

pizzi-terra
company profile



www.mebgroup.ch



The **MEB Group** is home to experts and solutions for engineering surveys, geo-monitoring, machine control and building information modelling (BIM). With more than 100 employees, we provide solutions internationally, delivering in addition to products and systems an impressive service as a sales partner to well-known firms.



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pizziterra
geo solutions

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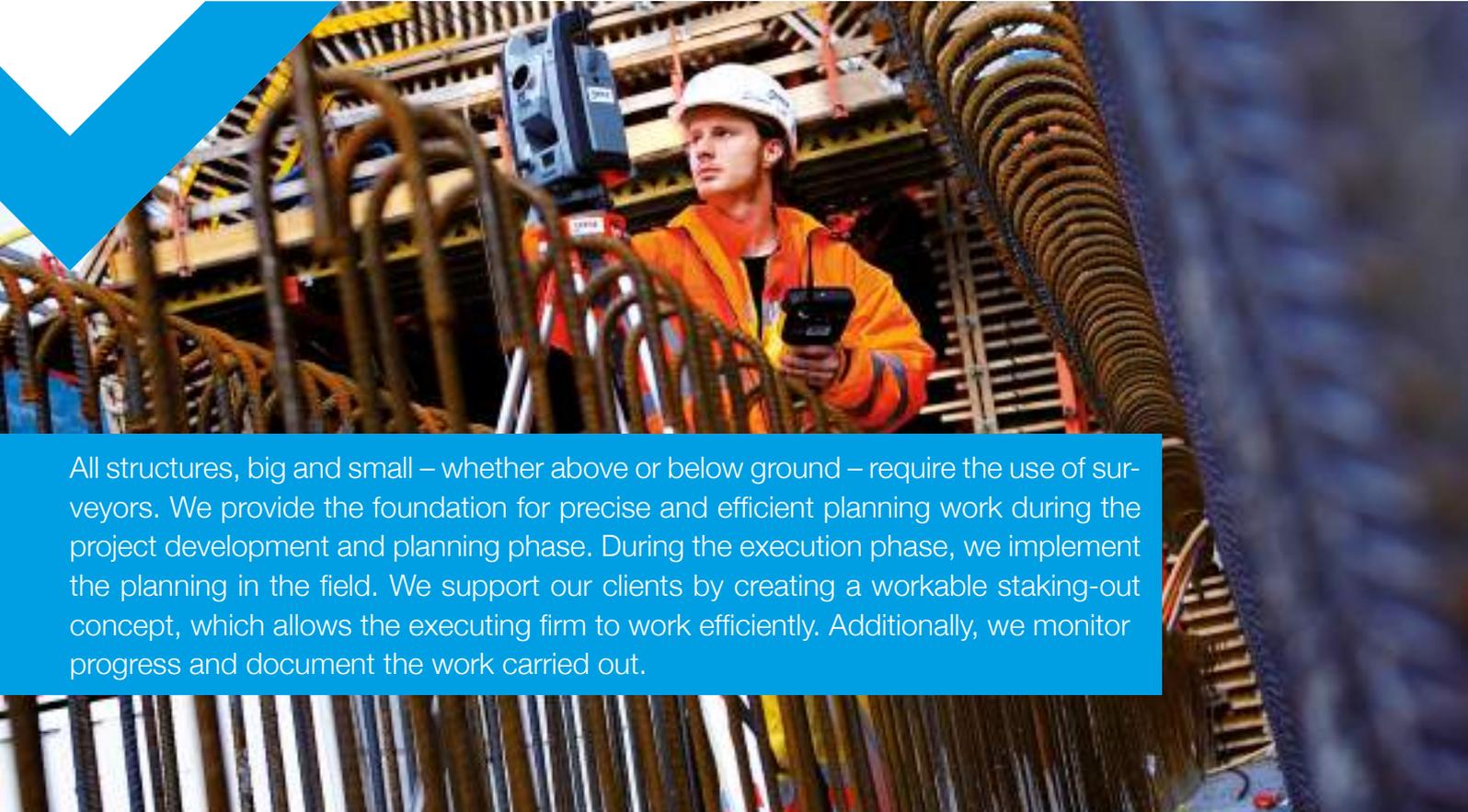
SITECH®

