Tower Blocks **Housing in Today's China**

They are the form of residential housing in today's China, the defacto housing option for everyone except the very few that can afford a detached single family dwelling. Clusters of towers in city centers, scattered throughout urban landscapes, and flanking highways and railways. They take several forms, but there are a few constants.

They are always formed and poured concrete platform construction, faced with decorative material. The Westernized names of the developments work to create a feeling or concept, a signifier future calm..... Gorgeous Palace, Splendid Tranquility, Harmonious Gentle Breeze.

They are built in a single blast of manic energy, from a dozen to more than a hundred, unlike the Western model of putting up a building or two, selling them out, then putting up some more.

It's not uncommon to see masses of Tower Blocks smack up against farms; it's not long ago that all this was farmland.

Developers are responsible for infrastructure, roads, sitescape, schools, on site retail, sometimes even sewage treatment facilities. Landscaping is always thorough and fully developed, often with central gathering areas for residents; Chinese like to gather outside and talk (gossip), a connection to the village that most of the residents come from.

The most luxurious developments make Las Vegas luxury pale in comparison; waterfalls, eye popping landscaping, gilded gates, ironwork that looks like it came from

Versailles.

More common for entry level housing are ground level single car garages. Depending on the state of luxury and regulation in the development, many of these garages are converted to small businesses; cars are still relatively rare. It's common to find someone selling vegetables next to an aluminum window fabricator, a butcher, a motor scooter repairman, a series of fish tanks holding live fish (fresh is important in Chinese cooking), slabs of fresh tofu, a hair salon.

The retail development is an extension of the village, a welcome easing of the monotony of Western condominium developments that isolate the residents from any semblance of village life. It is also an avenue for entry into the economy, an incubator of sorts; it's a way to enter the modern world of business.

Buildings are thin, with condominiums usually extending to both sides, allowing cross breezes through open windows. There is almost always a balcony, or a bumpout extension enclosing a glass and screen porch. The balconies and bumpouts are the only thing providing texture to what would otherwise be a flat facade.

Elevators serve landings with two doors per floor; there's a sense of arriving at your front door instead of being confronted with a trek down a long featureless hallway.

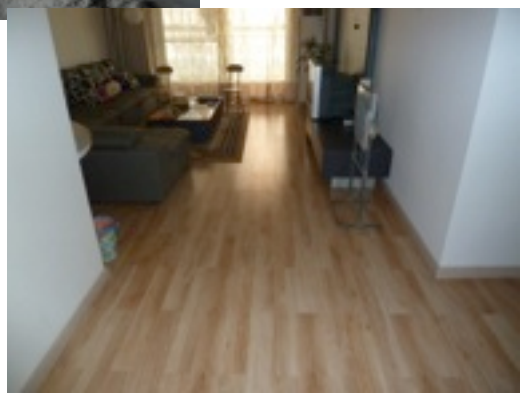
The landing themselves are usually blank concrete, even in some of the finer buildings; the residents don't own the landing, so why spend money on decoration?

When one purchases one of these residences, the developer only supplies a blank and empty concrete box, no partitions, no nothing, just mechanical stubs for plumbing and electricity. It is the responsibility of the purchaser to finish the interior, which is always referred to as the "decoration". There's no remodeling or interior finishing in China, it's decoration. In new buildings, there might be as many as 100 different interior decoration contractors all working feverishly at the same time. For those of us in the construction industry, try to imagine what that looks like. It's indescribable, but surprisingly, there are few if any arguments or coordination problems; the workers know what they're supposed to do, and they do it.

Decoration takes as many forms as there are ideas, in other words, limitless, from mundane to plush beyond imagination. The apartment that's featured in this report is what I would call a nice entry level unit in a residential development on the campus of a Wuhan University. It's common for universities to develop housing for students, teachers, and as a way to provide income for the university. The owner of this unit is a college professor, middle class, wanting new construction, something she could customize to her own tastes. Everything above and beyond this is merely luxury appointments; they're all built upon the same chassis, but the underlying components are all the same.

