

# China.....

Observations of a  
Meiguoren Building  
Inspector  
On the Loose in  
Zhonguo

# Something to think about.....

The majority of Standing Committee and Politburo members have advanced degrees in Science or Engineering. They are not career technocrats. China is what you get when the engineers are running things. Engineers with a couple millennia history and culture of building big stuff.....

# Jing Jin Ji

- The largest megalopolis in the World, population of 130 million, encompassing an area roughly the size of Kansas







# South To North Water Transfer Project

- Moving the equivalent of 45 billion cubic meters of water from the relatively wet South to the chronically dry North

KHSTAN

MONGOLIA

YZSTAN

NORTH  
KOREA

Urumqi

Shenyang

Dunhuang

Beijing

Dalian

Lanzhou

Qingdao

Xi'an

Nanjing

Suzhou

Shanghai

Chengdu

Wuhan

Hangzhou

Chongqing

Yichang

Everest  
Base  
Camp

Lhasa

NEPAL

BHUTAN

Taipei

INDIA

BANGLADESH

Taiwan

Lijiang

Kunming

Guilin

Guangzhou

HongKong



# Chinese Highway System

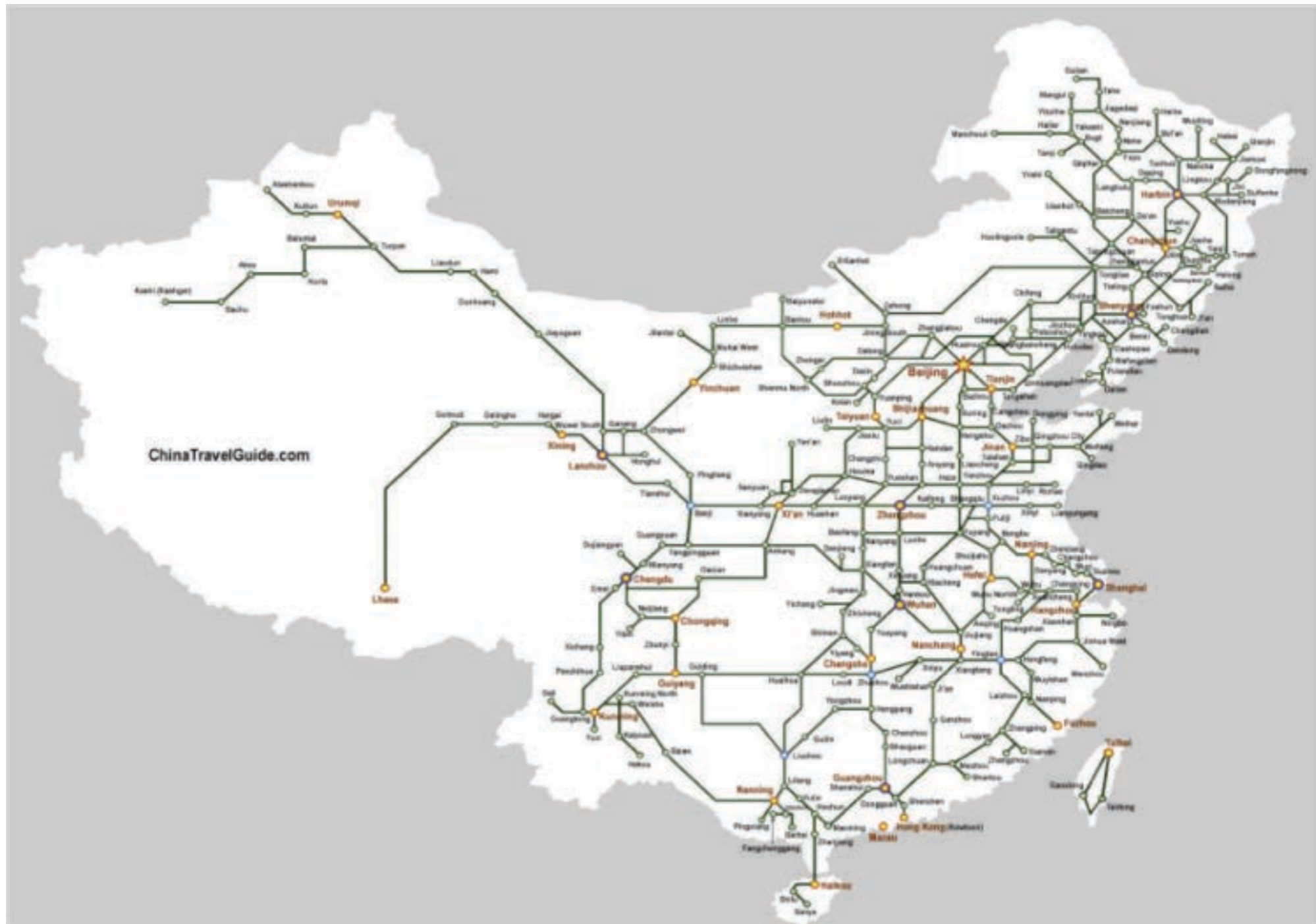
- Exceeded the entire length of the US Interstate System back around 2011. They're building the equivalent of a 4 lane highway from NY to LA every year, have been doing so for several years, and will continue for several more. They're all toll roads BTW....





