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Tencent Seafront Towers, Shenzhen

Taking the Corporate Campus Vertical

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Jonathan Ward champions the continual advance-
ment of the relationship between program, space
and human experience. Over the past 18 years, Ward
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gressive buildings for innovative global clients in the
Americas, Europe, and Asia. His experience includes
some of NBBJ's most notable buildings – the Telenor
World HQ and Tencent Corporate HQ.

Jiemin Ding is the chief engineer of TJAD. His inter-
ests are in structural design and research of supertall
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scientific research projects include: "Key Technology
Research on Super High-Rise Structures: Life Cycle
Design and Maintenance", and " Key Technology
Research for 500m+ Super High-rise Building Design."

Tim Etherington, as managing director, has
cultivated an in-depth and nuanced understanding
of cultural differences and how these impact the
creative collaboration process, his understanding
of client needs stems from a passion for building
powerful brands and engaging employees.

Abstract

*The Tencent Seafront Towers bring a novel concept – the "vertical campus" – to
Shenzhen. In housing the corporate headquarters of the fourth-largest internet
company in the world, the two-tower, interlinked design breaks away from the
typical horizontal tech campus mold, with an emphasis on connectivity, creativity,
knowledge and wellness.*

Keywords: Vertical Corporate Campus, Skybridges, Workplace Design

Introduction

Densification and urbanization are
compelling urban designers, architects and
engineers to reconsider the typical high-rise
building. Perhaps it is time to look beyond
image and economic return—generally the
primary concerns—when designing a
high-rise. With the continuing trends of mass
migration from rural to urban areas,
increasing scarcity of resources and a global
emphasis on social segmentation, there is a
need to think differently about our cities and
how high-rise buildings fit into them.

From a humanist perspective, the scale of
cities such as Paris and London present
compelling models for creating real and
vibrant urban life. Yet as these cities show the
strains of urbanization—particularly the
pressure on land costs and greenbelt
preservation—a new generation of towers is
emerging, especially in Asia and the Middle
East. Some of these begin to hint at what
these structures could support, moving

beyond just iconography and economics to
become places for people and creators of
vibrant communities.

The Synergy Tower—a vertical campus
design concept for the Tencent Seafront
Towers—is an idea that can be applied to
single-occupant high-rise developments and
mixed-use tall buildings. It's a concept that
has the potential to change the way a
developer brings value to a commercial
office building and engages with the city.
This idea can be applied to the densification
and redesign of our cities, suburbs, and
exurbs, towards a new, vibrant vertical city.

The need for companies to become
"innovation engines" to create greater value
in today's economy also drives key aspects of
the Synergy Tower concept. Through a series
of tower projects and competitions, the
design team has arrived at a set of distinct
ideas that can create better working and
living environments in the vertical realm.
These towers promote communication,

Figure 1. Tencent Seafront Towers in its context in the Binhai district of Shenzhen. © Terrence Zhang

interaction, and diversity of experience; in short, they foster vertical cities that drive creative, economic and cultural development. This is only the beginning of the natural evolution of this urban archetype.

Context

Tencent Holdings Limited is the fourth-largest internet company in the world, after Google, Amazon, and Facebook. Estimates place the market capitalization of Tencent—which means "soaring information" in Chinese—at more than US$200 billion. While less-known to those living and working outside of China, the Chinese investment holding company has robust media, social-network and mobile subsidiaries that include the instant-messaging service, WeChat. Tencent currently employs over 30,000 people, a number that has doubled since 2011.

Riding explosive growth, Tencent's leaders held an international design competition in 2010–11 for a new headquarters that would accommodate up to 10,000 workers. The current headquarters is in the Nanshan District of Shenzhen, a city in southeast China less than 40 kilometers from Hong Kong. The new headquarters, called Tencent Seafront Towers, has opened in the manufacturing-focused Binhai District of Shenzhen, about two kilometers away from the current Tencent headquarters in the Nanshan District. In just five years, the Binhai area has filled in with skyscrapers, streets and advanced infrastructure (see Figure 1).

