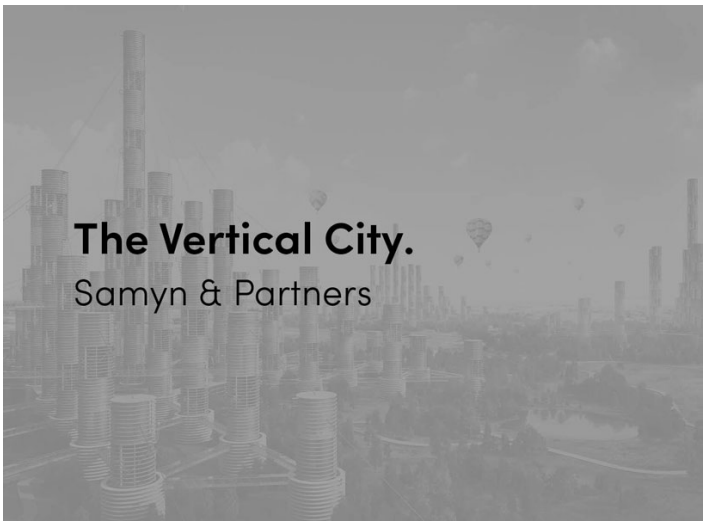

THE VERTICAL CITY

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All new vertical neighborhoods in development today lack a prospective vision. They result from the accumulation of isolated initiatives that are coordinated nearly only by administrative and technical rules, which include the L/H and L/B rules. They will leave a mark on the landscape that risks to be only for less than a century while having monopolized considerable human and financial means both for the private investor and the community.

The lifespan of post Second World War constructions, based on short-term architectural and technological vision and concepts, is already quite short. It is now further shortened by the current enthusiasm for unbridled geometric forms using, naively or with involuntary and futile cynicism, scientific progress and technical prowess.

Engineering is now reduced to the stylish exteriors of American cars produced in Detroit barely 30 years ago! We have witnessed where neglect of logic and mechanical expertise can lead.

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This incites me, thus, faced with this disordered thinking, to propose a theoretical model for a new small vertical city of 30.000 inhabitants that complements the “possible small city of 30.000 inhabitants” I imagined when Marcel Crochet and Raymond Lemaire entrusted me 2 with the study for the west development of Louvain-la-Neuve. This city of 30.000 inhabitants requires approximately the construction of two to three million m2 of gross floor surface. While the constructions of this potential small city occupy over a third of its territory and that ɣ (the influence of its networks) is more than 1,5, the buildings of the small vertical city occupy only 13,5% of the ground in our latitudes and, with ɣ =0,5, the impact of its networks is reduced three times. Imagine building 43 cylindrical towers of 34 m (and a base of 48 m) average diameter 3 on a plan of equilateral triangles of 146,2 m per side (or 80,6 m in the tropics), which we have studied for the L/B rule. A central tower is surrounded by 3 neighborhoods of equilateral triangles 584,8 m (322,4 m) per side (inscribed in a circle of 1.169,6 (644,8 m) of diameter) at 120. one from the other comprising 14

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towers each. Around it, for each of the 3 zones, 2 towers form a hexagonal first ring; 3 towers in a second hexagonal ring; 4 towers in a third hexagonal ring; and finally 5 towers in a fourth hexagonal ring.

These 3 triangular neighborhoods form, with the 3 triangular empty spaces of the same surface that separate them, a hexagon of 584,8 m (322,4 m) per side (and 1.013 m (644,8) m in width), which represents a territory of 888.519 m. or 89 ha (270.049 m. or only 27 ha !) and a gross population density of 337 h/ha (1.111 h/ha) for the entire city.

One understands that it is possible to regroup several of these hexagonal territories to form cities of 120.000, 210.000, 390.000, 570.000, even 1.110.000 habitants 4 in a large hexagonal cluster made up of 37 cities of 30.000 inhabitants. This large hexagon of 32.875.203 m. or 3.288 ha (9 981.801 m. or 999 ha) is inscribed in a circle of 7,09 km (3,91 km) in diameter.

All urban activities can take place in the towers, provided they are enlarged by 48 m in diameter for the first 10 levels (this corresponds to 13 levels for parking construction and 6 levels accessible to heavy, long trailer vehicles). Some activities indeed require a larger floor surface, and it is thus there that we can envisage energy production and waste treatment facilities, industrial activity reorganized vertically, or large entertainment theaters. There is no obstacle to imagine them also in the form of large cantilevered bow windows.

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All horizontal networks of flow, whether it be of people, goods, materials, energy and information in all its forms, are organized on a triangular grid between the different towers above their bases, in other words higher than the tree tops at around forty meters above ground. They are carried by bridges of a free span of only 98,2 m, 146,2 m minus 48 m, (32,6 m, 80,6 m minus 48 m), as compared to a typical span of 70 m for a standard European highway bridge) guyed between the towers.

They are economically competitive, compared to surface roads and underground networks, when maintenance and operation costs are taken into account, but above all they create no environmental

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pollution and do not encumber the ground.

They provide for horizontal connections from tower to tower towards their banks of elevators, by bicycle or on moving walkways in the city, and protected from the wind and the rain. In this silent city, transportation of goods does not require cars or trucks.

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For the project in figure 27, in our latitudes with L/B = 3,8, a ventilated and naturally lit parking garage for 17.160 cars (available for displacements outside the city) is developed on 10 to 13 levels on a 10-story base of the hexagon, formed by the 6 towers of the first ring and the constructions of 48 m in width that connect them. This construction in the form of a hexagonal prism surrounds a cylindrical structure of 168 m in diameter, directly in line with the central tower, enabling 5 to 6 levels to receive and manage the flow of 600 trailer trucks as well as 36.000 m. of storage space.

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This cylindrical building is also naturally ventilated and lit, and is distant at minimum of 18,625 m from the hexagonal prism that forms the interior of the parking garage. This interstitial annular space is reserved for the connecting station to the rapid collective transportation system between small cities.

Six roads for individual vehicles and trucks, above the railway lines, connect this intermodal station of communication with those of the neighboring small cities. They crisscross in star form at 60. the bisectors of the neighborhoods. The infrastructure and the silently rolling equipment ensure absence of noise.

The total ground occupation of this central hexagon, as well as the 32 other towers, represents 120.000 m., or 13,5% (44,4%) of the territory of the city. The remainder of the territory, or 768.519 m. (150.049 m.) is reserved for parks and their great alleyways, for nature and agriculture, open-air activities, and also for the 6 inter-city circulation routes and the large “stadium”.

The large central core provides a gross surface of 517.000 m., the bases of the 36 other towers, 648.000 m., for the total of 1.165.000 m.. The remaining 1.835.000 m., to reach the total of 3 million m., are shared, from the 11th floor on between the 43 towers (the 7 of the central core and 3 times 12 peripheral towers). With 900 m. per level, one must distribute 2.039 floor plates. One can thus realize the small city with the help of the 43 towers, all 48 levels on a base of 10 levels, or all 58 levels aboveground.

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One can also foresee a “hill” city in the shape of a “trumpet” formed by a central tower of 170 floors surrounded by a first ring of 6 towers (2 per neighborhood) of 110 floors, then a second ring of 3 per neighborhood or 9 towers of 70 floors, in the third ring, 4 per neighborhood or 12 towers of 50 floors, and finally in the fourth ring, 5 per neighborhood, 15 towers of 30 floors. Connections between the towers can be organized at different levels according to needs.

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