BuildingPoint



terra is the specialist service provider for **engineering surveys, monitoring, BIM engineering and mobile surveys**. Founded in 1993, we have an international profile thanks to innovative and unique services. With our own software and hardware technologies, a large equipment fleet, and products developed by terra[®], we set new standards and uncover new possibilities. Our specialists deliver solutions that are technically and financially persuasive. Our references demonstrate that our highly skilled experts delivering professional project management and customer-focused flexibility.

pizzi-terra engineering surveys



All structures, big and small – whether above or below ground – require the use of surveyors. We provide the foundation for precise and efficient planning work during the project development and planning phase. During the execution phase, we implement the planning in the field. We support our clients by creating a workable staking-out concept, which allows the executing firm to work efficiently. Additionally, we monitor progress and document the work carried out.

Reliability and precision

terra employees plan and survey reliably and with the highest precision. We arrive on site promptly when expertise or a service is needed. Our customers are architects, civil engineers, construction firms, as well as local authorities and government organisations at local, cantonal and national levels.

terra engineering surveys include:

- Staking out
- Implementation checks
- Builder surveys
- Construction surveys
- Distortion measurements and analyses
- Documentation of construction sites and buildings
- Façade survey
- Building survey
- 3D building models
- Track monitoring
- Ground surveys
- Digital terrain models
- Geodetic networks and concepts
- Elevation profiles and curve plans
- Industrial surveys
- Pre-analyses
- Precision staking out
- Specialty surveys
- Tunnel surveys and tunnelling checks
- Monitoring new components for quality control

pizzi-terra monitoring

When challenging construction projects and their surroundings need to be monitored and secured with highly automated technology, we stand out thanks to professional project concepts, short measuring intervals and automated analyses. This is how we ensure the safety of people in the danger zone and buildings in the surrounding area.



Our monitoring services include highly automated analysis of construction projects and their surroundings in real time by means of physical, geotechnical and geodetic sensors. The terra® swissMon system is designed for multi-sensor processing and is market-leading. It has been in continuous use in countless major projects for years.

Site supervision

The swissMon system developed by terra® ensures that highly automated monitoring data is captured, evaluated and visualised even in complex projects with several thousand sensors. swissMon processes data from diverse sensors, identifies changes and distortion, detects when maximum values have been exceeded and triggers alarms as needed. This is how we ensure the safety of people and buildings, not only on construction projects, but also from natural hazards or other influences on the environment.

Preservation of evidence

Construction activities – especially in heavily built-up urban areas – have a direct impact on the surroundings. With terra® monitoring systems and services our clients can detect even the smallest changes in the project environment and, in the event of damage, have an objective data basis for cause assessment. We build trust and protect our clients against unjustified claims. To this end, we provide our services in accordance with the Swiss standard norm SN 640 312.

Structural health monitoring

We monitor the condition of buildings using sensors as the basis for structural health analyses. The focus is on the long-term effects of the impacts on existing buildings. Our systems and the data they capture give our clients important information about the expected service life, enabling them to make well-founded decisions on maintenance measures.

pizzi-terra mobile surveys



A mobile survey is done on the move. We use laser scanners, cameras and ground-penetrating radar to capture spatial data from mobile platforms – such as from cars, trains, boats, or from the air – with high precision. This provides our clients with high-resolution geo-referenced illustrations of large areas as point clouds, orthophotos or 3D objects. Our customers are planners, rail operators, civil engineering firms and road maintenance managers, who improve their infrastructure management based on our survey results. We provide all the equipment needed for a project and recommend different combinations of sensors based on the specific circumstances.

