor-made surveying and measuring solutions to suit the requirement. Our specialised teams make use of the latest surveying and measuring equipment. This includes 3D laser scanning, real-time monitoring, digital crack monitoring, inclination and convergence measurement, vibration monitoring and electrical conductivity measurement.

Our range of services includes:

- Surveying, setting out, and dimensional surveys of facilities
- Geodetic monitoring of structures, foundation and excavation supports, rock faces, etc.
- Tunnel surveying for drill-and-blast and mechanised tunnelling
- Rail surveying, profiling, track geometry monitoring, geomonitoring
- Establishing trigonometric survey points for basic and deformation grids
- Topographical models for design elements
- Monitoring the impact of construction activities and evidencing condition (e.g. cracks), vibration and settlement measurements as well as forecasts
- Geotechnical measurement of distance, deformation and inclination
- In-situ testing of concrete quality

Projects

- Wankdorfplatz Berne and A6 Stadttangente motorway: surveying for bridge sliding operation and monitoring of deformation
- Flood protection gallery Lyssbach: deformation monitoring of portals and monitoring of railway track geometry
- New parallel tunnel KWO Plus: establishing reference points, checking tunnelling precision
- New tramway line Berne West (Lot 1): engineering survey

1) Pressure gallery of KWO Oberhasli hydro-power plant. 2) Power plant Aarewerke Thun. 3) GBT Gotthard Base Tunnel (Faido–Bodio western bore) with completed track. 4) Pump-turbine at Tierfehd station of the Limmern pumped-storage scheme. 5) Transformer sub-station Mühleberg. 6) Globe valve in Unteraa hydro-power plant.
Energy and Power Station Technology

As power station design engineers we have extensive experience in energy production, systems and distribution. We have core competences in project design, detail planning, tendering, installation, supervision and commissioning of hydraulic machines, generators, power feed-in and transmission as well as machinery control technology. This competence has been gained in the many projects we have successfully completed over 40 years.

Projects
- 50 Hz power supply and cabling for AlpTransit Gotthard base tunnels (Gotthard and Ceneri)
- Rail infrastructure for the AlpTransit Lötschberg base tunnel
- Refurbishment of transformer stations, replacement of rectifier stations
- New and refurbished sub-stations for the SBB Railways
- Technical site supervision for the basic tunnel equipment for AlpTransit Gotthard AG
- Consultancy assignments for the Pir Panjal rail tunnel and the Budapest Metro
- Electro-mechanical engineering for our hydroelectricity projects: Ilisu, Büyükdüz, Thun, Aarau, Unteraa, Limmat power stations and Tierfehd
Transport Technology and Tunnel Facilities

We have a broad range of experience in this field, including consultancy for tunnel safety, fire protection and ventilation, and as a specialist for lighting systems, electrical installation, cable systems or low-voltage and medium-voltage facilities. Our service includes writing technical manuals for operating the national motorways.

Projects
- Galgenbuck tunnel: operating and safety equipment
- Seelisberg tunnel: refurbishment of the ventilation
- N8 rescue gallery: operating and safety equipment N8 and N6
- Gotthard road tunnel: replacement of the SOS telephone equipment, ventilation and lighting installations
- A1 Morges–Ecublens: dynamic traffic management including hard shoulder, traffic management signals and traffic CCTV
- A1 Geneva and A9 Lausanne bypass: traffic control system and video monitoring
- A5 Yverdon–Vaumarcus: traffic control and telecommunications
Telematics and Telecommunications

The Swiss federal authorities and both public and private business benefit from modern, sophisticated ICT and telecommunications solutions. We are the right partners for complex telecommunications projects as well as for private networks such as WAN, MAN or LAN. We design passive networks such as fibre optic networks and universal cable systems for buildings. We provide advice in selecting special radio systems (radio networks, Polycom, Tetrapol, Tetra) and suitable private telephone systems such as PABX or emergency telephone systems. We undertake technology assessments and devise guidelines for the national motorways.