The Binhai area is reclaimed land and is rapidly evolving along with Shenzhen's regional development. The past three decades have seen massive population growth, expanding from 30,000 people in 1980 to over 18 million people today. The Binhai area has become a tech center—home to the Shenzhen Technical University, which the Tencent founders attended. The Tencent project is the cornerstone of this development.

Figure 2. The orange-colored "links" between the towers contain common-use spaces for up to 10,000 workers. The links are reminiscent of the scarf worn by the Tencent penguin logo. © Tim Griffith

> 66 Tencent currently employs over 30,000 people, a number that has doubled since 2011. Riding explosive growth, Tencent's leaders held an international design competition in 2010–11 for a new headquarters that would accommodate up to 10,000 workers. 99

The Design

The Tencent Seafront project consists of a pair of towers connected by multi-level sky bridges or "links" that bring connective elements like community areas, green spaces, and fitness amenities to various points throughout the buildings. The entire headquarters totals 270,000 square meters, quadrupling Tencent's real-estate holdings.

The design concept draws on the playfulness of the Tencent brand, and on its business mission to improve communication and community, while also responding to a complex urban site. Represented by the Tencent logo—a friendly penguin bundled in a red scarf, with its right wing extended in a welcoming "hello"—the company embodies an innovative and youthful spirit (see Figure 2). The average Tencent customer is around 26 years old, while the average employee is 27. Increasing external and internal brand awareness is central to Tencent's business strategy. Its customers seek out internet entertainment, authenticity and opportunities to share content, while Tencent employees design and develop code.

The combination of Tencent employee/ customer values and needs, and four key Tencent branding goals guided the design approach:

- Establish Tencent image and culture
- Create a significant gateway for guests
- Activate employees' creative spirit
- Retain talent

The four project goals, coupled with the innovativeness and youthfulness of the Tencent brand, and a tight site in the rapidly urbanizing Binhai area, closely informed the design approach. While constrained land availability posed a challenge, the Tencent culture and business goals were central to the core design concept: the high-rise tech office as campus.

Evolution of the connected high-rise
The office high-rise evolved alongside the evolution of communications systems, from

telegraph and mail, to telephones, internet, email, and cloud-based systems. The rise of mail in the early 20th century saw the development of the traditional high-rise, with functions segregated in discrete sections and ancillary to the company's main business. As the 20th century progressed, and with it the adoption of new communication technologies, from the telephone to email, companies began expanding globally and increasing their real estate reach. The rise of the skybridge as a design typology in the latter half of the 20th century allowed companies with multiple buildings in close proximity to stay physically connected.

Typically, a skybridge is little more than just a bridge: a functional enclosure that allows occupants of adjacent buildings to get from point A to point B without having to go outside and/ or cross a busy street. Across Shenzhen Bay, the Central district in Hong Kong features many such skybridges—including the Central Elevated and Central Mid-Levels walkway systems that connect more than 40 office towers and shopping centers. The design team wanted to take this approach and rethink the corporate office skybridge— intensifying communication, synergy and community—while breaking down the barriers of the traditional high-rise silos and capturing the energetic and youthful Tencent culture (see Figure 3).

Informed by previous tech-company design work for clients such as

Amazon and Samsung, the design team injected this young, innovative ethos into the main design concept. The typical internet company in Silicon Valley, with ample plots of suburban land, relies on the horizontal model—separate low-rise buildings spread out like fingers amid green space—for interdepartmental connections. Lacking land, Tencent wanted a different approach that would increase productivity, engagement, connectivity, recruitment and visibility between Tencent employees, customers and the Tencent brand. The traditional corporate skyscraper can be isolating, with stacked floors acting almost as separate companies or cities unto themselves.

