Nuts and bolts

Cities don't just happen; assembly is required. But the inner workings of urban development are often hidden. We meet the makers and architects doing the heavy lifting.

I

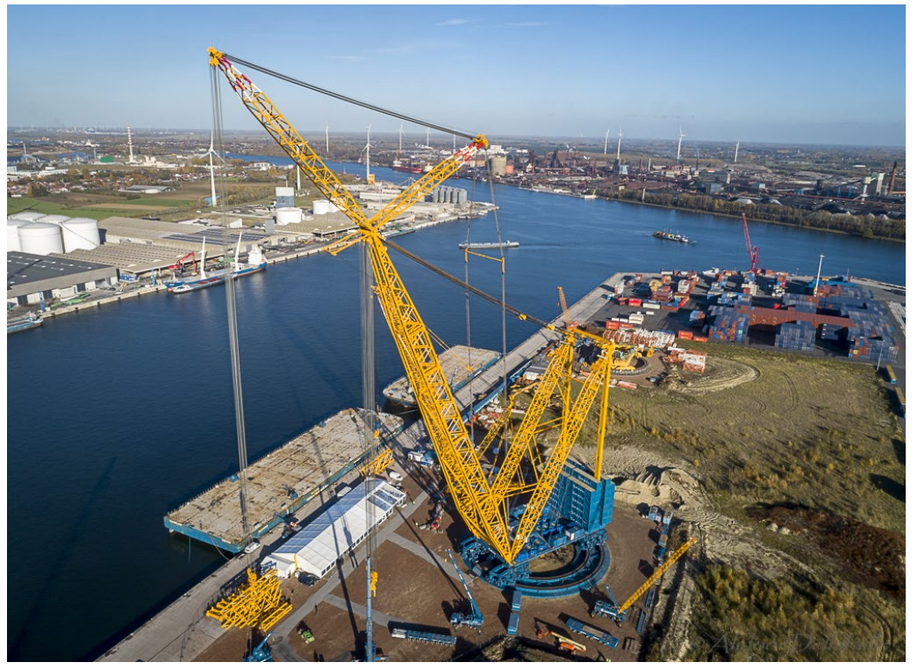
THE CRANE SPECIALISTS:
Sarens
Belgium

Cranes are the hallmark of a growing city. If you want to build something huge – a bridge, a motorway or a new metro line – you'll need some serious lifting power. That's where Sarens comes in.

With the motto, "Nothing too heavy, nothing too high", the Belgian company works in more than 65 countries and boasts a fleet of 1,548 assorted cranes, 3,188 road-based vehicles and 102 barges, along with various gantries and super-sized jacks. Last year it unveiled the world's largest crane: the SGC-250 can lift 5,000 tonnes, reach a height of 250 metres and is even able to move itself around a work site on built-in wheels – an industry first. And all this from a family-run firm.

"Cranes at Sarens are our passion," says CEO Wim Sarens, part of the fourth generation to run the 54-year-old company. "We take our vocation very personally. Lifting and shifting is not just a big business for us but something even more; all our stakes are in this company."

The firm recently worked on an emergency renovation of a bridge over Madrid's M30 ring road. "We are a versatile organisation and possess cranes that have a minimal footprint and maximum lifting capacity," says Sarens. "This means that in the confined space of a city site, Sarens is capable of offering solutions to the most complex problems." — VR



1

2

3

(1) SGC-250, the world's largest crane (2) Constructing a belfry in Ghent (3) Sarens has more than 1,500 cranes

2

THE LANDSCAPERS:

Public Work
Canada

In 2006 landscape architects Marc Ryan and Adam Nicklin – then project leaders at their own firms in the Netherlands and Canada respectively – began working together on a redesign of Toronto's neglected waterfront. For the next six years the pair helped to breathe new life into Lake Ontario. When the job ended in 2012 they decided to strike out together and founded Public Work.

The Toronto-based urban-design and landscape-architecture practice has since earned a reputation for its inventive and sensitive approach to public space. It has a team of 16 and more than 50 mainly city-based projects under its belt across Canada and, increasingly, abroad. "Growth in cities has always been about starting again, about erasing and beginning over," says Ryan from the firm's office in downtown Toronto. "But our sense is very much, 'We can build upon what's come before.'"

In 2018 they finished the first phase of one of their biggest projects to date: The Bentway. Repurposing about 2km of unused land below Toronto's Gardiner Expressway – a hulking road that bisects the city's downtown – The Bentway creates a corridor linking seven neighbourhoods and provides plenty of space for events and activities, such as skating, markets and theatre performances for the underserved population of nearby condo-dwellers. "The Bentway is less about what it looks like and more about what it enables and the kind of life it supports," says Ryan.