# High Speed Rail

- When completed, there will be about 35,000 kilometers of track. More people employed by the Railway Ministry than work for the entire United States Government.







站名

CRH

和谐号

# Beijing-Daxing Airport

- It will be the world's largest and busiest airport, sprawling over 7.5 million square feet, and it will handle 130 million passengers annually, about 35 million more than Hartsfield, our busiest airport @ approx. 96-97 million
- And this, after the current Beijing International Airport which is spectacular and <10 years old.

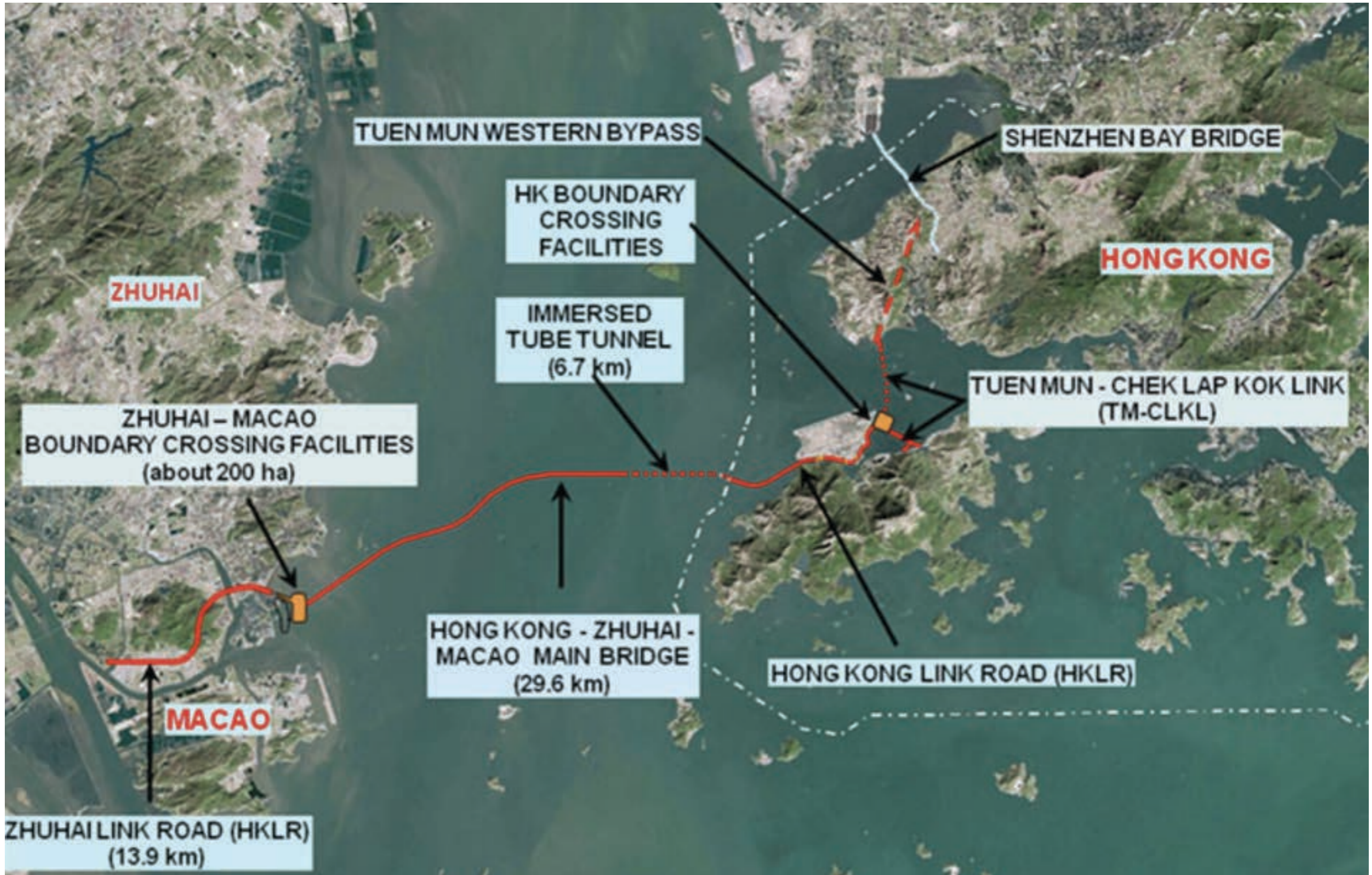
# The World's Longest Underwater Tunnel

- It will connect Dalian and Yantai across the Bohai Sea. This gets kinda tricky because it cuts across not one, but two of the largest tectonic faults in the Eastern Hemisphere.



