URBANIZATION DRIVES GROVTH our year 2018

SUCCESSFUL

CHF 7,085 MN NET SALES CHF 946 MN EBIT CHF 687 MN NET PROFIT

INDEPENDENT

TAKEOVER ATTEMPT BY SAINT-GOBAIN RESOLVED AMICABLY INTRODUCTION OF UNITARY SHARES

SIKA.COM/ANNUALREPORT

GLOBAL GROWTH IN ALL REGIONS

INNOVATIVE

> 900 EMPLOYEES IN RESEARCH & DEVELOPMENT 85 PATENTS, 133 INVENTIONS



BUILDING TRUST



4
6
8
14

Cities drive growth	18
Urbanization Facts and Figures	20
Densification More efficient, taller, and denser	24
Hudson Yards project: Potential and solutions	26
"Cities are going vertical"	28
Living Environment Logistical masterpiece thanks to Sika system solutions	30
"I always have a Sika engineer with me"	32
Forward-looking concrete reinforcing fibers	34
Public Infrastructure Ready for the commuters of tomorrow	36
Refurbishment The built city is being renewed	40
Maintaining and expanding infrastructure	42
"Permanent endurance test"	44
Automotive Cars are improving	46
China Demand for parking garages	48
Urbanization drives success Solving customer challenges	50

Leadership	58
Organizational Chart	60
The Sika Share	61
Balance Sheet and	12:12
Consolidated Income Statement	62
Imprint	64



Dear Shareholders

The Sika success story continued in 2018. Sales in local currencies rose by 13.6% year-onyear to CHF 7,085 million, while operating profit

increased by 5.5% to CHF 945.9 million. Net profit also exceeded the previous year's value by 5.9%, totaling CHF 687.1 million.

a-half-year takeover dispute between the Burkard family, Saint- takeover dispute ended. EBIT was affected by one-off expenses, the continued business success and safeguarding employees' like to sincerely congratulate our 20,060 employees and thank welfare, has been consigned to the past. With sales reaching them for their hard work and tremendous dedication. a record CHF 7,085 million, and our operating result coming in

2018 was a historic year for Sika, during which the course was at over CHF 946 million we look back at a successful year 2018 parties. The end of the legal dispute brought independence for pact in 2018 than expected, even though prices were adjusted Sika and its employees. The difficult feat of balancing a battle continuously. We achieved local currency growth of 13.6% in an to fend off a takeover attempt by a competitor, against driving economic environment that was at times challenging. We would

GROWTH TRAJECTORY IN ALL REGIONS

All regions contributed to Sika's growth, with EMEA achieving successful advantage of business opportunities in the regions' Europe (27.3%) and Africa (23.9%).

In the Americas region, North America achieved a growth in local currencies of 12.9% and significantly exceeded the one billion sales mark posting excellent EBIT. Latin America also achieved very good growth in local currencies at 9.6%.

Asia/Pacific put in a solid performance, growing both sales – by 5.5% in local currencies - and EBIT. The result in China was particularly pleasing, with growth of close on 10%.

Growth in local currencies in the new Global Business segment amounted to 29.2%, while the acquired Faist ChemTec, a leading provider of acoustic systems for the automotive in-

NEXT GROWTH ACCELERATOR

We are particularly pleased that the planned takeover of Parex, which we announced at the start of this year, will enable us Sincerely to create a first-class growth platform. The acquisition marks a very important strategic step forward in efforts to secure our long-term market position, and is also the biggest acquisition in

With sales of CHF 1.2 billion and an EBITDA margin of 16.3% Parex is a leading mortar producer with a first-class market po-sition, especially in facade mortars, tile adhesives, and waterproofing systems.

Parex is particularly strong in the distribution business, and

101 countries in which Sika operates, and by cross-selling Sika products through Parex's established distribution channels, we will be able to generate sustainable, profitable growth and substantial synergies. Our goal is to combine two "growth engines" that have highly complementary product portfolios and distribuand gearing the organization up for the next level of growth.

One key task this year is to prepare the Strategy 2023 and roll it out throughout the company. The Board of Directors and Group Management initiated the process last September, and will complete the strategy in the first half of 2019.

DIVIDEND INCREASE AND OUTLOOK

gross dividend to CHF 2.05 per share at the Annual General

for continued growth. These 16 key investments, the well-filled product pipeline, and the strong sales organization give us rea-

Sika expects sales to increase by 6–8% in 2019, in accordance with the Group's 2020 growth strategy, and anticipates an over-proportional rise in profits. Depending on when the Parex 8 billion. Implementation of the growth strategy will continue in 2019, with the opening of seven to nine new factories and further acquisitions.

We are committed to continuing the Sika success story, to generating sustainable growth in value, and to enhancing Sika's excellent reputation among customers, shareholders, and business partners.

await us this year, and would like to assure you, our shareholders, that we will do so with dedication, enthusiasm, and tenacity so that 2019 becomes another successful year for all of us.

DR. PAUL HÄLG

PAUL SCHULER



Sika continued its strong track record of growth in 2018. Positive business performance in all regions, further investments, and a deliberate strategic focus on large cities all contributed to the excellent result.

in CHF mn

7,085.4	Net sales +13.4%
945.9	Operating profit (EBIT) +5.5%
687.1	Net profit +5.9%
513.2	Operating free cash flow +3.3%
26.2%	ROCE

- 11 New factories
- 1 New national subsidiary
- 4 Acquisitions
- 85 New patents, 133 Inventions

20,060 Employees

- 16.8 Hours of training per employee
- 952 Employees in R&D
- 20 Global Technology Centers













The Sika growth model is synonymous with longterm success and profitable growth. By focusing on market penetration, innovation, expanding emerging markets, and acquisitions – and driven

by its strong corporate values – Sika is growing successfully. With the positive development of business, the establishment of one further national subsidiary, and the commissioning of eleven new factories and four acquisitions, Sika took a further major step forward in the implementation of its strategic targets for 2020.

SUCCESSFUL STRATEGY IMPLEMENTATION SINCE 2015



STRATEGIC TARGETS 2020



 Successful Target Market concept Megatrends driving growth

 302 new patents filed 20 Global Technology Centers

 37 new plants opened 11 new national subsidiaries

 20 acquisitions in all regions CHF 798 million sales added

 Strong corporate culture High employee loyalty

6-8% annual growth

30 new plants

105 national subsidiaries

14–16% EBIT margin per year

>10% operating free cash flow per year

>25% ROCE per year

9



As a successful global corporation, Sika is committed to sustainability. The company honors its responsibilities by offering sustainable solutions for energy-efficient construction and environmentally

friendly vehicles, as well as by means of numerous projects and measures aimed at boosting economic, social, and ecological sustainability. With its sustainability strategy geared to "More Value – Less Impact", Sika's aim – through its products – is to maximize long-term benefits and added value for all stakeholders and, at the same time, reduce resource consumption and the environmental impacts associated with production. In this way, Sika's future will be secured through sustainable, profitable growth.

EBIT MARGIN LOCAL KEY PROJECTS 13.4% 2018 ALL IMPLEMENTED 2018 ECONOMIC PERFORMANCE SUSTAINABLE SOLUTIONS Our success directly benefits all We are leading the industry by stakeholders. pioneering a portfolio of sustainable products, systems, and services. TARGET TARGET **Operating profit (EBIT)** All new projects are assessed in accordance with Sika's Product 14-16% of net sales. **Development Process. All local key** projects are implemented. MORE VALUE LESS IMPACT WATER / WASTE ENERGY We manage resources and costs We increase water and material carefully. efficiency. TARGET TARGET 3% less energy consumption per ton 3% less water consumption and and year. waste per ton and year. ENERGY CONSUMPTION WATER +23%2018 -5.8% 2018 **-42%** 2014 - 2018 WASTE -22% 2014-2018 -1.6% 2018 **±0%** 2014 - 2018

As part of its "More Value – Less Impact" sustainability strategy, Sika has been measuring six parameters for the last five years. In 2018, the targets for sustainable solutions, local communities/society, and energy were met, while in terms of waste utilization, water consumption, and occupational safety the goals were not achieved. The higher number of accidents in the year under review has negatively impacted the 5-year result, whereas between 2014 and 2017 there was a significant decrease of 27%. Overall Sika could reduce the amount of waste per ton sold in 2018 by 1.6%. Considering all acquisitions since 2013, Sika could keep the waste rate per ton sold at the same level. The increase in water is mainly caused by acquisitions processed in 2017 which were taken into account in 2018. In the period of 2014 to 2018, the water consumption was reduced by 42%.



WORKPLACE ACCIDENTS



Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing, and protecting in the building sector and motor vehicle industry. Sika is active in the following seven target markets.



ROOFING

ity roof solutions for new build structures.

FLOORING



SEALING & BONDING

REFURBISHMENT

are also fueling demand.

INDUSTRY

CONCRETE

Sika develops and markets a complete range of admixtures and additives for use in concrete, cement, and mortar production. These products enhance specific properties of the fresh or hardened concrete, such as workability, watertightness, durability, load-bearing capacity, or early and final strength. The demand for admixtures and additives is currently on the rise, particularly due to the increased performance requirements placed on concrete and mortar, especially in urban areas and for infrastructure construction. Furthermore, the increasing use of alternative cementitious materials in cement, mortar, and therefore also in concrete, leads to a growth in the need for admixtures.