As cities expand and more people and businesses move to urban areas, a focus on improving connections, wellness and creativity is ever more important. The Tencent Seafront Towers advance this trend, weaving in
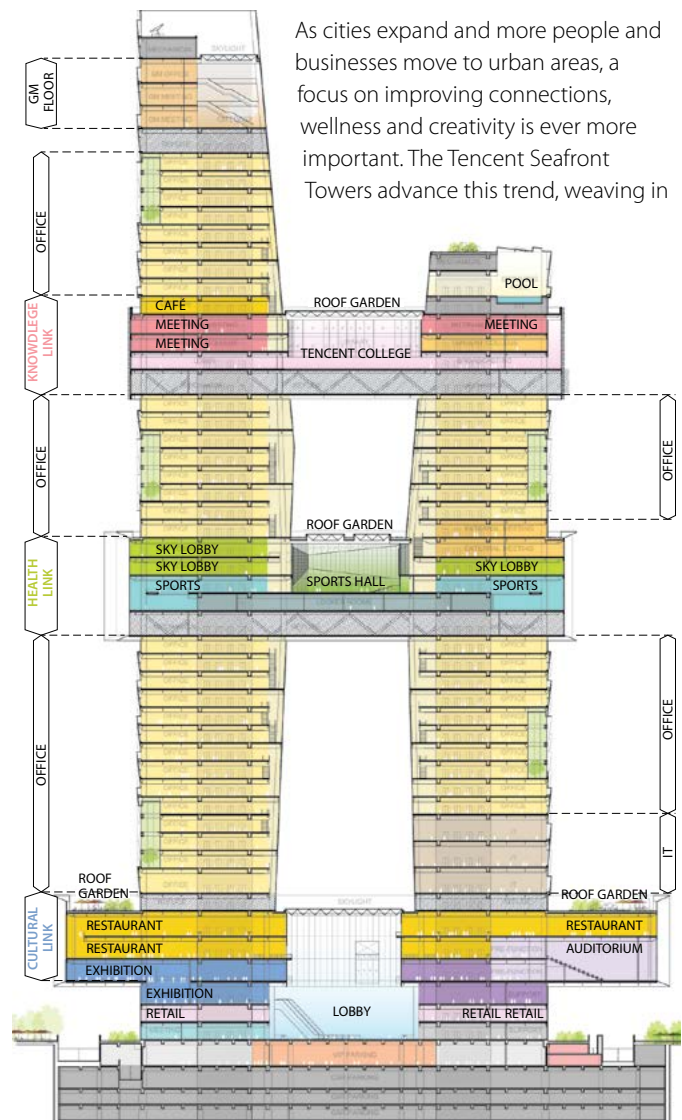

Figure 3. A section diagram of Tencent Seafront Towers demonstrates the complexity of the program. © NBBJ

innovative sky bridges, transparent interiors, offset cores and more—a prototype of the next-generation corporate office.

The Synergy Tower as a vertical campus

The main concept draws on a hybrid approach: incorporating diverse amenities, and a range of functions, allowing for social spaces to increase serendipitous connections, along with campus-like green spaces, within a compressed footprint.

The Synergy Tower concept splits the isolating single high-rise into two, one 50 stories and the other 38 stories, with multiple horizontal streetscapes running between them. These multi-story skybridge connectors or "Links" are not just about circulation; they are places to go with activities to experience (see Figure 4). The three links fold in a wide range of high-tech amenities, centering on the themes of culture, health, and knowledge (see Figure 5). They help remove barriers and serve as community areas, much like an urban civic center, plaza or other gathering place.

The Culture Link is the closest to the ground level and supports a range of activities and public spaces. The link starts on the first floor and houses the lobby and reception area, meeting rooms, retail, an exhibition space, a cantilevered auditorium and restaurants. There is a lower, two-story section and an upper, three-story section. Connecting these two sections creates on open atrium that enhances the connectivity between the two buildings, creating a smooth, continuous space (see Figure 6).

The design objective was to bring the culture of the company and its people into focus, allowing them to connect with the space, creating infinite possibilities. The design enhances the exterior without competing with it, allowing human movement to bring the space to life.