# Hong Kong-Zhuhai-Macau Bridge

- It will be *approximately 15 Golden Gate Bridges laid end to end*. Part of it will *plunge underwater for an extended length so it doesn't block the entrance to Hong Kong harbor*. Hong Kong and Shenzhen are both so excited, they are building their own bridges to feed into it, so it will end up being somewhere in the vicinity of *20-30 Golden Gates*.



**BIG.VERY BIG.**





# Tower Blocks





中建三局一公司  
进入施工现场  
必须戴好安全帽

























泰山科技学院











金地格林东郡

88218888

二期现房清盘特惠

金牌物业

品质标











# Concrete













# And What's This Guy Do?







# Farm to Towers In 2....

(years)

- How'd They Do This? 3 shifts, 24/7/365.....Chinese building doesn't modulate, it accelerates.









# The Decoration

- Now you got your concrete box, whaddaya gonna do with it?































Various bottles of cooking oil and condiments are visible on the countertop to the left of the stove.

A white ceramic bowl with a decorative pattern is placed on the countertop to the left of the stove.

Vatti  
vatti

vatti





- 1 每周
- 2 杭州

浙大

杭师大

美院

浙理工

杭电

浙大城

牙



# Exterior Wall Finish

- Concrete.....and then what?















即将亮相

ESPIRITO

MIKIBA











中原楼













# 80's Bumpouts

- Not a lot to say.....Concrete planks on bricks, stone, concrete, whatever....4 story walk ups, sometimes heat, sometimes exquisite, sometimes concrete finished wall, floor, and ceiling....



# 60's Collectives.....

- Orange brick dry stacked red clay tile roofing, dirt or concrete floors.....when the revolution was new.







# Farmers Houses

- No, these aren't suburban McMansions.....









菜館

四川

上海公司



樂意旅館



天祥复合肥





# Migrant Workers

- Housed in portable and barren metal boxes, 265,000,000 million rural residents travel to the ends of the Kingdom to build China.