WATERPROOFING

Sika's system solutions for waterproofing cover the full range of technologies used for below and above-ground waterproofing: flexible membrane systems, liquid-applied membranes, wa-terproofing admixtures for mortars, joint sealants, waterproofing mortars, injection grouts, and coatings. Key market segments include basements, underground parking garages, tunnels, and all types of water-retaining structures (for example reservoirs, storage basins, and storage tanks). Waterproofing systems face increasingly stringent requirements regarding sustainability, ease of application, and total cost management. Therefore the selection of appropriate waterproof-ing systems to suit the needs and requirements of owners, as well as the treatment of specific project-related details, is key for long-lasting and watertight structures project-related details, is key for long-lasting and watertight structures.





Sika provides a full range of single-ply and built-up flat roofing systems incorporating both flex-ible sheet and liquid-applied membranes as well as thermal insulation and various roofing acces-sories. A more than 50-year history has documented that Sika roofing solutions are outstanding gain significance in the mature markets, the emerging markets are moving towards higher-qual-

Sika's flooring solutions are based on synthetic resin and cementitious systems for industrial and commercial buildings, for example pharmaceutical and food-sector production plants, public buildings such as educational and healthcare facilities, parking decks, and private residential properties. Each market segment is subject to its own particular requirements in terms of mechanical properties, safety regulations (for example slip resistance), antistatic performance, and chemical or fire resistance. Trends in the flooring market are being dictated by the growing significance of safety and environmental regulations, as well as customized technical requirements. The of efficient solutions for the refurbishment of existing flooring systems.

Sika offers a wide range of high-performance and durable sealants, tapes, spray foams, and elastic adhesives for the building envelope, for interior finishing and for infrastructure construction. Typical applications include the sealing of movement joints between facade elements to make buildings weatherproof, the bonding of wood floors to reduce noise, or the sealing of joints in airport aprons. The growing demand in this market is fueled by an increasing awareness of the importance of high-performance sealants for the overall durability and energy efficiency of buildings, the increasing urbanization including the larger volumes of high-rise projects, and the continued replacement of mechanical fastening systems by adhesives due to better performance.

This segment features concrete protection and repair solutions, for example repair mortars, protec-This segment features concrete protection and repair solutions, for example repair mortars, protec-tive coatings, grouts, and structural strengthening systems. It also includes products for interior finishing, such as leveling compounds, tile adhesives, and tile grouts as well as facade mortars for external use. Sika provides technologies for the entire life cycle of commercial buildings, residential properties, and infrastructure constructions. Especially in developed markets, many structures are decades old and need to be refurbished. The present uptrend in demand is attributable to a rising volume of infrastructure rehabilitation projects in the transport, water management, and energy sectors. The global urbanization trend and the increasing need for renovation in developed markets

bonding, direct glazing, acoustic systems, reinforcing systems), automotive aftermarket (auto glass replacement, car body repair), marine vessels, industrial lamination, renewable energies (solar and wind), and facade engineering (structural glazing, sealing of insulating glass units). Sika is a technology leader in elastic bonding, structural adhesives, sealants, reinforcing, and acoustic ap-plications – serving the world's leading industrial manufacturers. Customers rely on Sika solutions to enhance product performance and durability while optimizing manufacturing efficiency. For example, Sika's solutions address key megatrends in vehicle design, leading to lighter, stronger, safer, quieter, and more efficient vehicles, while fast-processing materials and compatibility with

All regions contributed to the growth, driving local strategy implementation with strong initiatives. In the new Americas region, Honduras became the 101st national subsidiary to be founded by Sika.





GLOBAL BUSINESS

	EMEA	AMERICAS	ASIA/PACIFIC	GLOBAL BUSINESS
et sales in CHF mn (previous year)	3,167.3 (2,735.7)	1,820.5 (1,684.0)	1,177.2 (1,121.4)	920.4 (707.2)
rowth in local currencies	14.1%	11.7%	5.5%	29.2%
urrency impact	1.7%	-3.6%	-0.5%	0.9%
cquisitions effect	6.7%	4.7%	0.0%	23.1%
rganic growth	7.4%	7.0%	5.5%	6.1%
mployees	8,816	4,147	3,931	2,472





-11

In the construction of the Rod-AI-Farag bridge in Cairo, Sikagard[®]-550 W Elas-tic system is being used to protect 600,000 m² of concrete from carbonation as well as Sikacrete[®]-114 free flowing micro-concrete grouting. Upon completion the bridge will be comprised of six lanes in each direction as well as two lanes for buses and a metro line.

The historical basilica "La Basilica del Salvador" in Santiago de Chile built in 1874 was refurbished using Sikadur®-31, SikaWrap®-300, and Sikadur®-330. The basilica has a ceiling height of 30 meters and can hold up to 5,000 people.

EMEA

Construction markets in the eurozone countries continued their amounted to 11.7% (previous year: 12.6%). Investment in the solid performance on the back of growth in gross domestic product of around 2%, while persistently low interest rates and associated high levels of investment in residential and infrastructure projects had a positive impact. Above-average construction activity was seen in the growth markets of Eastern Europe and Africa in particular. A further rise in raw material prices made for a challenging market environment. Of the five biggest European construction markets – Germany, France, the UK, Italy, and Spain – the UK was as yet the only one to equal pre-2007 levels of construction.

In 2018, Sika's sales in the EMEA region (Europe, Middle East, Africa) were up by 14.1% in local currencies (previous year: 7.5%). The core markets of Spain and the UK recorded high single-digit growth, while double-digit rates were achieved in Eastern Europe. In particular, the recently founded national subsidiaries contributed to double-digit growth in Africa. All Sika's target markets contributed to the good result with high single-digit **ASIA/PACIFIC** rates of organic growth.

Kazakhstan, and Russia.

AMERICAS

The North American construction markets grew by 3% in 2018. ment projects, as well as in commercial construction projects. currency fluctuations impacted the markets in Latin America. Furthermore, presidential elections in Brazil, Mexico, and Cothroughout the region during the year. Moreover, the higher energy supply facilities. wage costs resulting from labor shortages and the uncertainty stemming from the trade dispute with China had an adverse im- Alongside the existing production of concrete admixtures, an

In 2018, sales growth in the newly set up Americas region country's rapidly growing metropolitan areas was the driving force behind double-digit growth in the United States. Business performance in Brazil and Colombia was higher than average. The organizational amalgamation of the formerly separate North America and Latin America regions to form the larger Americas region resulted in improvements through various new

The foundation for further growth in Central America was laid with the establishment of a new national subsidiary in Hondureinforcing fiber business marks a further investment by Sika in this fast-growing market. Concrete admixture and mortar facto-ries were opened in Peru and Guatemala.

Large-scale infrastructure projects continue to stimulate the number of infrastructure projects. China's trade dispute with the United States and intensified checks on capital good production by the environmental authorities had a dampening effect on the country's gross domestic product. Most Southeast Asian coundomestic product grow by more than 5%. Consequently, a large number of infrastructure upgrade projects were initiated.

Sika's sales in the Asia/Pacific region rose by 5.5% (previous year: 5.4%). The region's organic growth during the fourth quarter of 2018 reached 7.5%, the highest quarterly figure for the gest growth rates. The national subsidiary established by Sika leading supplier of high-performance system solutions in major lombia unsettled the markets. Raw material prices rose sharply infrastructure projects such as expressways, railway lines, and

ultramodern mortar product manufacturing facility came on



Sika is supporting the facade refurbishment of 19 blocks of high-rise buildings in Hong Kong by providing sealing, bonding, and waterproofing systems. In many large cities there is a great need for repair and maintenance of buildings and infrastructures. Renovation of building envelopes improves energy ef-ficiency, durability, and safety.

stream at the Vietnamese factory in Bac Ninh. This has enabled Sika to expand its supply chain in Vietnam's large construction

GLOBAL BUSINESS

Compared with 2017, there was a slight decline of 0.5% in the number of new vehicles sold in 2018. Automotive sales in the major markets of Europe, the United States, China, and Brazil all fell more sharply than forecast, particularly in the second half of the year, owing to factors such as economic uncertainty, new drive systems, and changes in test procedures. Electromobility is gaining ground, and the technology was the main source of impetus behind drive systems once again in 2018. Virtually al automotive manufacturers are investing heavily in developing electric vehicles and expect to bring new platforms to market over the next few years. Unsettled by announcements of bans on diesel vehicles in European large cities and erroneous fuel postponed the purchase of a new vehicle for the time being.

Sika's growth in the new Global Business segment was 29.2% quisition of Faist ChemTec. The segment comprises the globally managed Automotive business plus Advanced Resins (formerly for lightweight construction and electromobility are among those that harbor strong growth potential, alongside its com-Sika is set to benefit substantially from the megatrend toward electromobility and aims to increase its sales per vehicle by 20%

In order to derive even greater benefit from the fast-growing tem and body reinforcement factory in Querétaro.

Today's car manufacturers use many different materials to make vehicles lighter and reduce fuel consumption. Traditional joining methods such as welding are being increasingly replaced by adhesive bonding in multimaterial design. Sika is a long-standing partner of various car manufacturers, and its product technologies are to be found in many new models.

