Driving construction innovations & sustainability in Asia Pacific

Master Builders Solutions, the brand for the construction industry
At Master Builders Solutions, we offer advanced chemical solutions for the construction, maintenance, repair and renovation of structures. We combine economic success with environmental protection and social responsibility. We leverage global technologies and our in-depth knowledge of local building needs to develop innovations that help make our customers more successful and drive sustainable construction. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society.

**About Master Builders Solutions**

Master Builders Solutions is our global brand for the construction chemicals industry. Active presence in the construction industry for more than a century, Master Builders Solutions offering a range of construction chemicals solutions to meet the growing demand for high-performance, differentiated and sustainable products in Asia Pacific.

Our comprehensive portfolio of advanced chemical solutions includes:

- Concrete Admixtures
- Cement Additives
- Chemical Solutions For Underground Construction
- Waterproofing Solutions
- Sealants
- Performance Grouts
- Concrete Repair And Protection Solutions
- Performance Flooring Solutions

We collaborate with our clients closely to offer innovative solutions tailored to their projects. Backed by our robust global and local R&D expertise, an international community of construction experts and a worldwide record of construction projects from which know-how, experience and insights can be readily harnessed to address any technical specifications or challenges.

Apart from providing high-performance and cost-effective solutions, we also emphasize “sustainability” geared towards helping our customers meet the increasingly stringent environmental guidelines laid down by regulatory authorities and fulfill their social responsibilities as builders and infrastructure developers.
Master Builders Solutions

Driving Sustainable Construction Solutions

Master Builders Solutions is working continuously to raise the benchmarks of construction performance through innovation, advanced products and expert services. Our solutions actively contribute to the creation of more sustainable solutions with increased commercial, environmental and social value.

We adopt a holistic approach to each new construction challenge, providing comprehensive, tailored solutions, and creating structures that are ultimately more efficient and enduring. By translating technological advancements in chemistry into real-world solutions, we help to improve the lifecycle performance of structures, as well as making construction process more energy-making and cost-efficient by:

- Reducing emissions during construction processes
- Utilizing recycled and renewable materials and products that preserve resources
- Saving labor costs and enable faster construction
- Providing solutions that support water conservation and management
- Lowering toxicity and VOC (volatile organic compounds) emissions to create a healthier environment for installers and occupants
- Developing products that are resistant to the growth of bacteria and fungi
- Improving safety through skid-resistant and seismic solutions
- Preserving and restoring buildings and structures

Serving more than 20 countries with over 40 production sites in the region.
The Master Builders Solutions brand brings all of its expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures.

Our innovations have changed a whole industry. From Masterplate, a ferrous cement flooring solutions which from 1911 onwards drastically improved the durability and appearance of factory floors, to the development of a vast variety of concrete admixtures since the 1930s, to the revolutionary hardening accelerator Master X-Seed and rheology control agent MasterEase.
**Our Solutions**

**MasterGlenium®**
A range of water-reducing admixtures specially formulated to improve concrete slump retention, high/early strengths and durability, for use in hot and cold climates.

**MasterEase®**
A superplasticizer for low-viscosity concrete, designed to improve its rheological properties thus significantly facilitate pumping, placing and finishing of concrete.

**MasterRheobuild®**
Admixtures that provide superior cement dispersion for the creation of flowable concrete with a low water/cement ratio and improve placement of fresh concrete for higher production efficiency.

**MasterPozzolith®**
A series of water-reducing admixtures that reduce concrete water content, control the setting rate and improve finishing properties.

**MasterMatrix®**
Viscosity Modifying Agent (VMA) admixtures formulated to achieve stable low fines self-consolidating concrete.

**Master X-Seed®**
Admixtures that accelerate concrete hardening at early stages of curing.

**MasterLife®**
Admixtures that improve concrete’s resistance to deterioration caused by abrasion, corrosion of steel, alkali-silica reaction, sulfate attack, and drying shrinkage cracking.

**MasterSuna®**
A SBS (Sand Blocking Solution) admixture formulated and designed to mitigate and block negative effects of swelling clay found in manufactured sand. It improves the performance of concrete and enables the use of poor manufactured sands which would otherwise be discarded.

**MasterCem®**
A range of grinding aids, performance enhancers and specialty products to enhance cement production efficiency and quality, with reduced cost and mitigated environmental impact.

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**Challenges**

Concrete and production of concrete in the construction industry face manifold challenges, including:

- Scarcity of resources including skilled manpower, good quality raw materials and water
- Ever-higher demands on cost and speed
- Tighter specifications in durability and sustainability

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**Burj Khalifa, Dubai, UAE**

Burj Khalifa, the tallest tower till date standing at 828 meters high. Master Builders Solutions developed a concrete mix that can be pumped to a height of >600 meters without interruption, to shape the structural form of the tower. Withstanding high ambient temperatures without segregating, MasterGlenium Sky admixtures maintained concrete workability and even enabled the concrete mix to quickly hardened to attain sufficient strength for construction to continue within a very short period of time. This made it possible to complete two stories per week instead of the one per week standard in general.
Solutions For Underground Construction

Our Solutions

MasterRoc®
Offers a number of market-leading innovations to address both technical and other project challenges, including:

• Sprayed concrete for fast, efficient and safe concrete spraying operation with Master Builders Solutions admixtures for rheology control and set acceleration
• Injection for ground stabilization, water stopping, cracks and cavity filling
• Waterproofing to prevent damage and enhance durability
• TBM chemical products for the safe and efficient operation of tunnel boring machines

Challenges
Each tunneling and underground mining project is faced with challenges from geological conditions to tight completion timeframes and specific project design requirements.