For Public Work, landscape architecture's role within a city is to enable connection, whether that's the Core Circle – a proposal for a series of linked green spaces surrounding downtown Toronto – or a redesign of Detroit's historic Capitol Park that includes long communal tables, a tree canopy and space for food trucks. "Landscape plays a really powerful role," says Ryan. "It stitches together the existing pieces of a city." — JGR

1

2

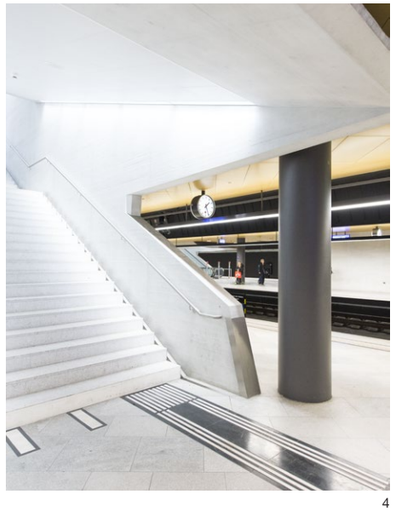
3

THE CONCRETE-MAKERS

LafargeHolcim
Switzerland

Love it or hate it, concrete remains a key building block of city construction. With a shared history dating back more than a century and an order book spanning everything from affordable housing to large-scale infrastructure projects, LafargeHolcim is the go-to company for this essential material.

Formed after a merger in 2015 – between France's Lafarge, which provided hydraulic lime for the Suez Canal in the 1800s, and Switzerland's Holcim – the firm is a market leader in cement and the materials needed to make it. It employs 90,000 people in about 80 countries and, last year, sold about 220 million tonnes of cement under the leadership of German CEO Jan Jenisch. "Concrete remains very attractive," says Edelio Bermejo, head of research and development. "It's a robust, durable and economical building material



4

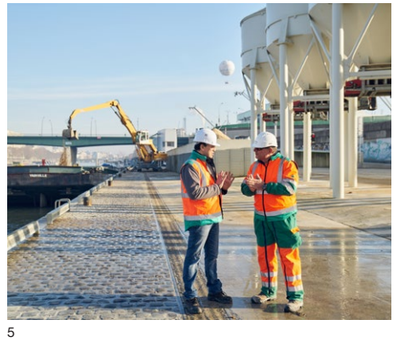
(**1**) The Bentway in Toronto (**2**) Repurposed land beneath the city's Gardiner Expressway (**3**) Zürich's Hauptbahnhof (**4**) Concrete features in the station (**5**) Working on the Grand Paris Express

3

with a number of benefits, including thermal protection, high fire resistance and waterproofing."

On top of being involved in the building of Zürich's Hauptbahnhof station, a metro in Ecuador and a new city in Egypt, LafargeHolcim recently won the tender for the Grand Paris Express (GPE). In order to build 200km of new railway and 68 new rail stations, the firm will provide a whopping 600,000 tonnes of aggregates and 260,000 tonnes of cement to make ready-mix concrete. "The GPE is the largest transport infrastructure project in Europe," says Bermejo. "We're excited to help meet the city's needs for an improved transport infrastructure and also prepare Paris for the 2024 Olympic Games."

The company is also sensitive to concerns about the sustainability of cement, the production of which is estimated to be responsible for about 5 per cent of global CO2 emissions, according to the International Energy Agency. "Since 1990 we have reduced our net carbon emissions per tonne of cement by 25 per cent, leading cement companies with the highest reduction against the 1990 baseline," says Bermejo. "We are highly focused on minimising our environmental impact by reducing CO2 and water consumption, and increasing our use of recycled construction materials." — VR



5

The transport boom:
You might not have heard of Urumqi, Abuja and Palembang – fast-growing cities in China, Nigeria and Indonesia respectively – but they share a milestone: they opened their first metro lines last year. Two thirds of the world's people are expected to be living in cities by 2050 – up from 55 per cent today – so the need for efficient and reliable public transport is more pressing than ever.

According to the Brussels-based International Association of Public Transport, 40 cities in 20 countries launched new light-rail transit (LRT) lines in 2018, while 39 cities in 17 countries opened metro lines. Nowhere is this rush to build more evident than in China: 653km of new metro lines can be found in Chongqing, Guangzhou, and Qingdao as of last year, along with 94km of LRT lines in Beijing, Chengdu and Wuhan.

This activity is creating a bonanza for the biggest names in LRT networks, subways and automated people-movers – as well as a clear opportunity for those looking to invest in a relatively safe industry as global markets continue to face uncertainty.

The transport boom means that city officials have their work cut out choosing the type of network that suits their needs. Do you go with a rechargeable-battery-powered LRT by Spain's CAF or a more conventional electric tram by France's Alstom? Do you build an elevated track for a self-driving metro line developed by Japan's Kawasaki Heavy Industries or an automated people-mover by Germany's Siemens? Or do you bet on an unproven but less expensive optically guided bus-tram hybrid by China's CRRC?

Whichever firm wins, there are tangible benefits for cities. "Cost-effective and high-quality transit provides workers and residents with access to employment, education, shopping and leisure," says Aziza Akhmouch, of the Paris-based OECD's Centre for Entrepreneurship, SMEs, Regions and Cities. It can also keep senior citizens active and offer disadvantaged residents a low-cost transit option, she says. Whether you're an investor, planner or resident, it's win-win. — KH