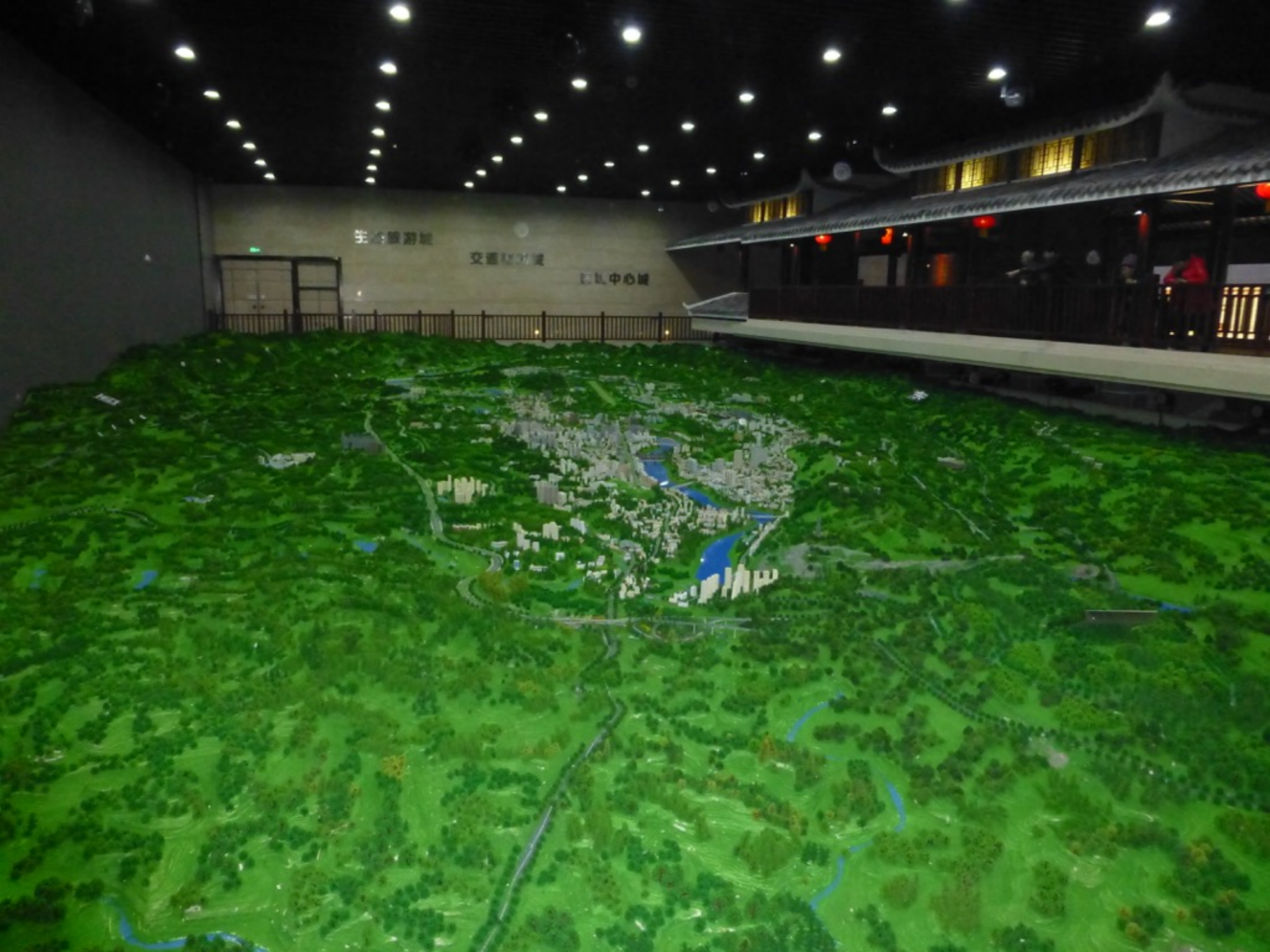


色文化



# The Scale Model

- If It's Not a Scale Model, It Ain't Happening.....



生态旅游区

交通商务区

行政中心城













# Architectural Details

- It's All In Them.....







家泰尔酒店

家泰尔酒店





# Emperor Zorgon of the Planet Zorg

- Resistance is Futile.....









卓刀泉南路  
Zhuodaquan Rd. (S)  
民族大道  
Minzu Ave.  
↑

八一路  
Bayi Rd.  
水果湖隧道  
Shuiguohu Tunnel  
↑

工大路 珞珈路  
Gongda Rd. Luoshan Rd.  
南湖大道 珞珈南路  
Nanhu Ave. Luoshan Rd.  
200m



# China's History of using Nature As a Guiding Principle

- ....and architectural details borrowed accordingly.....





































# Sidewalks

- How can you mess them up?









焊工正在焊接

围观群众

休息区

路人







旧书城

光配镜

光配镜



P ←  
PARKING LOT

肯德基

秀玉红茶坊  
KTV

M

B

乐天城购物中心  
24小时营业

地铁站

Man  
Man  
Man

热烈庆祝中国

福安大街  
39



# Kai Qiang Da Dong

- Hole In the Wall Stores..... Entrepreneurs filling space with business.....



刮痧拔火罐足疗  
7栋3单元202号 电话: 13260609686

GREE 格力空调

移门

KINGLE 铝合金门窗

五金

五金建材

便利店





keke small room

玛利亚 外贸服饰

特价区  
一件 100元  
二件 150元  
三件 100元

**And Then There  
Was Time When**

**“Walks”**

**Transported One**

**Into Another**

**Dimension.....**







































浦发银行  
GE SECURITY

浦发银行

25日至7月31日, 我行

停车场

P  
停

浦发银行

浦发银行



百联世茂国际广场

BILLIANCE SHIMO INTERNATIONAL PLAZA

LACOSTE

VOL

MONTBLANC

MONTBLANC

2011年南京东路社区“百万”平安夜  
暨黄浦公安分局警民共建签约仪式

FERRY  
CHRISTMAS





江蘇省  
南京







# Gates

- Folks in China Like Gates



华东政法大学

公共租赁住房

















# Because 9 Is the Largest Single Digit.

- “We’re Number 9! We’re Number 9!!!” .....just doesn’t make it as a cheerleading chant.....

























礼士胡同  
129

意

如

祥

吉





谢绝参观  
PRIVATE PROPERTY  
NO TRESPASSING

礼士胡同  
129















# Roofing

- And how it got that way.....



水木清  
SHUI MU QING

邮编: 31















































# Windows

- Now and Then.....