Gotthard Base Tunnel, Switzerland
Construction of the world’s longest rail tunnel - a 57 kilometer Gotthard Base Tunnel. Combining MasterGlenium superplasticizers - to make the concrete flowable and workable, with shotcrete accelerators - to allow concrete to solidify and harden within seconds after being sprayed on the tunnel wall.

Sprayed concrete solution specially developed by Master Builders Solutions to improve production, safety and underground geotechnical stability at the same time.

Gosowong Mining Project, Indonesia

Solutions For Performance Flooring

Our Solutions

MasterTop®
Offers cementitious, polyurethane and epoxy based flooring systems that are attractive, hygienic, easily cleanable, durable and pleasant to walk on.

Ucrete®
A safe, durable and long-lasting flooring system using a unique polyurethane resin technology to gain exceptional resistance against aggressive chemicals as well as extreme mechanical and thermal shock.

Challenges
Industrial or commercial floorings are required to withstand tough environments, against aggressive chemicals, mechanical and thermal stress as well as heavy wear and tear. The flooring solutions provided must also be highly flexible in terms of functionality and design and capable of ensuring a high level of indoor air quality.

Lion Nathan East Tamaki Brewery, New Zealand
Commonly known as ‘Project Century’, Lion Nathan brewery situated in South Auckland is built to last for 100 years. Constructed with a focus on quality and longevity, floors for the facility were installed with Ucrete DP heavy duty PU-hybrid system to meet the performance expectations.

Construction of the world’s longest rail tunnel - a 57 kilometer Gotthard Base Tunnel. Combining MasterGlenium superplasticizers - to make the concrete flowable and workable, with shotcrete accelerators - to allow concrete to solidify and harden within seconds after being sprayed on the tunnel wall.

Sprayed concrete solution specially developed by Master Builders Solutions to improve production, safety and underground geotechnical stability at the same time.
Solutions For Waterproofing & Sealing

Our Solutions
MasterSeal®
A one-stop array of waterproofing solutions to enhance the service life of affected structures and reduce building maintenance needs with their fast applications and low environmental impact.

Challenges
Environmental influences, such as rain, snow and chemical exposure, can cause water and moisture ingress damage to a variety of building structures.

Marina Bay Sands, Singapore
The Marina Bay Sands is a spectacular three-tower construction supporting a protruding roof garden. The Master Builders Solutions Construction Chemicals team was invited to develop a cost-efficient concrete mix design that met the technical specifications for basement slabs, walls, structural beams and columns.

Around 1.2 million liters of MasterRheobuild hyperplasticizer, and 1 million liters of MasterPozzolith setting retarder was required for the project. In addition, around 40,000 square meters of wet areas and balconies in 983 hotel rooms was sealed using MasterSeal HLM 5000.

Solutions For Concrete Repair & Protection

Our Solutions
MasterFirst®
A one-stop array of concrete repair and protection solutions to enhance the service life of affected structures and reduce building maintenance needs with their fast applications and low environmental impact.

Challenges
Extreme weather conditions, environmental contaminants and corrosive elements can cause damage to concrete structures, leading to corrosion and even structural failure.

Second Penang Bridge, Malaysia
At 24 kilometres in length, the Second Penang Bridge in Malaysia is the longest bridge in Southeast Asia. This dual carriageway, cable-stayed toll bridge connects Bandar Cassia on peninsular Malaysia with Batu Maung on Penang Island.

A construction project of this scale was a challenge for all construction partners. The solutions we provided helped to ensure that the 55m-long pre-cast concrete elements were produced efficiently and to the highest quality standards.

MasterBrace epoxy bonding system was used to bond the individual box girders segment together to form the bridge.

Our Solutions
MasterEmaco®
Offers a portfolio of primers, cementitious and resinous repair mortars and fairing coats to re-establish structural integrity and restore aesthetics of concrete structures with a fast return to service.

Our Solutions
Master protective®
Offers long-term protection and durability to concrete and masonry structures, preventing spalling and further deterioration and high maintenance costs, through a range of high-performance water repellents, high-build elastomeric and chemical resistant coatings.
## Our Solutions

**MasterFlow**
A range of grouting solutions that facilitates faster, safer and more effective installations of heavy machinery. It also helps ensure higher productivity of the machinery installed, its longer service lifespan and reduced future maintenance needs.

**Challenges**
Heavy machines and equipment, such as wind turbines, need to be safely anchored and precisely adjusted, horizontally or vertically.

### West Of Duddon Sands Offshore Windfarm, United Kingdom

MasterFlow 9500 Exagrout was pumped into the monopile transition piece connections using the FoundOcean Super Pan Mixer. The project to install 108 foundations is a world record in the industry, and a new benchmark for future offshore windfarms.

### Our Solutions For Grouting

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<th>MasterAir</th>
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<td>Complete solutions for air-entrained concrete</td>
<td>Solutions for high-performance concrete</td>
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