INNOVATIVE STRENGTHS AS COMPETITIVE ADVANTAGE

Innovation has a long-standing tradition within Sika and "courage for innovation" is one of the corporate values. Sika maintains exclusivity over its innovative products through the systematic registration of its intellectual property rights. 133 new inventions were reported in 2018 (previous year: 112) and 85 new patent applications were filed (previous year: 81). By the end of 2018, Sika's patent po<u>rtfolio included more than 800 unique</u> patent families with more than 3.400 single national patents. Total expenditure on research and development for the Group in the year under review totaled CHF 189.5 million (previous year: CHF 184.6 million), equivalent to 2.7% of sales.

The research and development of new products, systems, technologies, applications and production processes form the basis of Sika's innovations. Its research activities are carried out by more than 900 employees at 20 global technology centers. 44 local and 20 regional research and development facilities are globally aligned to Sika Technology AG. Sika Technology tar-gets the development of proprietary technology that provides key performance benefits and allows Sika's product platforms to record to global tronds cuch as recourse saving building to respond to global trends such as resource-saving building methods, energy-efficient and low-emission construction materials, high-speed manufacturing methods, or lighter and safer



URBANIZATION

IN THE

is how much land prices have risen in Shenzhen since 2008. The southern Chinese metropolis is attracting ever more people, as well as domestic and foreign investment.

as long as now. This is how much São Paulo's subway and monorail network is set to grow in the next eight years. It is planned to build six new lines, and extend four existing lines.



is how much government and private investors in New York spent on construction activities in 2018. Adjusted for inflation, this is the highest level of investment in construction seen in the city since 1995.

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tion.

new high-rises are currently at the planning stage in London. 115 of these 20-plus-story buildings are already under construc-

DENSITY

Urbanization means centralization. And centralization means densification. In Paris, the number of people per hectare increases disproportionately the closer you get to the city center. Building in a confined space is a huge challenge in terms of safety, comfort, logistics, and engineering. That makes it the perfect environment for Sika's innovative, high-grade solutions.



The number of people moving to cities shows no sign of slowing as urbanization progresses throughout the world. There is strong demand for new residential units, efficient infrastructure, and additional energy supplies. Sika has long been present in today's major cities, speeding up construction processes with its efficient, high-grade solutions.



GROWTH

PROSPERITY



Price per m² in USD 0-1,000 2,001-2,000 2,001-3,000 4,001-5,000 5,001-6,000 6,001-7,000 7,001-8,000 8,001-9,000 9,001-22,000



VALUE



More heavily urbanized countries have lower levels of poverty, as the graphic on the left shows. Economic output and personal income are higher in urban areas. This means that countries with more cities have commensurately more resources to invest in construction and there is greater demand for a high fit-out standard.

By 2009, much of the residential and working space in Manhattan had already become unaffordable. Since then, prices in city-center New York have risen again by a further 30% or so. Heavy demand combined with building height and growing comfort, sustainability, and safety standards are resulting in high levels of investment from which Sika will benefit thanks to its technologically leading solutions.

MORE EFFICIENT, TALLER, AND DENSER

Major cities are going vertical. This is the only way to create space for the growing number of people being drawn to urban living. The Hudson Yards project in Manhattan illustrates perfectly the opportunities provided by densification and the challenges associated with it.

Office accommodation for 50,000 peo- people will live in an urban environment. ple, 4,000 apartments, 100 shops and This is a major challenge given the lack of restaurants, a hotel, schools, and parks. available groundspace. Hudson Yards on Manhattan's West Side is set to become a city within a city, com- VERTICAL LIVING plete with a 50-meter-high interactive The answer to this trend is art installation costing USD 150 million to compact, vertical give it a unique identity.

HOW DENSIFICATION WORKS

At USD 25 billion, Hudson Yards is the biggest private real-estate project in US history, and a textbook example of densifica-

tion in an urban environment. Until a few years ago, all you would have seen at this site on the Hudson River were Long Island Rail Road trains being marshaled. Now a huge platform has been erected increase. Quality, safety, and sustainabilacross the marshaling yard, above which ity become more important, as the Hudaround 15 skyscrapers jut further into the son Yards project shows. Given the strinsky with every week that passes. By the gent standards that skyscrapers have Sika's holistic approach is key in complex been gained.

wide, three million people a week move must be able to withstand strong winds ing experience. into cities; by 2050, seven out of ten and steep fluctuations in temperature.

construction. Population density has mortars to waterproofing solutions and been rising in Manhattan since the 1980s, and the skyline is changing at Sika is more than just a broad range of breathtaking speed. Two thirds of the innovative products. The Group stands world's supertall towers - those mea- apart for its comprehensive, solutionsuring 300 meters or more in height have been built since 2010. By 2030, num- many of whom work in sales and probers will have guintupled to 800.

MORE COMFORT, GREATER SAFETY

OUR YEAR 2018)ensification

A supertall skyscraper is a high-rise that is at least 300 meters tall. In 2010, there were 50 of them worldwide, but numbers have been growing rapidly in the meantime. Sika technologies are making these high-rises safer, more comfortable, more climate efficient, and more economical



When people live closer together, the requirements that buildings have to meet

And short construction times are extremely important in ensuring that the ambitious timelines can be respected.

SUCCESS MODEL

Sika has the right technologies for all these challenges, from additives for highperformance concrete and self-leveling sealants for glass facade elements. But driven approach and technical experts, vide professional advice to customers, frequently doing so on the construction sites themselves. Partnership begins at the planning phase, when specifications for the products that will be required are drawn up, and continues throughout the project.

time the project is completed, around to meet in terms of strength, concrete major projects such as Hudson Yards, 1.7 million m² of usable space will have becomes a key construction material. where new issues are constantly arising The site's proximity to the Hudson River and have to be resolved quickly. Doing so makes robust and reliable waterproofing drives densification forward successfully Urban centers act like magnets. World- a must. The skyscrapers' glass facades in a way that makes it a high-quality liv-

POTENTIAL

The Hudson Yards project in New York is the biggest private real estate development in US history with 15 planned high-rises.

USD 25 BN

is the estimated total amount being invested in the Hudson Yards project. 43'000 M²

is the area of the glass

residential building in the

development. Most of the

high-rises will have glass

facade of 35 Hudson

Yards, the highest

facades.

HIGH-PERFORMANCE CONCRETE

Using Sika additives to create the right mix design guarantees highperformance concrete that requires less water, stays transportable for longer, can be pumped several hundred meters vertically, cures quickly after pouring, and has a high compressive strength.

SELF-LEVELING

Thus far, self-leveling mortars from Sika have been used on surfaces of 100,000 m². They reduce the time needed to construct a story. This is important because concrete suppliers only get paid when the story is complete.



113'000 M²

or 16 soccer pitches is the area covered by the urban development project on Hudson River. Hudson Yards is being erected on platforms above a rail yard belonging to the Long Island Rail Road.

300

caissons - reinforced concrete retaining structures support the first of two platforms on which Hudson Yards is being built. The columns are up to 1.6 meters thick and up to 25 meters long or deep.

USD 2.1 BN

is how much the City of New York is investing in extending Subway line 7 to Hudson Yards. Having a Subway connection was one of the project prerequisites. The new line runs about 40 meters below ground.

>20 YEARS

is how long construction will last and generate demand for high-quality building materials. This is why it is important to engage reliable suppliers who can guarantee and deliver top-quality products over a long period of time.

TECHNICAL ADVICE

Sika's experts are providing technical advice and professional support throughout the 20-plus years of planning and construction.

WATER-PROOFING

Sika supplied over 110,000 m² of Sikaplan[®] membranes, Sika[®] Greenstreak[®] waterstops, and other waterproofing systems for the Subway line 7 extension. In so doing, it helped fulfill the requirements for deep construction by the Hudson River.

SOLUTIONS

Sika has the technologies, systems, products, and experts needed to provide full support for a project of this kind.

SEALING

Sikasil[®] was used to insulate the glass facade elements in all five of the high-rises constructed to date – a total facade area of 228,500 m². The system delivers high climate efficiency and compensates for dynamic effects such as wind load or temperature fluctuations.

LONGEVITY

Because Sika's high-quality solutions are designed for a long service life, they help to reduce total cost of ownership.



CITIES ARE GOING VERTICAL"





Preetam Biswas is Associate Director of Structural Engineering at Skidmore, Owings & Merrill (SOM) in New York. The architectural engineering practice designs and engineers prestigious large-scale projects worldwide

The architectural engineering practice of Skidmore, Owings & Merrill has designed the tallest residence building in the large-scale Hudson Yards development. The company's Associate Director of Structural Engineering, Preetam Biswas, talks about the challenges of high-density construction, and the role played by concrete in high-rise construction.

High-density construction is essential, particularly in large cities. What does this mean for architecture?

Because it avoids large, expansive cities, going vertical will be one of the most sustainable solutions to rapid urbanization in the years ahead. Cities are now embracing integrated commercial and residential zones that allow people to work and live in close proximity. The challenge architects and engineers are facing is to construct functionally mixed-use, vertically stacked buildings and developments that offer a very high quality of life on land that has become scarce.

What opportunities does this development present for SOM?

Skidmore, Owings & Merrill is known for designing and engineering various largescale projects throughout the world, from supertall buildings and hospitals to airports, schools, and convention centers. One of SOM's biggest strengths is its multidisciplinary approach. Being an architectural engineering firm gives us a unique advantage in the age of vertical cities, as buildings such as Burj Khalifa in Dubai, the world's tallest building, or the Manhattan West Development in New York prove.