The lobby's atrium is covered in a three-story media wall that displays graphics and messaging for Tencent, serving as a physical representation of the company's digital nature. Visually consistent color schemes,

Figure 4. The special status of the link bridges is obvious at night, with their façades glowing red and skylights hinting at the activity inside. © Shao Feng Architectural Photography Studio

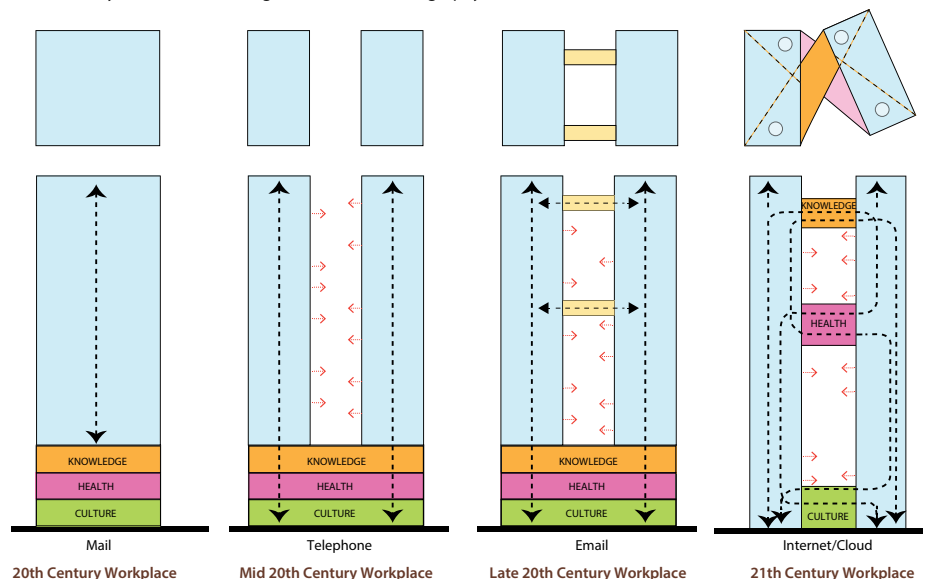| 20th Century Workplace	Mid 20th Century Workplace	Late 20th Century Workplace	21th Century Workplace
Mail	Telephone	Email	Internet/Cloud

Figure 5. The evolution of the corporate office tower form, can be correlated with developments in communications technology. © NBBJ

Figure 6. The Culture Link is the closest to ground level, with an atrium that enhances connectivity between the two buildings via a smooth, continuous space. A three-story media wall lights up with a themed display when the rooms beyond are in use. © Tim Griffith

Figure 7. The Health Link, located at Level 21, includes extensive fitness facilities, including a climbing wall (left) and running track around the perimeter of the gym (right).
© Shao Feng Architectural Photography Studio

signage, and wayfinding all bring elements of the Tencent brand to each level of the campus. Meeting rooms punctuate the interior façade, displaying that human activity to the public. Extensive and unique use of the capabilities of LEDs provides a useful and appropriate backdrop for the buzz of activity in a tech company headquarters. LED screens housed within the internal skin can be hidden or brought to life, depending on the requirement. The punctuated meeting rooms light up when in use, creating pulses of activity in the horizontal lines of the façade, resembling data coursing through the internet. Visitors and employees access the space through angled escalators, affording interesting view angles and threshold experiences.

The Health Link. This middle link begins at Level 21 and features a running track, gym, full-sized basketball court, stadium, and more (including a swimming pool at the top of the north tower) (see Figure 7). There is also a juice bar and cafe. The Health Link is prominently at the heart of the campus—for Tencent, the health of the employee is key to the health of the company. Healthy food options in dining areas, exercise and fitness facilities, and even on-site doctors and therapists all combine to create an integrative approach to health and wellness.

Figure 8. The Knowledge Link at level 34 contains green spaces for brainstorming and quiet contemplation.
© Shao Feng Architectural Photography Studio

The Knowledge Link. Employee learning is one of Tencent's critical values. Thus, the third link starts on Level 34 and emphasizes knowledge. There are rooftop gardens, conference rooms, an upscale dining hall, a training center called Tencent University, as well as meditation rooms and a library (see Figure 8). This Knowledge Link is symbolically at the top or the "head" of the tower.

These Links serve as the "quads" of the new 21st-century vertical corporate tech campus. Advanced elevator systems help

connect employees to these bridges and maximize social interactions. The elevators were carefully designed as a movement system to encourage people to interact at these Link levels, which become transfer floors that allow colleagues to cross paths and create serendipitous opportunities.

