

Pearl River Tower Guangzhou, China

1.964 Sustainability and the
Environment

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“Building of tomorrow”

- Located in Guangzhou, China
- Owner: CNTC Guangdong Tobacco Company
- Architect: Skidmore, Owings & Merrill
- 69 stories, 309 meters tall, 2.2 million ft²
- “net” zero-energy footprint

HVAC

- No fans necessary for circulation
- Double-wall insulation
- Heat travels upward
- Cool air circulated through floors

Windows/Siding

- Double-wall insulation
- Embedded photovoltaic transistors for solar energy
- Wall surfaces angled for maximum sun exposure
- Uses wind pressures to strengthen structure

Wind Power

- Uses architecture of building to “funnel” air into designed openings of building
- 1.5 - 2.5 times the ambient wind speeds
- 15 times more energy than “freestanding” wind turbines

Emergency Energy

- Natural gas fuel cells
- Uses gas to electrochemically break down hydrogen
- 50% more efficient than obtaining electricity through outside sources
- Recycles waste gasses to power HVAC

Questions/comments?

Sources:

Green, J. (2006, August). *Pearl River Tower, Guangzhou, China*. Retrieved October 24, 2006, from http://jetsongreen.typepad.com/jetson_green/2006/08/pearl_river_tow.html.

Lubell, S. (2006, June). Not innovative? SOM's skyscraper projects in China tell a different story. *Architectural Record News*. Retrieved October 24, 2006, from <http://archrecord.construction.com/news/daily/archives/060615som.asp>.

Stewart, J. (2006, July). Super tall and ultra green. *Metropolis Magazine*. Retrieved October 18, 2006, from <http://www.metropolismag.com/cda/story.php?artid=2227>.