Looking at New York, it is clear that the city is already very densely populated. What specific urban planning and construction requirements apply here?

Air-rights construction has made it possible to extend the Midtown Business District as far as the Hudson River. The Hudson Yards and Manhattan West developments alone are creating more than a million square meters in additional real estate. In the last ten years, new construction in Manhattan, Brooklyn and Queens have added real estate square footage equal to the whole of downtown San Francisco. In other words, an entire city has been built within one of the densest cities in the world. And this phenomenon is not unique to New York City. Over the next decade, we will see more and more cities growing vertically as their populations grow.

Manhattan West and Hudson Yards are prime examples of concentration, and SOM is building two office buildings, both over 300 meters high, as well as 35 Hudson Yards, the tallest residential building. What do investors demand from projects like these?

Investors are usually extremely aware of the premium that can be generated in the lucrative real estate market, and therefore look to capitalize on every square centimeter of floor space. This is where high-performance building materials such as highstrength concrete play a very important role. By using these materials, we can gain space because we can make structural elements - say walls and columns - smaller.

How can suppliers and partners support you in projects like these?

Developments in Real Estate have sped up considerably in recent years. Developers want to see a return on their investment as quickly as possible. That means using building materials that complement the ambitious timelines. Producers of such materials are our natural partners. As designers, we particularly value our relationships with companies like Sika, who invest specifically in research and development and constantly innovate.

Concrete is becoming increasingly important in high-rise construction. 35 Hudson Yards also relies heavily on this material. Why is that?

This 72-story tower was built at a rate of one floor every two or three days. When you're building at this speed, you need concrete admixtures and additives with very specific properties. The availability of high-strength concrete coupled with its longterm durability has also contributed to its increased demand in high-rise construction.

What benefits does concrete offer in terms of design?

Concrete is not just an economical building material, it is one of the most versatile there is. Demand for concrete is growing because various admixtures have broadened the options for using it in high-rise construction. Today, concrete is the material of choice for high-rise residential buildings. It provides an inherently stiff building structure with effective sound damping to minimize building movement and to make buildings quiet: characteristics that are a must for tall residential buildings.



CONSTRUCTION MATERIAL USED IN THE WORLD'S 100 TALLEST BUILDINGS

New York's Empire State Building, which was completed in 1931, is one of the most famous skyscrapers in the world. It is a steel-framed building, typical of the 1930s. Purely steel constructions are much rarer today, concrete and concrete-steel composites now being the material of choice. These ensure a high level of rigidity, good damping effects, high safety standards, and greater flexibility in terms of design. Sika is at the forefront of this development, thanks to its high-performance concrete admixtures.

LAKTHA CENTER, SAINT PETERSBURG RMIN

At 462 meters, the tallest building in Europe symbolizes the transforma tion of water to ice through its striking design. An immense foundation slab was required, so much so that Sika's involvement helped the building make it into the Guinness World Records book





With its high-strength concrete Ibeams rotated 90 degrees, 125 Greenwich is extremely wind-resistant. In addition, the new landmark building in Lower Manhattan stands out thanks to the scope it offers for the variable use of space and its columnfree interior. This was made possible thanks to the concrete construction produced using Sika additives.





MAHANAKHON BUILDING. BANGKOK Ole Scheere<mark>n</mark>

Sika supplied concrete admixtures, waterproofing and roofing systems, mortar, and flooring solutions for this residential, hotel, and business complex, with its characteristic "pix elated" effect and 30% cantilevered loor space.





LOGISTICAL MAS-**TERPIECE THANKS** TO SIKA SYSTEM SOLUTIONS

Skyscraper construction demands perfect concrete that delivers maximum strength, is efficient to process, and emits minimum emissions. To ensure that the right quantities of consistently highquality concrete are available on city-center construction sites whenever they are needed, Sika experts are assisting ready-mix concrete suppliers with their in-depth knowledge and innovative additives.

quires maximum concentration. Drivers ance with this timetable is only possible SikaTard[®]. The mix design is constantly have to deliver their load right next to if every load of concrete matches up per- adapted to take account of weather-Grand Central Station, just where pedes- fectly to the specifications. If concrete related temperature fluctuations trians hurry across the street with their had to be rejected for quality reasons, phones pressed to their ears and where work would be delayed across the entire LESS NOISE, MORE EFFICIENCY tourists stop without warning to take site. Furthermore, the concrete has to A major city-center construction site a photo. Tec Crete delivers up to flow well enough that it can be pumped brings an additional challenge in the 100 truckloads of concrete a day to the up to the appropriate story. And once form of noise. Local residents are parsite of the One Vanderbilt office sky- it's there, it has to cure quickly and sat- ticularly sensitive to it. But here again, scraper in Manhattan. The building is isfy the extremely stringent compressive Sika has the right solutions. Because Sika growing at a rate of up to three stories strength requirements. Three levels of additives make concrete softer, it does a week, and at 427 meters, it is the tall- quality control - at the ready-mix plant, not have to be mixed in the truck for as est building currently being constructed on delivery to the site, and when the con- long, needs less pressure to pump, and, in New York.

ULTRASTABLE IN ALL TRAFFIC CONDITIONS

concrete are huge and start with the mance concrete admixtures. "We source eliminates the need for vibration, the logistics. If a truck gets stuck in traffic all our additives from Sika", says Michael method of compaction typically used, and on its way from the ready-mix plant in Gisonda, Tec Crete's Sales and Quality which is often felt to be a nuisance. The Queens, the quality of the concrete must Control Manager. The company adapts lower noise levels mean that many buildnot change in any way. Since space is the additive mixture it uses to the specifier ing sites can continue to work at night tight on the building site itself, with no ic requirements of the building. The ad- or weekends, which reduces overall con-

crete is poured – make sure that it fulfills as a result, is much quieter to work. Furall requirements.

SUPPLIERS TRUST SIKA

parking or storage areas, every delivery ditives it uses include Sika® ViscoCrete®, struction time.

Driving a concrete mixer is a job that re- has to follow a strict timetable. Compli- Sika[®] ViscoFlow[®], Sika[®] Stabilizer, and

thermore, it flows better, which reduces both the amount of compacting it needs and the associated noise emissions. Us-The demands the project places on the All this is done with Sika's high-perfor- ing self-compacting concrete completely



> 400 M

is the height to which the high-strength, self-compacting concrete has to be pumped to get to the current job section of the One Vanderbilt in New York.



1.5 HOURS

is the time it can take to drive the 6.5 kilometers from the ready-mix plant to the One Vanderbilt site. depending on traffic.

200 BAR

is the pressure at which the concrete is continuously pumped up the building. The concrete must remain cohesive throughout and the pipes must not block up.





100

is the number of trips the trucks make daily to deliver the close-on 70,000 m³ of concrete needed for the One Vanderbilt.

EVERY FIFTH

truckload of concrete is tested by an independent laboratory to ensure it meets the quality standards for the One Vanderhilt high-rise





Michael G. Gisonda (Jr.) is Sales and Quality Control Manager at Tec Crete Transit Mix Corporation. The family-owned New York company specializes in ready-mix concrete.





"I ALWAYS HAVE A SIKA ENGINEER WITH ME"

Tec Crete is delivering all the concrete for the One Vanderbilt office skyscraper using concrete admixtures sourced entirely from Sika. Michael G. Gisonda (Jr.), Sales & Quality Control Manager at Tec Crete, and son of the company founder, explains why.

Tec Crete is delivering the concrete for several major construction projects in Manhattan. From your perspective, what are the biggest challenges of building with concrete right in the heart of the city?

The biggest issue is traffic. Some days, it can take our drivers over an hour to get to most jobsites. There are no longer any manufacturing plants in Manhattan for environmental reasons. We solve the problem by using Sika admixtures, which guarantee that the concrete stays workable for several hours. This allows us to control its slump and other properties. We also work at night in New York because there's less congestion.

More concrete is being used to build high-rises. What particular quality requirements does this create?

The concrete we deliver for high-rises has to meet very specific requirements. These buildings have to withstand enormous loads. That means using concrete capable of withstanding pressures of 100–110 MPa. That's three to four times more than average-strength buildings. To ensure that's the case, there is continual testing on the jobsite. Building can only continue if the concrete meets the requirements. The concrete also needs to be fluid enough to be pumped up 50 to 80 stories, after which it has to cure very quickly. If the aggregates aren't evenly distributed or if it's not possible to pump the concrete for a different reason, construction comes to a standstill and things start to get very expensive.

What effect do these requirements have on the quantity of additives you use?

We use specially developed additives to achieve the right properties. The quantity of additives we put in the mix is three to five times higher than for conventional concrete.

Concrete's behavior changes when temperature and air humidity change. What does Tec Crete do to compensate for this?

In summer, when temperatures are high, we need more hydration control to keep the concrete workable and pumpable. In winter though, we need more accelerators to speed up the curing process. I decide every morning exactly which chemical adjust-

ments need to be made before we load the first truck. The decision depends on the weather, how much concrete we're going to need that day, and how high we have to pump it.

Tec Crete purchases all concrete additives from Sika. Why?