Because connections to nature have been shown to produce better employee performance, each Link hosts rooftop gardens for encouraging outdoor meetings and interaction (see Figure 9). Each seeks to

address a central issue of the single high-rise tower: How to increase areas for employee connection, well-being and learning, while also speaking to the next generation of internet company workplaces? (Sun 2017).

Cores and office floors

Inside, large open floor plates offer flexibility, allowing the interiors to adapt to the changing needs of Tencent employees and the business plan. The south tower has floor plates that reach 100 meters wide—almost triple the typical 37-meter high-rise floor plate—and which provide shade and cooling for the narrower north tower. The flexibility of the interiors—raised floor plates, column-free spaces, and demountable partitions—allow for extensive changes to the interior, should departments or divisions relocate.

The cores in each tower are partially offset to create two unique workplace conditions. At one side of each core is a large and highly flexible focus space—this is where the bulk of the workers are stationed. These sides face outward, looking toward the view, and to the future.

> **"The three multi-story skybridge links help remove barriers between divisions and serve as community areas, much like an urban civic center, plaza or other gathering place. "**

To the other side of each core narrower areas that lie along the "bellies" of the towers. These spaces face inward, toward one another and are programmed for conferencing, tea kitchens and other shared functions. These areas have more interaction and communication, while allowing Tencent employees to look across and see their colleagues in the opposite tower.

Around each core are openings and stairs that connect various floors together— helping to further break down the typical disconnected, stacked floor plates found in the traditional tower (see Figure 10). These areas allow workgroups to easily span different floors, as well as mix and connect,

enhancing interaction and innovation— work can happen anywhere. The workspaces, the links, the gardens, and the plaza are all designed to enhance face-to-face and digital work alike.

Employees control their spaces

Enabling employees to perform their jobs effectively begins with providing the necessary means for individual and focused work options. Collaborative spaces, learning spaces, and isolated, sound-proof working spaces all give employees different options for how, when, and where they want to work. Because of the ever-evolving needs of the Tencent brand, the design team ensured that flexibility was at the heart of each
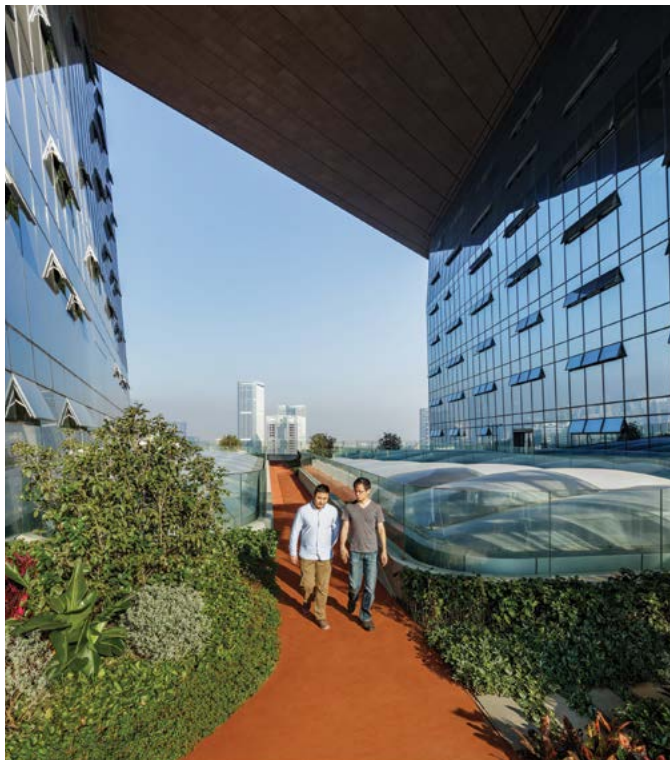