I'll start with the floor, and work up. Flooring is almost always a laminate, glued down. If not laminate, then large ceramic tiles, 24"x 24", or larger. I've never seen carpet outside hotels or commercial spaces.

Walls and ceilings are plaster on the solid masonry; not too much to report, other than soundproofing in these units is excellent due to the high mass assembly.



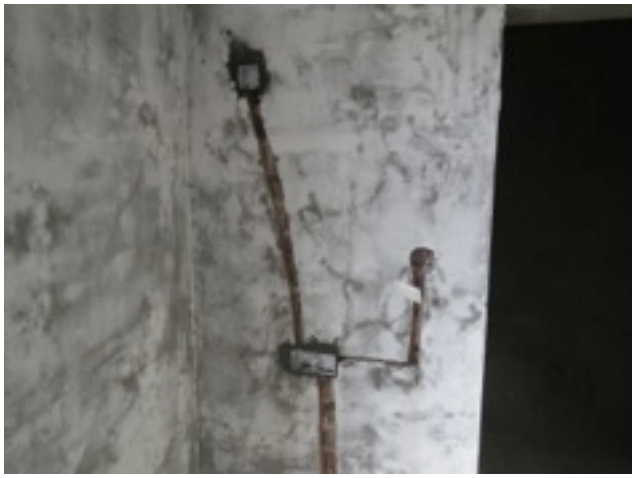
Mechanical systems in these buildings are different than what we're accustomed to in the US. HVAC is uniformly mini-split electric heat pump and air conditioning. Rooms have individual coils and blower systems. Large rooms have these free standing units; it's common to see restaurants and commercial spaces with several of these larger units scattered around the room.

Smaller rooms have wall mounted coil and blower units, all individually operated by wireless remote controls. The ability to control individual room temperatures with these isolated units is an excellent energy saving feature; in addition, the units themselves are remarkably efficient, resulting in low heating and cooling costs.

Electrical systems are 240 volt. Breaker panels are plastic with aluminum bus bars, breakers mounted inline. Deadfront covers are plastic. Panels always seem to be mounted in front halls, usually high up on the wall.

Receptacle/outlets are a single format, one 110 volt 2 slot, and a 3 slot 240 volt. The slots are multi-configured to allow insertion of devices from varying parts of the globe.

Wiring runs are all in PVC conduit channeled into the concrete. What's remarkable is the channeling is all done after the initial concrete placement; it's done this way because each unit is different, and location of devices isn't known at the time of initial construction. For those of us in construction,



imagine channeling out dozens of meters of concrete to insert conduit.....wowowowowow.....the guys that do this job deserve good pay that they don't get.

Plumbing is run pretty much the same way as electrical; supplies are channeled into the concrete (heaven help those with leaks), and DWV is roughed in place in the kitchens and bathrooms. Roughed in, in this case, means a hole in the floor.

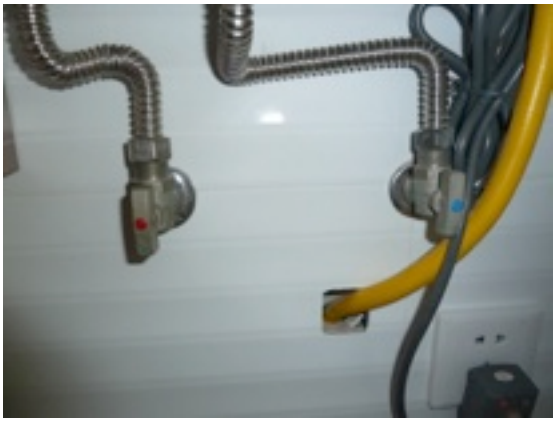
What's more amazing is the drain sets for kitchens and baths; they are uniformly a mess, with this example being more or less standard operating procedure.

There are no pop up stoppers for lavatories; it's this spinning contraption; it's the only thing I've ever seen in any lav.

Water heating equipment is often a combination of a direct vent on demand unit set in the kitchen, and an electric tank model in the main bathroom. They're often piped together, but the tank units are almost always left off in summer to conserve energy.