The answer is simple: Because they work! Tec Crete has been a customer of Sika for decades. We have tried other suppliers in the past as well, but we always came right back to Sika as our sole supplier. Sika products are much more efficient. The support we get from Sika experts is fantastic. They help us prepare mix designs so that we get the specifications just right for every project. That way we can win prestigious major projects such as the One Vanderbilt. A Sika engineer comes with me to every important meeting with customers. I can rely entirely on Sika's expertise.

Looking to the future, what developments do you expect to see, or would you like to see, in concrete technology?

It would be nice to see multiple additives that can accomplish more than one thing. For instance, an additive that could be a high-range water reducer with hydration control properties. That would simplify the process for us. I can see already that Sika is going in that direction. A good example is Sika® Stabilizer-4R. This product significantly improves the concrete's pumpability while simultaneously keeping it from segregating. For this reason alone, I love including it in all my high-strength mix designs.

EXTREME CONCRETING

Even from a distance, it is often possible to tell whether a high-rise is being built from concrete by its self-climbing formwork. The formwork rises by between one and three floors each week. Because it places maximum demands on concrete, Sika's concrete admixtures were instrumental in helping this construction method make its break-through. This is because the concrete has to be extremely strong and capable of being transported and pumped for long periods, yet able to bear a load as quickly as possible after pouring.



32 OUR YEAR 2018 Living Environment



SIKA INVESTS IN FORWARD-LOOKING CONCRETE **REINFORCING FIBERS**

In recent years, Sika has expanded its presence in the fast-growing concrete reinforcing fiber market. Most recently, during 2018, the company acquired Fibermesh[®], the fiber technology developed by the US company Propex.

50/0

struction as admixtures have since their extend service life. introduction to the market.

2.5× 7.7%

contains fibers. Experts anticipate that to concrete increases flexural strength reinforced concrete is set to grow at an concrete reinforcing fibers will usher in 2.5-fold. Fibers also provide improved estimated average of 7.2 percent a year the same magnitude of progress in con- corrosion protection, fire resistance, and in the period between 2015 and 2020.

Just five percent of installed concrete Studies have shown that adding fibers Because of its greater efficiency, fiber-The advantages of using fibers include a reduced site workload because less rebar needs to be used.



Fiber-reinforced concrete is less prone to cracking than **conventional concrete.** However, if fiber-reinforced concrete does crack, the cracks are generally shorter and thus less of a threat to component stability.

CONCRETE

FIBER-REINFORCED

2 Fiber-reinforced concrete has a greater tensile strength. Furthermore, the fibers make the concrete more impact-resistant.

3 Fibers provide protection in a fire. For example, temperatures in a tunnel fire can exceed 1,000 degrees Celsius. Under these circumstances conventional concrete will spall, which reduces its load capacity. Fibers hold the concrete together.



SUSTAINABLE FROM THE CONSTRUCTION STAGE

Sustainability is essential in urban construction. Sika solutions are helping the new cultural center in Athens meet maximum environmental standards.

Thousands of trees and bushes grow in FEWER EMISSIONS THANKS TO SIKA The complex, which has been designed everything from waterproofing the founis home to the new Greek National Opera increase energy efficiency, guarantee outand National Library of Greece, is a clear standing air quality inside the building, tainable construction can make to quality improve the building's whole environof life in cities.

the park of the Stavros Niarchos Founda- This is why Sika has been involved in this tion Cultural Center in Athens, while the major project and proposing solutions for buildings have green roofs or photovoltaic it right from the outset. The Sika products installations to deliver renewable energy. impressed the client, and were used for by acclaimed architect Renzo Piano and dations to the roof installations. They illustration of the contribution that sus- shorten transportation routes, and thus mental footprint.

SUSTAINABILITY FROM THE BOTTOM UP

The Cultural Center meets the strictest environmental standards and has become the first European cultural building of its size to earn LEED Platinum Certification. The materials chosen combine with engineering innovations to ensure maximum energy efficiency and economic use of water. However, it takes more than that to make the top grade in environmental building. Sustainability has to be factored in right from the planning stage and all through construction; in other words, it's in the Cultural Center's DNA.

OUR YEAR 2018 Living Environment



Short transportation routes Sika produced the concrete admixtures and mortars used in the project locally, thereby reducing the environmental impact of transportation



Energy efficiency

The reflective Sikalastic® liquid applied membrane system was used on the opera house roof to improve the efficiency of the photovoltaic installations. The complex's extensive green roofs were lined with Sika roofing membranes.



Indoor air quality Harmful emissions from volatile organic compounds (VOC) were avoided by using Sikafloor® floor coverings and Sikaflex® sealants.

READY FOR THE COMMUTERS **OF TOMORROW**

Every morning, millions of people travel into the centers of the world's major cities, and every evening they return home. The number of commuters continues to rise with increasing urbanization. Sika has the solutions to adapt traffic infrastructure to the growing demands placed on it.

tation. The city has recently built new selling point when competing with other drotite are high-quality solutions that subway and monorail lines, or extended business locations worldwide. Many ma- meet these needs, enabling rapid conexisting lines, with the aid of Sika solu- jor cities are aware of this, and there is struction progress and guaranteeing long tions - further ones are planned. These heavy investment in transport links and infrastructure service life. programs are intended to put an end to transportation worldwide. the Brazilian metropolis's notorious traffic congestion. The chances of success EFFICIENT, LONG-LASTING, AND are good, with over 80% of drivers saying **COMFORTABLE** they are willing to switch to public trans- The investment often takes place under portation if the service fits their needs.

DEALING WITH THE DAILY PEAKS

numbers that are growing every day and tral Terminal. The water pressure that the avoid congestion is to have an efficient concrete and waterproofing used in such traffic infrastructure. Experts regard re- projects have to withstand places huge solving the biggest traffic issues as a key demands on them. Sika® ViscoCrete®

São Paulo is investing in public transpor- factor in economic growth and a major SikaProof®, Sikaplan®, and Sika® Hy-

ground, as in São Paulo, Lahore, or Santiago de Chile, as well in New York, which is building the East Side Access to connect The only way to cope with commuter the Long Island Rail Road to Grand Cen-

Sika solutions play a key role not only in the construction of underground or overground rail lines, they are also vitally important in the construction or modernization of stations and in rail vehicle manufacture. They help to carry public transportation forward into the future, as in Copenhagen, where Sika adhesives and sealants are in service in the city's autonomous, multi-award-winning, driverless netro trains. <

Various residential and commercial districts need efficient public transportation for people's daily commute, as the example of London shows. On the left is population distribution by where people live, on the right by where they work



passengers carried by urban public transportation in 2017 - an increase of 17% on five years ago.

of track were laid for urban public transportation between 2015 and 2017. 30% of this track was for new lines in China and India.





TUNNELS AND STATIONS



EXTREME STRESS

SIKA SOLUTIONS

are faced in the area of waterproofing.

Underground railway and metro stations Sika offers a broad range of waterprooare exposed to major stresses: dynamic fing solutions for all specifications. Pre- to 2% of the costs of a construction proforces, aggressive ground water, gases, cast elements are made watertight by ject, 80% of structural damage can be biological impact, and static forces. The adding corresponding concrete admix- attributed to water. In addition, durable most stringent requirements, however, tures such as Sika® ViscoCrete® as well waterproofing reduces maintenance inas through the application of system tervals and extends service life. solutions such as the high-performance membranes SikaProof® and Sikalastic®

LONG-TERM BENEFITS

Whereas waterproofing accounts for 1%

RAIL VEHICLES

PROCESS EFFICIENCY

with fast curing.

LONGEVITY

Sika products and solutions can be opti- Sika solutions focus on long service lives Sika solutions support lightweight conmally integrated into customers' work- and high stress resistance. Joints bonded struction for lower energy consumption flows. They are user-friendly, safe, and with SikaPower® SmartCore last longer during operations. At the same time, help reduce costs. The adhesive systems than welded joints. Sika coatings offer passenger comfort is enhanced thanks to SikaForce[®] Powerflex, Sika PowerCure[®], protection against corrosion and gravel. excellent sound and vibration damping. and SikaBooster[®] combine long pot lives Helping ensure low total ownership costs for customers makes Sika a partner of choice.

SAFETY

SUSTAINABILITY

Fire protection coatings such as Sika- Sika technologies such as Sika Hydro- Sika products bond and seal the widest gard[®] fire coatings give passengers more Prep[®], Sikaflex[®] NS Series, Sikaflex[®] STP of a fire. Structural adhesives such as interiors and offer superior environmen-SikaPower[®] SmartCore and SikaForce[®] tal performance. Powerflex improve the crash performance of rail vehicles.

LIGHTWEIGHT CONSTRUCTION

DESIGN FLEXIBILITY

range of materials and are flexible and time to escape from a vehicle in the event produce no harmful emissions in vehicle resilient. When it comes to train design, there are no limits in terms of shape and materials.

THE BUILT CITY IS BEING RENEWED

Densification is increasing the requirements that buildings have to satisfy, and a growing number of structures is becoming technically and environmentally obsolete. Sika has the solutions to extend buildings' service lives.

give the cities' buildings a thorough in- big cities. In addition to the buildings' quality products are often used in refurspection, checking that their piles are structure, the quality of their roofs, fastable and looking for cracks in walls and cades, and balconies is also inspected, ceilings. Their diligence pays off, because while increasing attention is being paid Innovative products and processes are the sooner damage is discovered, the to improving energy efficiency, fire pro- one important reason why developers more easily and cost-effective it can be tection, and earthquake resistance. remedied - and the safer the building becomes.

