

CITYSPACE by Christopher Choa

lift off

the ups and downs of 'elevating'



China Foto Press

Since 1853, when Elisha Otis exhibited his invention for a safety hoist at the New York Crystal Palace exposition, elevators have risen in the world. No longer prosaic dumbwaiters, they've become gleaming, rocketing machines. We should really take advantage of this development. Isn't cycling in Shanghai evolving from utilitarian transportation into a real leisure sport? Why not 'elevating'? To encourage this new form of urban exercise, here's a brief field guide.

the greenest

After sailboats, elevators are the most energy efficient form of mass transportation on the planet. They can move lots of people with a relatively small motor. This is not a miracle; the secret is the counterweight. But you could help things by losing a few kilos: think of Lance Armstrong riding the Alps.

the twins

In most high-rise buildings, elevator

shafts use up to 25 per cent of the available floor area. One way to handle more people with fewer elevator shafts is to construct twin-cabs, which assign odd or even floors to each cab. Currently, there are about 30 twin-cab systems in use around the world. Pudong's World Financial Center will have an advanced version, featuring a high-tech link between the two cabs that will stretch and contract, thereby allowing the unit to accommodate different floor-to-floor heights. But in the meantime, you can practise with the twins in Raffles City tower on Xizang Lu.

the calculation

Building owners frequently try and reduce the number of elevator shafts to gain more floor space at your expense: fewer shafts mean longer waits. One way around this problem is with a "Destination Hall Call System", which uses microprocessors to reduce "call" error. You key in your choice of floor from the lobby, and the computer does the rest; it inventories

all requests from all users and calculates the position of all the elevators in the network. It then tells you which elevator will get you to your floor the fastest. Ride the one in Ciro's Tower, on Nanjing Lu. But you'll need to relax, breathe deeply, and work on your visualization skills – the cab has no buttons.

the nastiest

Those pesky little 800kg-load limit econoboxes are the smallest cabs allowed by the Shanghai building code. They are cramped to begin with, and made worse by the ubiquitous protection boards, which are there to protect the already much scuffed walls from becoming further scuffed (by your name brand elevator climbing equipment and your heart-rate monitor). This is a cheap workout – you deserve better.

the wildest

A decent office building elevator will carry you at a rate of seven meters (almost two floors) every second. But if you want to ride the world's fastest elevator, you'll have to catch the charter flight to Taiwan. The shuttle elevators in Taipei 101 blast off at over 16 meters per second, equivalent to 60 kilometers per hour.

the physical limit

There are few technological limits to elevator speed, but our bodies can only take so much. Physiologically, anything more than two floors every second creates pressure that makes us really uncomfortable. Especially on the descent. (Think about those crying babies as the plane approaches the tarmac.) That is, unless the designers incorporate pressure equalization systems, especially in units where the one-shot vertical distance is more than 300 meters.

the psychological limit

In a word: boredom. Historically, class A office buildings have elevators with 'acceptable' waiting times. Thirty-five seconds is about all we can handle before going nuts; as such, total waiting time (trip up or down plus the wait) rarely exceeds 90 seconds. However, if you have the temperament of a mountain rescue dog, you can probably wait a lot longer.

the future

Maglev. No kidding. Toshiba is planning to introduce the first magnetic levitation elevator by 2009. In the meantime, expect more sky lobby arrangements, like the hotel shuttle in Jin Mao Tower. This sort of elevator is great for acclimatizing yourself to high altitudes – just like Mt. Qumolangma (Everest) base camp. ■

Christopher Choa is an architect and Design Principal of EDAA (design, environments, economics and planning)