Figure 9. Each Link has a rooftop garden, to encourage further collaboration and fresh-air-taking by colleagues. © Tim Griffith
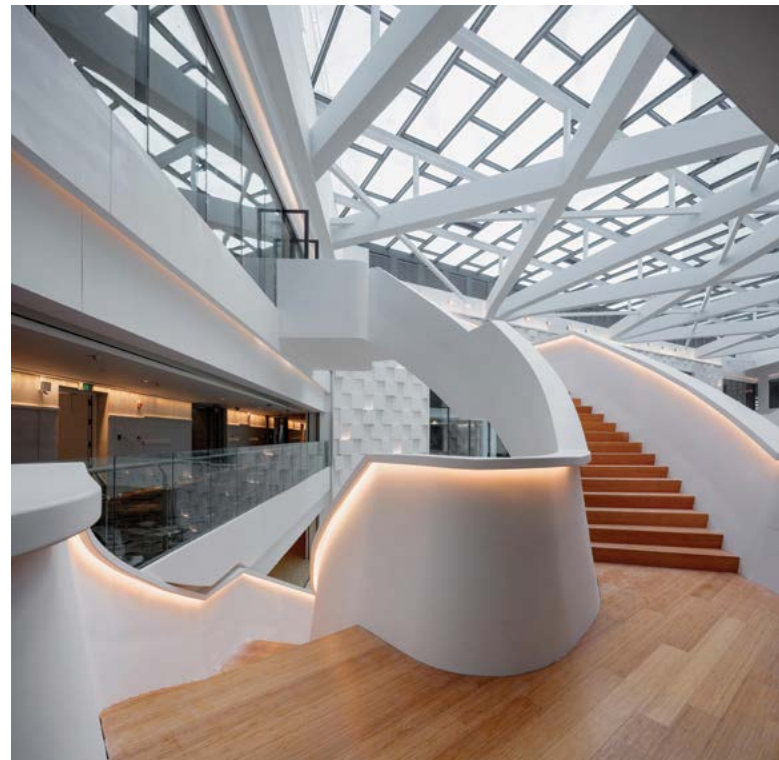

Figure 10. The Links are venues for unplanned interactions, through devices like this communicating stair. © Shao Feng Architectural Photography Studio

space's design. A plug-and-play system was developed for each floor to allow any business unit to seamlessly swap workspaces to better suit changing needs. Business units can select from three different design-and-finish kits, and each employee can customize his or her individual workstation setup from a kit of parts. The flexibility and interchangeability of each office space is crucial for the company's continued creativity and growth, and directly affects employee satisfaction and productivity.

Sustainability

Siting and energy strategy

Incorporating a sustainable approach was critical to Tencent CEO Huateng "Pony" Ma, so the Tencent Seafront Towers weave in sustainable technology at every level. With the project slated for LEED Gold certification and a 2-Star rating for the Chinese Green Building program, sustainable design technologies were a priority for Tencent. Green initiatives are slated to save Tencent over US$800,000 a year. Passive energy practices will reduce carbon emissions and consumption by 40% compared to conventional designs. The towers are rotated to minimize heat gain as well as take advantage of cooling winds to help ventilate the interior atrium. Advanced modular shades adjust with the sun's arc, allowing each façade to adapt to varying light levels. The façade incorporates an advanced skin on the eastern and western sides of the building to help minimize glare and excessive heat gain. Following a design arrived at through advanced computational modeling, the towers lean in and out at key points to reduce the heat load.

The façades

The façades are designed to be self-shading. The south façade modules extend outward to shade themselves from the southern sun, while the east and west façade modules tilt side-to-side to shade from the morning and evening sun (see Figure 11). These angles were set based on computational modeling that ran energy load/savings versus cost models. These self-shading façades led to a 20% energy reduction off the highest baseline, and they form a distinctive skin designed to embody the digital cloud, the flow of information, and the people who use and build Tencent's products. This contrasts and corresponds with the smooth glass and red boundaries denoting the presence of the "links" on the façade (see Figure 12).

For the tilting glass and metal façade, the architects partnered with a global curtain wall manufacturer to create a custom façade, using six types of curtain walls and four varieties of skylights.