Gas service is interesting; tiny little meters under the kitchen sink. Pretty standard stuff here, meters hard piped, with flex plastic gas lines run in PVC conduit (channeled into the concrete, of course)

running to appliances. As you can see, terminations and other connection means we use in the west are unknown. Pretty much hook it up and run with it.



I'm reasonably certain that there are no such things as plumbers and electricians on the decoration team. There are guys that make the water appear and go away, and there are other guys that make the lights go on and off, and the appliances work. Lighting always seems to have some oddball situation wherein 3 way switches have miswired travelers, shared neutrals across multiple circuits, or some other condition that makes for flickering, confused light operation, or other conditions that do not inspire confidence in the installation. I've never had any testers or other equipment with me on my trips, so I really don't know what's under the hood, but I remain skeptical that systems are what we in the West consider safe.

Interior Decoration for the First Time Home Buyer

Interior decoration takes all forms, from spartan cleanliness to full on baroque rococo gilded edge opulence. Since I'm trying to portray the average starter home, I'm sticking with the basics, finishing details that reflect the first time buyer and young professional entering the world of home ownership.

I previously said that walls and ceilings are hard coat plaster direct on solid masonry. This is true for all rooms other than kitchens and bathrooms. These utility rooms always have a snap in grid of vinyl tiles hung on aluminum frames.

Kitchen countertops are cast composites, plastic and stone stuff; very efficient and durable.

Bathroom and kitchen wall surfaces are invariably ceramic tile installed directly on solid masonry. Remember, these places are concrete boxes; almost no wood in them, so tile is a relatively easy place to go.

Kitchen cabinets are veneer on MDF, either wood or plastic. Build quality is decent, with the laminate overlay sturdy and thick.

Kitchen appliances are a mix, but there's one thing that's constant, and that's the two burner range. These things are the bomb. The heads are milled brass with a swirl jet arrangement that gets *HOT*. My average time for boiler a liter of water was about 3 minutes; those of you out there that are better at math than I am can run the calc to see what the BTU output is. All cooking is with wok arrangement, and the pot holders are set up to accommodate that.

Where we would expect to find the oven, there's a nifty arrangement for storing dishes and flatware. The area under the range is a heated sanitizing unit; they're stainless lined, and they get hot. Dishwashers are unknown in this sort of kitchen; all dishes are done by hand, then placed in the racks for drying and sanitizing.

When I described dishwasher equipment, the response was one of questioning and mild dismissal. Why would one trust a machine to wash their dishes? Similarly, the idea of a disposal was met with mild curiosity.

From our end, why no oven? In Chinese cooking, there's not anything that's baked. Bread is a relatively new addition to the Chinese diet. (The Central Party is pushing the idea of bread, but flour products are largely buns or things we wouldn't recognize as bread.) Large cuts of roasted meat are rare to the point of nonexistence. So, ovens are largely superfluous in the Chinese kitchen.

Laundries are a single small washer located in one of the bathrooms, never a dryer. Never. Many large modern buildings have special racks outside the windows for drying clothes. Driving around Shanghai one might see thousands of buildings with laundry flapping in the breeze at the 47th floor. The bumpouts that exist on nearly all these buildings are to accommodate laundry drying equipment. What you're seeing here is state of the art, cable system operated with a crank on the wall. It's slick.

Closets, as we think of them, don't exist. It's all built ins, all laminate, all (more or less) Ikea grade and highly functional.

Bathrooms? Get used to squatting. Some of the most modern facilities make a nod to Western practice, but the locals don't like the Western model, and vastly prefer the squatter. Having it in the shower makes everything easily accomplished in a single trip.

So, what are the problems? Well, for one thing, all those decorative facing bricks are already falling off. As one walks around Chinese cities, one cannot ignore all the patchy holes in the older buildings and all the patch holes in progress (shown by the white stains) on the new buildings.

What is being done about these holes? Pretty much nothing. Usually, one sees smeared mortar over the problem areas; in this regard, the Chinese are right in line with their American brothers and sisters. The single thing most obvious is.....there's gonna be a huge growth industry in exterior restoration over the next 20 years. All you engineers in training should start now developing protocols for inspection and maintenance, with implementation programs close behind.