GROWING DEMANDS

are being constructed in big cities, much repurposed, or, as densification progress- is defined and implemented for every of the building stock in many of them es, extended by having additional stories building. has been in place for decades, and is ex- built on. All such refurbishments generposed to fresh stresses on a daily basis. ally entail structural reinforcement. The greater the density of buildings, the greater the forces acting on their struc- SIKA HAS THE SOLUTION tures. Heavy traffic is increasing vibra- However varied the modifications, Sika and environmental compatibility. Maintions, while high-rises have to contend always has the right product technology taining structural fabric is particularly imwith strong wind loads and changing to hand, from repair and facade mortars portant in mature markets - also at times weather conditions. Climate change is to structural reinforcements, from pro- when the economy is going through amplifying these effects. Periodic inspec- tective coatings to window insulation. a slow patch.

Every five years, Singapore's engineers tions are therefore mandatory in many Given the specific requirements, higher-

The growing demand for attractive residential and office space is a further incen- developing end-to-end repair solutions tive to refurbish existing building fabric. are another. Consequently, Sika can en-Although a large number of buildings Aging properties are being modernized, sure that the right refurbishment scheme

bishment and modernization projects.

and architects rely on Sika in refurbishment and modernization projects. The company's expertise and experience in

Thanks to Sika, buildings' service lives can be extended, something which pays dividends in terms of both cost efficiency













MAINTAINING AND EXPANDING INFRA-STRUCTURE

The expressways that link a country's cities are its nerve paths. As loads increase, safety is a major issue, especially on bridges. The A9 in southern France is one of the most heavily used highways in the country. After a five-year construction period, the modernized and upgraded section between Montpellier and Spain opened six months early, thanks partly to Sika's expertise and technologies.







One of the challenges encountered while modernizing and upgrading the highway was strengthening the bridge piers in poorly accessible terrain.



The reinforcement work had to take place with the highway open to traffic. Sika provided training for applicators and supported the project with technical advice.

16,000

of Sika[®] CarboDur[®] carbon fiber-reinforced polymer plates reinforce the structure supporting the bridge sections.



of Sikadur[®]-30 and 3,000 kg of Sikadur[®]-330 were used to attach and protect the reinforcement systems.









Sika sales team member Michael Winge focuses on refurbishment projects in the greater New York area.

PERMANENT ENDURANCE TEST"

Cities in developed markets commonly have a large number of decades-old, dilapidated buildings. In such situations, refurbishing the existing building structure is often the most sustainable and cost-efficient solution. Sika is strongly positioned in the area, which is generally more resilient to economic developments than other sectors. Michael Winge, a member of Sika's Greater New York sales team, explains why.

Refurbishment and modernization account for a large proportion of Sika's business in mature markets. What, in your opinion, are the key factors driving this business? 70 to 75% of Sika's sales in major cities such as New York comes from renovating existing buildings. Buildings and infrastructure are aging and need to be repaired and protected against environmental influences. We are noticing a continuous rise in the requirements that structures have to fulfill. This is due firstly to direct factors such as climate change or heavy wear and tear resulting from increased use and increasing traffic, and secondly to more stringent building regulations. For this reason, periodic inspections are mandatory in major cities such as New York. They ensure that buildings are correctly maintained and guarantee safety.

What is the key to extending buildings' lifespans?

We have to ensure that the best possible refurbishment scheme is prepared and implemented for each individual building. It is not sufficient simply to rectify such shortcomings as they come to light. We have to make sure that the underlying problems that have caused deterioration in the building envelope do not reoccur. Structural stability and water resistance are key to this, and energy efficiency is gaining in importance too.

What are the challenges of refurbishing buildings in big cities?

Logistics is a major challenge. If you have to repair the facade of a fifty-story building, for example, it can be difficult to obtain safe access. The materials and containers for the job have to be the correct size so that it is possible to mix and apply them from a scaffold or suspended scaffold hanging from the high-rise building.

Sika is the leader in the New York repairs and refurbishment market. Why has the company been so successful?

It's down to people and products. Sika understands the importance of having the right people. Our sales force is very technically oriented. Reps can advise engineers and architects who are facing the task of developing end-to-end refurbishment solutions and specifications. This also has the advantage that we can make sure that repairs are carried out properly. Furthermore, Sika systematically pursues the goal of bringing new and innovative products to the market and assisting customers at every stage of the construction process by providing the best products and systems adapted to their particular needs. We have a very broad range of products and solutions that encompasses concrete repair and protection including repair mortars, protective coatings, joint sealants, waterproofing and structural reinforcement systems. Put simply, Sika has the expertise and solutions to get buildings and infrastructure in good shape for the future.

S11 LOCAL LAW

12,000

Under New York's Local Law 11, the facades and external features – balconies, for example – of buildings with more than six floors have to be inspected at regular intervals.

1998 INTRODUCED

The Law has existed in its current form for 20 years, fulfilling its task of making New York pedestrians safer.

BUILDINGS

are covered by New York's Law 11. They have to be inspected every five years.

BALCONIES

on the Chelsea Stratus luxury condominium tower alone (shown right). There were cracks in the concrete that needed to be repaired.

SIKA SOLUTIONS

were used to durably refurbish the balconies. They were Sikalastic[®] DeckPro, Sikaflex[®], Sikasil[®], Sikacrete[®], and SikaTop[®] for waterproofing, sealing, repairing the concrete, and protecting it against corrosion.



4.4 OUR YEAR 2018 Refurbishment



CARS ARE IMPROVING

In the future, private transport in urban areas will be characterized by decarbonization, deprivatization, and intelligent networking. That means light, comfortable vehicles with more electrification components. Sika is helping to drive this trend with structural and heat-conductive adhesives and products for damping and reinforcing body construction.

64%

is how much global sales of battery-powered electric vehicles have increased during 2018 alone. The potential for sales of Sika products is 20% higher in electric vehicles than in combustion engine-powered vehicles.

8%

is how much less fuel a combustion-engined vehicle consumes when its weight is reduced by 10%. Using Sika products helps manufacturers make cars lighter.

50%

weight reduction can be achieved if the vehicle body is constructed with lightweight materials. Structural adhesives such as SikaPower[®] are extensively used to join these new materials.

ELECTRIFICATION

As electric vehicles, safety systems, or even self-driving vehicles become more widespread, demand is being created for new solutions. This is because electrification systems generate heat, which create a risk of overheating or even fire. By establishing and expanding its Advanced Resins unit, Sika has further strengthened business in this area. Sika supplies heat-conductive adhesives and materials for encapsulating and insulating electrical systems. These help ensure that the vehicles of the future will be safer, longer-lived, and more efficient.

LIGHTWEIGHT CONSTRUCTION

Systematically using SikaPower® systems can reduce the amount of CO₂ emitted by cars with internal combustion engines by 150 kg a year. This structural adhesive technology is the key to multi-material design, an approach that enables car builders to systematically reduce the weight of bodywork. Furthermore, adhesives have other advantages. They increase the stiffness of the car body and therefore make cars safer. Corrosion resistance and service life are also improved. Sika is driving the trend forward by launching adhesives that help make production more efficient by gearing product performance properties to customers process requirements.

ACOUSTICS

The combined, strong offering of Sika and Faist ChemTec, the specialist for structure-borne noise management, is making cars quieter and less susceptible to vibrations. These lightweight, multilayer, industry leading products enable car manufacturers to build lighter vehicles that emit less CO₂ without having to compromise on acoustic comfort. The newly acquired technologies complement Sika's existing portfolio of airborne noise treatments with solutions for structure-borne noise. With Faist ChemTec, Sika has become the clear technology leader in acoustic solutions for automotive construction.

25 MN

of the 95 million cars built worldwide each year contain Sikaflex[®]. The primerless, high-performance adhesive is used for direct glazing, composite materials, and interior trims.

STRONG SIKA GROWTH



The average value of the Sika materials to be found in vehicles is constantly increasing. Sika continues to overperform the automotive market growth.

21%

is the average annual rate at which sales of the SikaPower[®] product family have grown over the past five years. The outlook is good. A study by CAR Research estimates that adhesives will have replaced welding as the preferred bonding technology in automotive manufacturing by 2030 at the latest.

DEMAND FOR PARKING GARAGES

In 1990, 26% of China's population lived in cities. At the end of 2017, this figure had jumped to 60%. This went hand in hand with an increase in not only density and prosperity for the population, but also in the number of car owners. Experts estimate that China already has a shortfall of 50 million parking spaces, resulting in long queues and streets choked with parked vehicles. The government has reacted accordingly by issuing new regulations for new builds. Sika China successfully launched a tailored solution for the efficient construction of low-maintenance, safe car parks.

Sika set itself the goal of harnessing the business potential offered by the growing demand for parking spaces in China by developing a specific product system and bringing the corresponding marketing resources on stream. And the success speaks for itself: in 2018, "Sikafloor[®] Car Park" was the most successful single product for the national subsidiary. Average growth were used to improve the crack resistance of the floor screed. amounted to 37% between 2015 and 2018. On top of this, car Sikafloor® 3 QuartzTop and Sikafloor® CureHard Pro ensure the parks are often a good entry point for cross-selling on largescale projects such as the Suzhou Central Plaza.