HOPO





























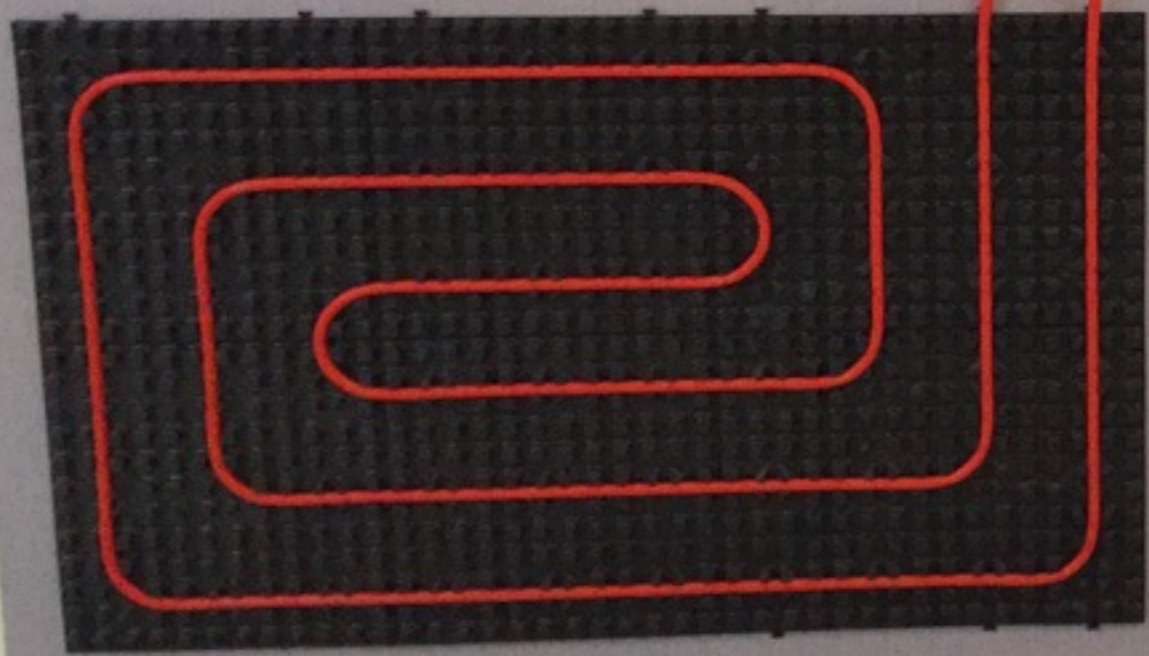
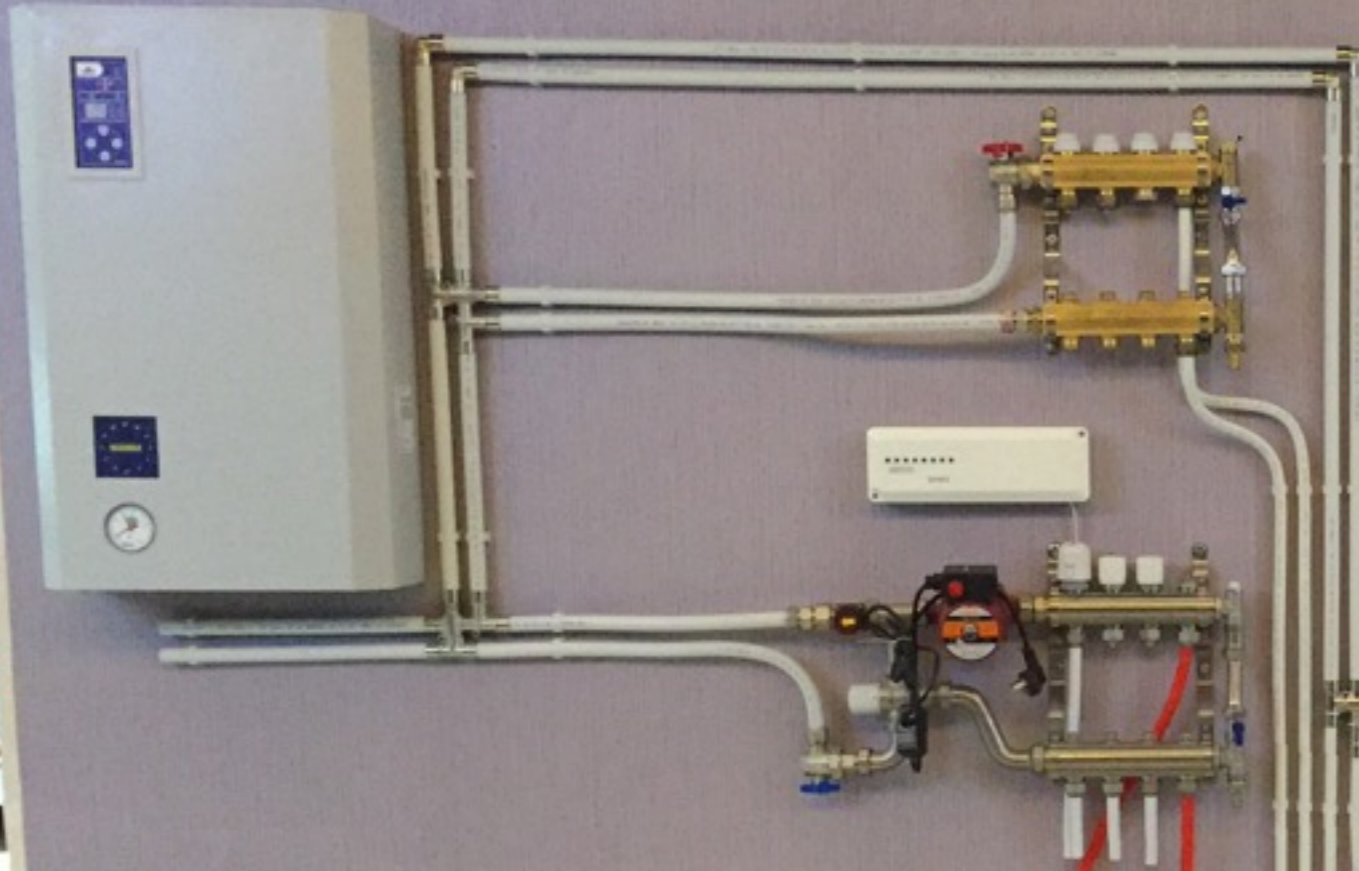
# HEAT