Projects
- Communication and fibre optic network for national motorways in the Cantons of Ticino, Geneva, Fribourg, Jura, Waadt, Basle and Solothurn
- Digital police radio network (Polycom) in Ticino and Fribourg
- Integration of Polycom network and the FM signals in the national motorway tunnels on various routes (A1, A2, A6, A8, A9, A16)

Dynamic signalling for the part-time use of the hard shoulder during rush hours on the A1 Morges–Ecublens
Automation and Information Technology

We have many years experience in metrology, control electronics and instrumentation systems. Our portfolio includes instrumentation and control systems for power supply, turbines and generators, traffic management & control systems, surveillance & remote management systems for road and rail traffic. Safety & security equipment such as video monitoring, fire alarm systems and intelligent systems for image analysis are also part of our comprehensive range of services.

Projects
- Traffic information & control systems (TIC) for the national motorways in the Cantons of Ticino, Geneva, Fribourg, Jura, Vaud
- Design of the operational control centres at the motorway maintenance depots Airolo, Göschenen, Rennaz, Yverdon, Blécherette, Domdidier, Fribourg North, Delémont
- Design of the traffic information & control system (TIC) for the A9 Glion tunnel
- Traffic and equipment surveillance system for the motorways of Canton Zurich
- Tunnel control centre Hessen/Germany
- Swissgrid control centre for the national power supply network, Laufenburg
- Control system for the new Reuss weir for flood regulation of Vierwaldstätter Lake, Lucerne

Project Management and Client Support

Our specialists will assist you in the design and management of your project. Our client support advises and backs up the client’s project manager throughout the duration of the project, with project supervision & control, scheduling & administration as well as the resolution of technical issues.

Projects
- A13 Splügen West–Untere Rüti
- A3 Wollishofen–Wädenswil
- A6/6 Schaffhausen South–Herblingen
- Maintenance and renewal of the St Gotthard Pass road
- Procurement of rolling stock for the Matterhorn-Gotthard railway
- New Lago Bianco pumped-storage plant, Poschiavo
- A2 Yverdon–Morat, A5 Yverdon–Vaumarcus
- St Gotthard road tunnel control centre and maintenance depots at Airolo and Göschenen
- Uri valley flood defences

1) Uri valley flood defences. 2) St Gotthard Pass road (north). 3) Matterhorn-St Gotthard rolling stock.
Swissgrid control centre for the national power supply network, Laufenburg
Milestones in Company History

1968  S.A. Ufficio Ingegneria Maggia is established in Locarno by a group of engineers from the engineering department of the Officine Idroelettriche della Maggia SA and the Officine Idroelettriche di Blenio SA, two local energy production companies.

1970  Engineering Società di partecipazioni SA is set up with its headquarters in Locarno as a Holding Company of the S.A. Ufficio Ingegneria Maggia and IUB Ingenieur-Unternehmung AG Bern, which was founded in conjunction with the development of the Grimsel hydroelectric scheme. The entire share capital of the Engineering holding is transferred to the active staff of the two companies.

1986  Founding of the IM branch office at Altdorf (Uri)

1995  Founding of the IM branch office at Fribourg. The Engineering Group now employs over 150 people.

1998  Opening of the IUB branch office at Amsteg in conjunction with the refurbishment of the Amsteg hydroelectric power station.

2004  Opening of the IUB branch office at Fribourg

2006  IEP Ingenieurbureau Eng + Partner AG, Olten and FM Messtechnik AG, Berne, are integrated in IUB. A further IUB branch office is opened in Lucerne. The Amsteg office moves to Altdorf.

2010  The Engineering Group celebrates its 40th anniversary – now with a staff of more than 200 employees.
1) Flood defences Linth, Gäsitschachen river widening. 2) A8 Lungern bypass tunnel. 3) A2 Belchen tunnel.