We achieve a high level of accuracy even under difficult conditions without a GPS signal in conduits or tunnels.



Services

- Fast and three-dimensional capture of large areas, roads, bridges, tunnels, structures and their surroundings.
- Railway surveys provide information on the condition of rails, overhead lines and the substructure, as well as on buildings along the railway lines.
- Non-destructive, large-scale surveys of the stratigraphy of roads and track.
- The condition of road surfaces and airport runways is documented on the move and using pictures.
- We make successful use of mobile surveys even in difficult-to-access places, such as narrow conduits.

Systems

terra® develops its own systems that customers can implement using their own specialists:

- tCrack: In-tunnel construction and operation cracks in the cladding and the walls are automatically detected and documented.
- tCam: High-resolution and georeferenced photographs of roads and surroundings at a speed of up to 80 km/h.
- tRMC: Railway survey system for complete data capture and analysis with wide range of sensors on mobile units.
- tWire: System for fitting, aligning, checking and documenting the position and height of the contact wires on railway lines.

pizzi-terra bim engineering



Architects, specialist planners, construction firms and general contractors, as well as project developers, owners and investors, all rely on BIM (building information modelling), revolutionizing the procedures and processes in planning, creating and operating buildings and infrastructure.

terra® has extensive BIM expertise, ensuring you get the added value you need thanks to digitalisation of everything from planning to execution. Our solution focus is close to the market and practical; we bring together the planning and construction processes in your company or your projects sustainably and efficiently with high precision and the necessary IT know-how from 2D to 6D BIM.

3D 3D model with information	4D Scheduling	5D Cost planning	6D Information for operation
		---- Fr. ---- Fr. ---- Fr. ---- Fr. ---- Fr.	Data <ul style="list-style-type: none"> • Who? • When? • What? • How much?

terra® bim engineering services

- Strategic consultation up to implementation of BIM in the firm and your projects.
- BIM management in the operational realisation of projects up to provision of BIM coordinators.
- Spatial capture of complex buildings.
- VDC services, such as creation of 3D BIM models from 2D plans, model-based scheduling and cost planning (4D/5D BIM), plus capture of existing structures with modelling.
- Data integration in building management system applications.

How you profit from terra® bim engineering

- Architects from extended and more varied design possibilities.
- Specialist planners from efficient options for creating coordinating implementation models.
- Clients on a tight budget from improved planning data and the use of digital data for efficient and collision-free construction
- Builders from higher quality and planning safety with a simultaneous reduction in costs, time needed and risks.

Expert. Innovative. Experienced.





The Hardbrücke road bridge in Zurich was mapped very quickly, including surroundings, using mobile terra® systems, generating data for planning and restructuring.

terra® has monitored the cross-city link in Zurich with more than 4,000 sensors throughout the entire construction period of 10 years. At peak times up to 400,000 measured values were being evaluated and visualised in real-time every day.

Structural health monitoring of bridges, such as the Saale-Elster Viaduct (Germany), which is designed for ICE trains at speeds of up to 300 km/h.



Surveying services for tunnelling works on the Gotthard Base Tunnel.

Internationally renowned.



terra® expertise and terra® services in demand on challenging projects all over the world.

terra international vermessungen ag delivers in particular expertise, systems and technologies to other companies with whom we have established partnerships. We are represented by our own firms in Italy and Singapore.



pizzi terra s.r.l.

Based in Florence, pizzi terra s.r.l. offers services all over Italy in monitoring, mobile surveys, non-destructive investigation, geotechnics and evidence preservation. Our customers include public and private clients. The team delivers high-quality services on challenging projects, such as the high-speed railway tunnel running beneath the historic city center in Florence.



ryobi terra ltd.

Working from Singapore, ryobi terra ltd. is the central point of contact for Southeast Asia. Local staff work here on consultation and implementation of mobile surveys for infrastructure projects. We are renowned among both private and public clients as specialists with a high quality standard and high precision.





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