- Sometimes there's heat and a lot of times there's not. Mao proclaimed anything north of the Yangtze (Chiangjiang) River gets heat, anything south does not. Thanks Mao.....
- It's not at all strange to go out to a restaurant, a bank, or an office, and everyone is sitting is sitting in winter coats.





# AC-FIX 菲克斯



















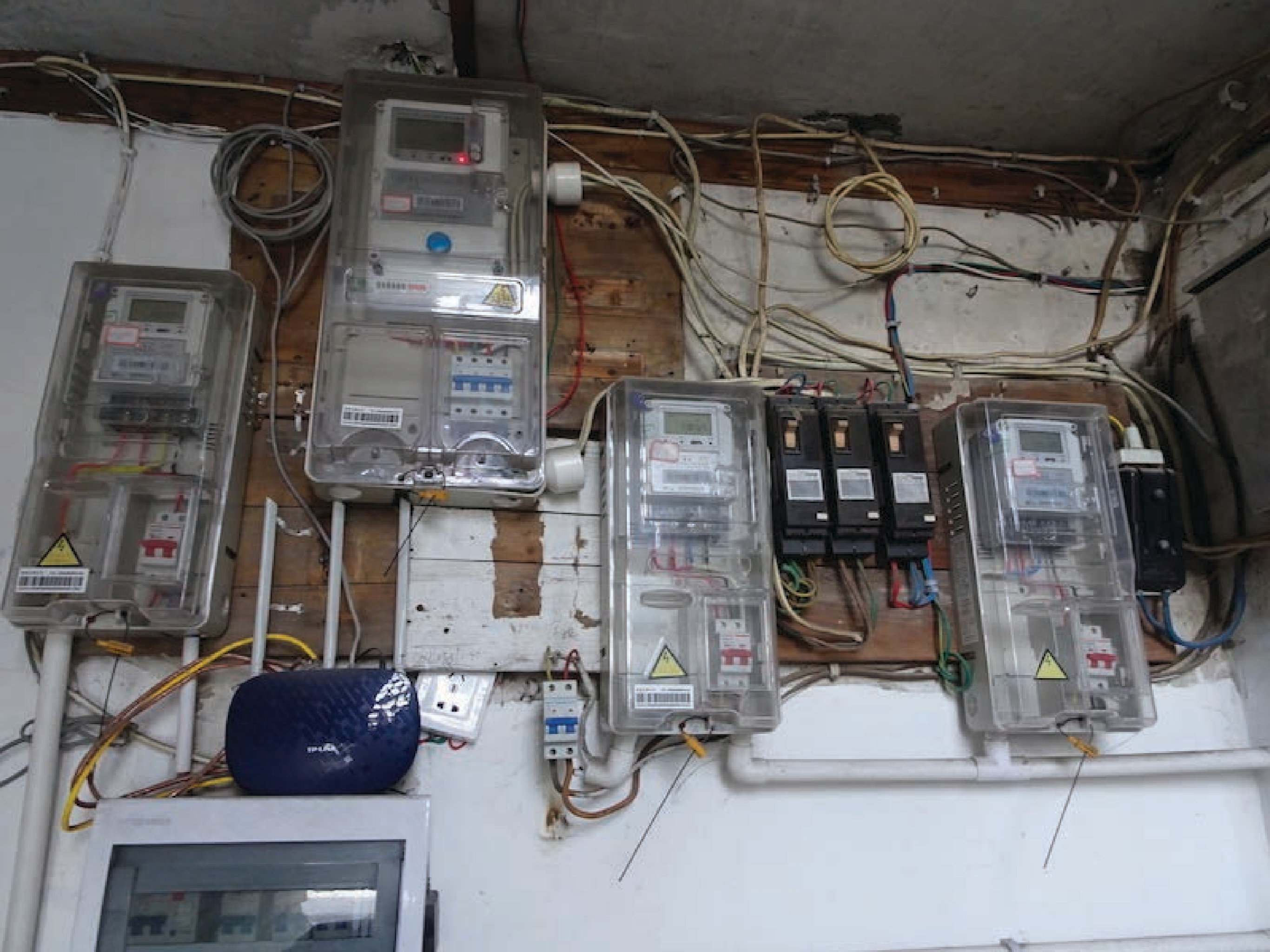




# Electrical Systems

- What's there to say? 220V, no apparent grounds, no GFCI, plastic, aluminum, and generally a confusing mess that I've never been able to figure out.









# Plumbing

- Old, new, and sometimes none at all.





热销中  
888

收官之作 迎新送大礼

四季沐歌  
太阳能热水器

四季沐歌  
太阳能热水器

四季沐歌  
太阳能热水器

四季沐歌  
太阳能热水器

四季沐歌  
太阳能热水器

四季沐歌  
太阳能热水器

四季沐歌  
太阳能热水器



Haier

Warning: Do not touch the heating element when the water heater is in use. It is very hot and may cause burns.

vatti 華帝

10升 数码恒温热水器

安全注意事项

- 1. 热水器应安装在通风良好的地方，严禁安装在浴室、卧室、厨房、阳台、地下室、密闭空间等地方。
