CITYSPACE *by Christopher Choa*

air con

the mechanization of urban form

Architectural history quiz: Name the single biggest influence on architectural form in the 20th century? A. Art Nouveau? B. Cubism? C. The Berlin Secession? D. Frank Lloyd Wright?

Answer: none of the above.

As we enter the apogee of the Shanghai summer, the correct answer should be evident: the ubiquitous air conditioner. Don't laugh. At this very moment, an office in Paris, a restaurant in the middle of Dubai, a bedroom in Auckland, and your living room in Shanghai all share the same temperature and humidity. This is an extraordinary situation, not just from a technical point of view, but because we have come to expect such a uniform environmental standard, regardless of latitude or longitude. The lowly air conditioner has changed the way our cities and buildings look, and in the process, architecture has regressed to a homogeneous mean.

In mid-19th century America, enterprising citizens cooled air by fanning it across tubs of ice. The public debut of modern air conditioning, using compressed gasses to transfer heat, was introduced during the 1904 St. Louis World's Fair. Commercial applications of mechanized air conditioning became popular in the 1920s (Shanghai's original Nanjing Theater, now the Shanghai Concert Hall, was one of the first buildings to use it).

The rest is history. History with little change, at least concerning the mechanism of air conditioning. But architectural creativity has dramatically altered. Air con units, like barnacles on the hull of a ship, have multiplied on rooftops, windows and walls, and as a result, design has suffered.

This wasn't always the case. In the past, vernacular urban forms and buildings were adapted to local environments because they didn't have the crutch of mechanical refrigeration. Cool climates of northern Europe spawned snug, stoic buildings with south-facing plazas to fill public areas with sunlight. Dry desert climates evolved narrow alleys and windy gaps to provide continuous shade and funnel breezes. Hot, humid environments encouraged buildings to spread out; their tall spaces and high-level transoms allowed hot, sticky air to rise.

And details and ornamentation that gave architecture its legitimate character were often byproducts of their environments too. Think about the small windows with carefully fitted panes and shutters in demandingly cold climates. Intricately carved "*mashrebiya*" screens allowed visual privacy and air movement in the Middle Eastern desert. Deep roof overhangs in tropical climates provide shade with minimal structural weight – and the intricacies of their lightweight structure are a visual delight. Purposeful variety ruled the day.

Air conditioning blows this away. Mechanically guaranteed temperature and humidity changes the rules, resulting, more often than not, in the arbitrary architectural forms of our contemporary cities. And along with the availability of mechanized cooling, architectural discourse has become increasingly academic. We like to think that our ideals, our imagination, and our personal taste form the basis of our designs, so we debate the merits of various architectural modes. But with the brute force of mechanical refrigeration, a glass façade, or practically any architectural configuration can be used indiscriminately and without apparent consequence, be it in Stockholm, Iran or Shanghai. Which means designers and builders have little inducement to be truly creative;

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all they need is a few extra tons of cooling and some extra electricity – and voilà – there arises another utopian structure that could belong anywhere. Air conditioning has caused us to lose touch with our roots.

Green Design and energy conservation tries to put accountability back into the equation, and it may yet succeed, at least on a grassroots level, with a return to regional architectural characteristics. Mechanical air conditioning accounts for more than 40 per cent of the total energy consumption in buildings, and if we want to conserve energy it's the best place to start. Indeed, changing our expectations about what constitutes "normal" temperatures and finding alternative ways to stay cool in the summer is already changing the appearance of architecture. Personally, I marvel at the example of Persian wind towers. Beginning over 1,000 years ago, these striking shapes diverted breezes down tall shafts and over wide basins of water to create cooling evaporation: a supremely elegant invention, and an example of how buildings can work for me instead of having machines work for them.

Recently, in an attempt to reduce my own carbon footprint (while my wife and kids are away on vacation), I've turned off the AC altogether. My high-ceilinged rooms are the perfect way to experience what life was like before AC. It was a little warm at first, I admit, but now I'm getting on just fine. ■

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