The highly complex façade necessitated closer-than-typical collaboration between architect and builder. The design architect's team worked on the Tencent project

Figure 11. The south façade modules extend outward to shade themselves from the sun. © Tim Griffith

Figure 12. The link bridges are articulated on the outside of the towers as smooth surfaces set against the hooded window pattern of the main office spaces. © Terrence Zhang

through the final tendering process. This allowed for greater control over the original design intent, and led to improved design to construction outcomes, particularly on the façade details. Further assistance from a China-based consultant helped the project team choose an appropriate contractor, as well as help facilitate communication between the client and curtain-wall consultants' teams.

Each system required performance mockups (PMU) to make sure every detail and visual aspect was correct and on target, both structurally and visually. The models included all the details, down to the materials, colors and extrusions. The PMUs were invaluable, helping refine the glass type, metal panels and façade lighting.

The façade relies on conventional materials assembled in an unusual way. There are nine façade systems, while the two primary systems are the most unconventional, with a heavy visual texture. These articulated façades—which the curtain-wall consultant was able to refine by using aluminum exclusively—tilt out to a maximum of 900 millimeters. The size of the articulated façade modules was maximized to simplify the number of components needed and to shorten the onsite construction time.

Although the curtain-wall manufacturer's factory in Guangzhou is two hours by car from the Shenzhen Tencent site, the design team made it a priority to meet face-to-face with the team at the factory during each site visit. The frequent meetings and close collaboration helped ensure everyone worked in tandem.

Smarter Building, Smarter Tech

To help support workplace innovation and engagement, spaces in the Tencent Seafront Towers mirror many of Tencent's products. This thinking was based on in-depth research into the Tencent culture, business and products. These elements were then mapped onto different workplace performance settings. This was important in

> **"** The self-shading façades led to a 20% energy reduction off the highest baseline, and they form a distinctive skin designed to embody the digital cloud. **"**

defining the overall concept for the architecture as driven by the interior experience and cultural connections.

For example, interaction zones are the physical manifestation of the Tencent blog, called the "Q Zone." Avatar-themed work desks weave in the popular "QQ Avatars" that customers use in their digital interactions with one another.

The high-rise campus hybrid includes an array of high-tech features. A key driver is the Internet of Things (IoT). The basic idea is that objects in our environment are connected or networked with sensors that share data or provide remote access. The Tencent Seafront Towers incorporate this technology. While companies generally use IoT technology to provide more granular, tailored services for their customers, Tencent will also provide an IoT approach for their employees and guests.

Through a program called "hologram tours," employees have access to custom Tencent-developed navigational and amenity tools that include employee tracking badges and parking spot alerts, among other features. The proprietary Tencent technology uses the Vertical Campus as a framework for a more digitally interactive workplace.

Conclusion

By reinventing the high-rise—bringing a campus-like feel to a vertical space—the Tencent Seafront Towers focus on fostering more meaningful employee connections, including those social relationships above, below and beside the typical path from door to workstation, as well as intellectual, physical and creative growth. This

"streetscape" approach is about encouraging connections, not cutting them off. Skyscrapers are not the typical typology of tech offices, thus the new Tencent headquarters represents a generative rather than a conservative building—building new relationships, while reinforcing old ones. ■

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Project Data

Completion Date: 2017
Height: Tower 1: 246 m (806 ft); Tower 2: 195 m (639 ft)
Stories: Tower 1: 50; Tower 2: 38
Primary Function: Office
Owner/Developer: Tencent Technology Company Limited
Architects: NBBJ (design); Tongji Architectural Design (Group) Co., Ltd. (design); Shenzhen Tongji Architects (design)
Structural Engineers: AECOM (design); Tongji Architectural Design (Group) Co., Ltd. (design); Shenzhen Tongji Architects (design)
MEP Engineers: Shenzhen Tongji Architects (design); Tongji Architectural Design (Group) Co., Ltd. (design); WSP Group (design)
Main Contractor: China Construction Second Engineering Bureau Ltd.
Other CTBUH Member Consultants: Arup (traffic); Atkins (LEED); Gensler (interiors); Inhabit Group (façade); NBBJ (landscape); Thornton Tomasetti (façade)
Other CTBUH Member Supplier: Armstrong World Industries (ceiling); Schindler (elevator)