- 2. 热水器应安装在承重墙上，严禁安装在轻质墙上。
- 3. 热水器应安装在远离易燃易爆物品的地方。
- 4. 热水器应安装在远离热源的地方。
- 5. 热水器应安装在远离潮湿的地方。
- 6. 热水器应安装在远离强风的地方。
- 7. 热水器应安装在远离儿童的地方。
- 8. 热水器应安装在远离电源的地方。
- 9. 热水器应安装在远离燃气表的地方。
- 10. 热水器应安装在远离燃气管道的地方。

快捷操作指南

- 1. 热水器温度调节：按下“+”、“-”键，即可调节热水器温度。
- 2. 热水器温度记忆：按下“M”键，即可记忆当前温度。
- 3. 热水器温度锁定：按下“L”键，即可锁定当前温度。
- 4. 热水器温度解锁：按下“L”键，即可解锁当前温度。
- 5. 热水器温度复位：按下“R”键，即可复位当前温度。

故障代码

故障代码	故障描述
E1	水压过低
E2	水压过高
E3	水压波动
E4	水压异常
E5	水压故障
E6	水压报警
E7	水压异常
E8	水压故障
E9	水压报警

PICC 平安保险承保



3910000462











餐  
住  
150















陋廬

合家歡樂

福

財





# Drying Clothes

- You thought they used dryers, didn't you.....(?)









酸梅汤  
3元-杯 5元  
二杯

鸡米花 6元

老万成  
酸梅

炸鸡 10元  
炸鸡 6元  
炸鸡 5元

酸梅汤  
蜜雪冰城





# Cooking

- Always Exciting in China









石油气  
检验  
日期: 2016年5月

5188110  
液化石油气  
下次检验日期

5188110  
液化石油气  
下次检验日期

15438  
国内













企业  
2006年AAA级信用企业  
型号: 200-A mm  
规格: 280mm x 280mm x 390mm  
体积: 280mm x 280mm x 390mm  
6  
A型炉  
地址: 福建泉州  
电话: 0736