PARKING SAFELY IN CHINA'S LARGEST BUILDING COMPLEX

At 1.82 million m², Suzhou Central Plaza is currently the largest urban building complex in China. It includes a shopping mall, office blocks, hotels, and serviced apartments, and has attracted an average of 100,000 visitors every day since its opening. In addition to ensuring public transport connections, the construction of a safe, bright car park was a key priority. For the

construction of the 140,000 m² car park, the Sika Flooring Team was involved right from the planning stages in order to define solutions to meet the extremely stringent requirements on the floor in terms of mechanical properties, fire protection, esthetics, durability, and maintenance. SikaFiber[®] concrete fibers requisite hardness, wear resistance, and glossy surface for the floor, and help convey the all-important sense of safety in China. Sika also supplied concrete admixtures and roofing products for the building complex.

Suzhou Central Plaza is a construction project of extreme proportions. Not only is it the largest building complex in China with a total area of 1.82 million m², it also houses the largest shopping mall (400,000 m²), rooftop garden (50,000 m²), and subterranean area (520,000 m²).



THE POTENTIAL IN CHINA'S CITIES

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Today, Beijing has an average of 2.5 cars for every 10 people. This number is increasing, and it is estimated that it will double to 5 cars for every 10 people by 2030.



Beijing currently has 4 parking spaces for every 10 cars. In 2015, cities with over 500,000 inhabitants were instructed to factor a ratio of 1.3 parking spaces per vehicle into plans for residential and commercial properties.









SOLVING **CUSTOMER** CHALLENGES

All around the world, Sika's solutions are helping raise building standards in fast-growing urban areas. More importantly: they make living together in increasingly dense areas in numerous different ways possible. Top-quality products for construction, civil engineering, infrastructure projects, and vehicle manufacturing are only one part of the Sika solution. Innovations, technical advice, and training both before and during the construction phase as well as the focus on people-, environment-, and budget-friendly applications - that is what stands out about Sika. Finally, it's all down to Sika's dedicated employees who work with customers to seek the best possible solutions each and every day. Let them tell you how.



THE SIKA TEAMS IN DENMARK WORK ON URBAN TRANSPORT OF THE FUTURE

SIKA DENMARK - TEAM INDUSTRY

With our knowledge and solutions we support and collaborate with our customers on a long-term basis. Not only do we supply the rail vehicle manufacturer in the production phase of the driverless trains, we are also active in the maintenance work by supporting the replacement of the glass windows when needed.



SIKA CHILE - TEAM CONSTRUCTION

Sika opened its first office in Chile in 1942. Since then Sika has been involved in numerous construction projects which have helped shape the development of Chile. By understanding the needs and demands of our society and by listening to our customers, we will continue to develop technologies and solutions to meet rising requirements and future challenges.

SIKA DENMARK -TEAM CONCRETE AND WATERPROOFING

We are proud to offer our expertise and solutions to a project that supports urban development and population growth in Copenhagen. The driverless metro system, which will be extended in 2019, gets you to the airport in less than 15 minutes. We help make this a reality by supporting the construction of the stations.

SIKA INDONESIA - TEAM LOGISTICS

As a growing economy, Indonesia is seeing an increasing amount of high-rise developments and a growing need for infrastructure. With our local supply chain and technical expertise we work together with our customers to realize such large projects.







SIKA CAMBODIA - TEAM SALES, QUALITY CONTROL, AND CONCRETE LABORATORY

As a pioneer in the Cambodian market, Sika supplies the full range of products to meet the requirements posed by urbanization. With the expansion of our production capacity, we intend to meet the increasing demand of more than 3,000 ongoing projects.



SIKA ARGENTINA - TEAM WATERPROOFING

Our team is focused on participating in every stage of major infrastructure projects. Starting with strong specification selling, designing solutions that meet waterproofing requirements, as well as extending the durability of the structures. One of the most prominent projects supplied by us is Paseo del Bajo, a 7km underground highway that will connect the north with the south of Buenos Aires.



SIKA CHINA - TEAM INDUSTRY

sealing, bonding, damping, and fire-proofing solutions, we gain the trust of our customers and successfully supply 50% of the China railway market.

SIKA CHINA - PROJECT TEAM SUZHOU CENTER

The demand for public transportation in China has increased Suzhou Central Plaza is the largest urban complex in China with two metro lines, sevsignificantly in the past few years. With high-performance eral buildings, a total construction area of 1.82 million m², and total investment of around CHF 4.4 billion. We are working closely with our customers to provide concrete admixtures, car park flooring systems, and liquid waterproofing membranes for this project.



SIKA CORPORATE TEAMS WITH INNOVATION FOR BELOW-GROUND WATERPROOFING

SIKA TEAM CORPORATE R&D AND OPERATIONS

We have combined different technologies and developed a new, fully bond-In 2018, SikaProof[®] A+ was successfully tested for launch in 2019. Against ed membrane system for basements: SikaProof[®] A+. Since space is limited the background of increased urbanization, quality requirements for dry in urban areas, more and more living environments are moving underground. basements and below-ground structures are rising. The SikaProof® A+ sys-Such environments are becoming areas where people work, live, and spend tem protects any concrete structure against gas, water, and chemical intheir leisure time. Thanks to SikaProof® A+, there is now a new solution for gress, and therefore significantly increases its durability. The robustness of these new challenges. the membrane enables simple, flexible installation in all climates and longlasting quality.





SIKA PERU - TEAM OPERATIONS

In 2018 we opened a new plant for the production of concrete admixtures, mortar products, and acrylic liquid applied membranes in Peru, tripling our production capacity. We are now ready and fully committed to meet the rising demands of the city of Lima, with its population of 10 million.

SIKA TEAM CORPORATE WATERPROOFING

SIKA POLAND -DEPUTY OF TARGET MARKET MANAGER CONCRETE WITH CUSTOMER

For more than two decades we have been working successfully with the leading pre-cast producer "Pekabex". The cooperation is based on long-term experience and understanding of customer needs. Our newest and innovative solutions accelerate the implementation of the most complex projects, making collaboration with our customer a real pleasure. That's what we call building trust!



SIKA GERMANY - TEAM SALES

Berlin is the largest city in Germany. The Berlin sales representatives of all construction target markets meet regularly to increase collaboration. One creased the demand for developments such as housing, roads, tunnels, reof our goals is to improve the knowledge of specifiers when it comes to our huge range of solutions. To reach that goal Sika Germany has organized an event with the theme "Berlin baut" – Berlin is building. During the event 200 planners were trained on the different solutions Sika has to offer for renovations and new constructions.



SIKA ECUADOR - GENERAL MANAGER WITH TEAM

Urban development and migration from rural areas to large cities have increational areas, etc. This in turn increases the demand for our products in the market. Sika is a benchmark in the construction sector in our country; it has grown hand in hand with the big cities and their development.

SIKA HUNGARY -TEAM KAM, TECHNICAL SUPPORT, SALES, MARKETING

The real power lies in cross-functional teams. Here in Hungary employees from different departments such as Key Account Management, Technical Support, Sales, and Marketing work together on an increasing amount of urbanization projects. We can grow our business when we speak the same "Sika language".





SIKA EGYPT - TEAM CONCRETE AND WATERPROOFING

The construction of Rod-Al-Farag Bridge, considered to be one of the widest bridges in the world, is challenging as it is located in one of the most crowded and densely populated areas of Cairo. With our new technologies and solutions we successfully contributed to the realization of the project.





SIKA PAKISTAN - GENERAL MANAGER WITH TEAM SALES, MARKETING AND FINANCE

SIKA AUSTRIA - PROJECT TEAM

efficiency of their refurbishment projects.

Lahore is the second-largest urban center in Pakistan with an estimated population of 10 million. Due to continuous population growth the Orange Line Metro Rapid Transit (MRT) was developed to meet the predicted passenger demand across the city. We have played an integral part in this large project by fulfilling needs with a wide range of Sika products.



OUR YEAR 2018 54 Urbanization drives success



SIKA PORTUGAL - TEAM HR, KAM, HELP DESK, FLOORING, BUSINESS DEVELOPMENT, FINANCE

In a world where building standards and quality requirements are constantly rising, we strive for innovative solutions for growing cities and support our customers on a daily basis in order to exceed their expectations.

SIKA HONG KONG - TEAM REFURBISHMENT

We, as sales and technical service professionals, are proud to help our customers face the challenges of external facade refurbishments with strong product knowledge and site support.







We are proud to work for a company that emphasizes employee development in accordance with professional qualifications and personal capacities. Each employee knows that success is a question of solid teamwork and having the right strategy in order to benefit from important megatrends such as urbanization.



SIKA SOUTH AFRICA -**TEAM TECHNICAL SALES, R&D WITH CUSTOMER**

Our team has been aiding the refurbishment of the South Waste Water Treatment Works in Durban by providing technical advice and adapting solutions to solve the challenges that arise. We strive to create close partnerships with responsible engineers and our experienced employees.



SIKA SRI LANKA - TEAM PRODUCTION

With our local production and expertise, we support our customers with many large-scale projects in Sri Lanka. Whether it be a more than 200-meter high mixed development in Colombo where we provide continuously pumped concrete or solutions for several highways connecting different parts of Sri Lanka.





Urbanization is creating new challenges in architecture and fueling demand for state-of-the-art construction materials and integral technical solutions. SIKA BOLIVIA - TEAM R&D, OPERATIONS, AND SALES As design and building consultants, we are often called in as early as at the planning phase so that we can work together with architects and plan-At Sika Bolivia we understand that teamwork is a key pillar of success. R&D, ners to formulate tailored system solutions. With regard to "The Circle" in operations, and commercial staff collaborate to create new ideas and soparticular - Switzerland's biggest-ever building construction project - we lutions for our customers. Therefore, we are the most important supplier have been involved as consultants for a number of years and are supporting of admixtures and other products for road integration projects in Bolivia. the project with waterproofing, corrosion protection, facade, concrete, and These projects are rising in demand as urbanization continues. mortar systems.



plant in Dar es Salaam, Tanzania, in 2017. This enables us to efficiently supply toplevel admixtures to the main infrastructure projects in the country, including the new terminal at the Julius Nyerere International Airport, the Tazara flyover, and the SGR project, the new railway line that will connect Dar es Salaam with Kampala, Uganda. Our global footprint, combined with our know-how and support on a local level, is contributing to the urbanization of the major cities in Tanzania.





the roof make us invincible.

SIKA SLOVENIA - TEAM WATER-PROOFING AND ROOFING

SIKA ALGERIA - SALES TEAM WITH CUSTOMERS

Together as a team we listen to our customers to understand their needs and provide them with solutions to increase efficiency that not only meet but exceed their expectations. This was also the case at the construction of the new hotel complex close to Algier Airport, which connects the vibrant city with the world

LEADERSHIP

The eight members of Sika's Group Management. In the background is "The Circle" – currently Switzerland's largest construction project and a commercial extension of Zurich Airport. Sika has been helping make the architecturally challenging, 180,000 m² building complex a reality by contributing comprehensive expertise as well as system solutions and products right from the start of planning. The company's waterproofing systems, concrete admixtures, mortars, corrosion protection systems, and coatings are being used in the project. "The Circle" is due to open in fall 2020.

ATAXA IA

FRANK HÖFFLIN Technology (CTO) With Sika for 16 years in Switzerland and the USA THOMAS HASLER Global Business and Industry With Sika for 30 years in Switzerland and the USA ADRIAN WIDMER CFO With Sika for 12 years in Switzerland

tomal mark

IVO SCHÄDLER EMEA With Sika for 22 years in Switzerland and the UK

YUMI KAN Construction With Sika for 27 years in Switzerland and Asia PAUL SCHULER CEO With Sika for 31 years in Switzerland, Germany au

CHRISTOPH GANZ Americas

With Sika for 23 years in Switzerland, France, and the USA

TO J AMARASE ASA A

MIKE CAMPION Asia/Pacific With Sika for 21 years in Asia and the USA

59

Switzerland, Germany, and the USA

ORGANIZATIONAL CHART

Sika takes the long view when it comes to developing its business. The relationship with customers, employees, and other stakeholders is shaped by respect and responsibility. Sika operates with a strong focus on safety, quality, environmental protection, fair treatment, social responsibility, responsible growth, and value creation.



THE SIKA SHARE

At the Extraordinary General Meeting on June 11, 2018, Sika shareholders approved the introduction of unitary shares with a par value of CHF 0.01. The Sika share weakened slightly in the course of a very mixed year on the stock markets, with a 3.4% drop in value, but still fell less sharply than the SMI Swiss blue chip index (-10.2%).

SIKA HOLDS GROUND BETTER THAN SMI



SUMMARY

With a decline of 3.4%, the Sika share price performed better than the SMI Index.

Closing price of the Sika share in 2017: CHF 129.00 Closing price of the Sika share in 2018: CHF 124.60

The key global share indices performed as follows in 2018: ■ SMI -10.2%

- DAX -18.3%
- Dow Jones -5.6%
- Nikkei -12.0%

Sika shareholders benefit additionally from the company's good result: dividend increase of 10.8% proposed

STOCK EXCHANGE RATIOS SIKA

in CHF

2018

17,666.00
149.00
112.70
124.60
1.85
2.05
4.69

1) Due to the share split, the dividend per share of the previous year has been adjusted by the factor 60 to ensure comparability.

2) Pursuant to proposal to Annual General Meeting

3) Undiluted

61

BALANCE SHEET AND CONSOLIDATED INCOME STATEMENT

Strong growth with sales exceeding CHF 7 billion for the first time. New record figures for operating profit at CHF 945.9 million (+5.5%) and for net profit at CHF 687.1 million (+5.9%).

CONSOLIDATED BALANCE SHEET

in CHF mn	Notes	12/31/2017	12/31/2018
Cash and cash equivalents	10, 26	1,037.9	914.0
Accounts receivable	11,26	1,188.8	1,322.9
Inventories	12	729.5	800.7
Prepaid expenses and accrued income	13	116.2	112.0
Other assets	14, 26	12.7	27.1
Current assets		3,085.1	3,176.7
Property, plant, and equipment	15	1,065.2	1,214.2
Intangible assets	16	1,317.1	1,693.9
Investments in associated companies	17	6.2	6.2
Deferred tax assets	8	228.1	223.0
Other assets	14, 22, 26	94.1	68.2
Non-current assets		2,710.7	3,205.5
ASSETS	······································	5,795.8	6,382.2
Accounts payable	18, 26	730.9	733.8
Accrued expenses and deferred income	19	253.4	265.5
Financial liabilities	20, 26	202.3	237.5
Income tax liabilities		147.0	147.9
Provisions	21	20.0	22.1
Current liabilities		1,353.6	1,406.8
Financial liabilities	20, 26	553.3	2,795.0
Provisions	21	56.4	48.1
Deferred tax liabilities	8	129.3	154.0
Employee benefit obligations	22	260.0	268.7
Other liabilities	23	32.1	34.2
Non-current liabilities		1,031.1	3,300.0
LIABILITIES		2,384.7	4,706.8
Capital stock		1.5	1.4
Treasury shares		-6.6	-11.1
Reserves		3,389.8	1,655.6
Equity attributable to Sika shareholders		3,384.7	1,645.9
Non-controlling interests		26.4	29.5
SHAREHOLDERS' EQUITY	24	3,411.1	1,675.4
LIABILITIES AND SHAREHOLDERS' EQUITY		5,795.8	6,382.2

CONSOLIDATED INCOME STATEMENT FROM JANUARY 1 TO DECEMBER 31

in CHF mn	Notes	%	2017	%	2018	Change in %
Net sales	1, 2	100.0	6,248.3	100.0	7,085.4	13.4
Material expenses	3	-45.6	-2,849.2	-47.0	-3,333.7	
Gross result		54.4	3,399.1	53.0	3,751.7	10.4
Personnel expenses	4	-19.4	-1,212.1	-19.0	-1,345.4	
Other operating expenses	5	-17.9	-1,118.5	-17.7	-1,256.4	
Operating profit before depreciation		17.1	1,068.5	16.3	1,149.9	7.6
Depreciation and amortization expenses	2, 15, 16	-2.8	-172.2	-2.9	-204.0	
Operating profit	2	14.3	896.3	13.4	945.9	5.5
Interest income	7	0.0	1.9	0.0	1.9	
Interest expenses	6	-0.3	-18.3	-0.4	-26.1	
Other financial income	7	0.2	5.9	0.1	5.8	
Other financial expenses	6	-0.4	-24.0	-0.5	-35.2	
Income from associated companies	7	0.0	0.3	0.0	0.6	
Profit before taxes		13.8	862.1	12.6	892.9	3.6
Income taxes	8	-3.4	-213.1	-2.9	-205.8	
Net profit		10.4	649.0	9.7	687.1	5.9
Profit attributable to Sika shareholders		10.3	643.5	9.6	682.9	
Profit attributable to non-controlling interests	24	0.1	5.5	0.1	4.2	
Undiluted earnings per share (in CHF)1	9		4.23		4.69	10.9
Diluted earnings per share (in CHF) ^{1, 2}	9		4.23		4.58	8.3

1 Due to the share split, the earnings per share as of December 31, 2017, were adjusted for comparability. Our calculation took this into account with 1/60 of the earnings per share as of December 31, 2017. For details see note 24. 2 Dilutive effect due to the convertible bond issued (see note 20).

DETAILS TO STATEMENT OF CASH FLOWS

in CHF mn

Operating activities
Investing activities
Financing activities
Exchange differences on cash and cash equivalents
Net change in cash and cash equivalents
Operating activities
Investing activities
Free cash flow
Acquisitions less cash and cash equivalents
Acquisitions (-)/disposals (+) of financial assets

OPERATING FREE CASH FLOW

2017	2018
651.9	744.0
-478.2	-705.2
-289.2	-149.6
-1.6	-13.1
-117.1	-123.9
651.9	744.0
-478.2	-705.2
173.7	38.8
320.4	471.2
2.7	3.2
496.8	513.2

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PHOTOS: COVER AND PAGE "HIGHLIGHTS"

Cover: aerial photography of Manhattan, New York, USA, one of the most densely populated urban areas in the world, where Sika is currently supplying 293 different projects. Page "Highlights": the MahaNakhon Building with its characteristic "pixelated" effect in Bangkok, Thailand. Sika supplied the building complex with various product systems.

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