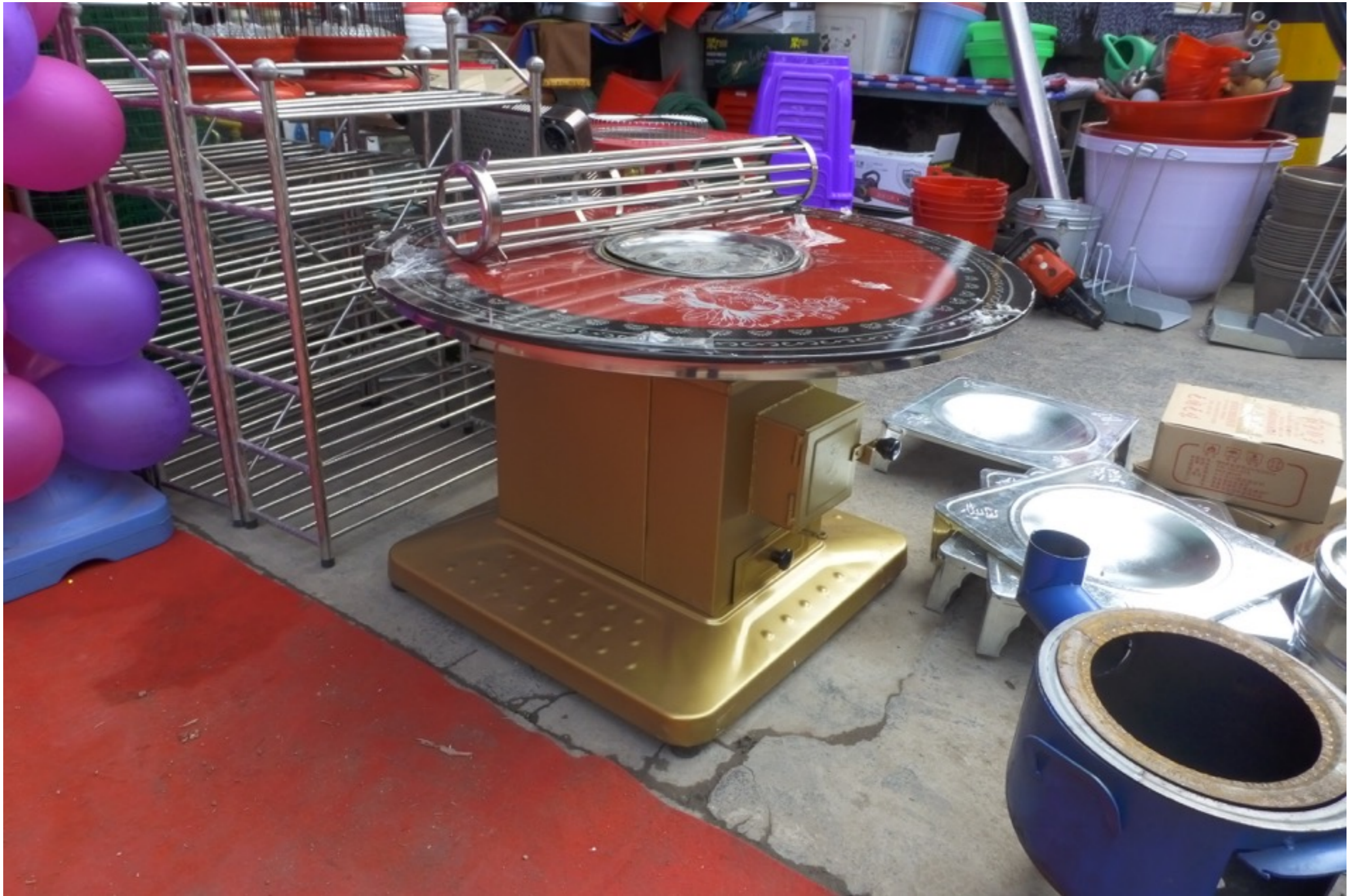
















温州



瑞丰私房菜馆

典  
汽车抵押贷款 回收金银首饰  
18727231  
1888832811

古玩  
古玩

Red shoes



Barcode label with price information: 11.90

Barcode label with price information: 11.90

Barcode label with price information: 12.00

Barcode label with price information: 13.30

木兰湖放养土鸡蛋



鲜鸡蛋  
¥5.20

¥7.88

¥7.38

¥5.00











# Walls....Bricks & Mortar



# 营造法式

## Yingzao Fashi

Building codes go back to Hammurabi, but the oldest recognized complete code in China dates to the Song Dynasty around 1100CE.

Tile and brick making was one of 13 building operations together with carpentry, joinery and stonework, etc. specified in the book.

It was first thought that bricks were approximately 2000 years old, dating back to Zhou Dynasty times.....then archaeologists discovered some approximately 4000 years old in archaeological digs.....

Bricks dating back 5,000 to 7,000 years have been unearthed in northwest China's Shaanxi Province. So, it's not Hammurabi age code required, but calcined brick are among the oldest in the world.











**And Mortar....**



家装腻子粉  
PUTTY POWDER

执行标准: JG/T 298-2010

中国质量产品合格证

11-11 质量万里行

生产许可证: 0170-099

质量监督电话: 12315



中国质量万里行

质量管理体系认证





100-1000  
100-1000

87997965

1230-1230

1000-1000

1000-1000







**This Stuff**







达到成熟水平，宋代经人工烧制  
 方面大为提高。《营造法式》  
 规格尺寸做了统一规定，使大  
 砖卧砌和“一人”字型平铺法，  
 间砌。四川发现的宋砖多作为  
 的建筑材料，通常为青灰色素  
 比唐砖的规格略小。



此为宋代城址遗址(新址)，新址，其地基为土质，  
 中丁制，立碑，其地基为土质，  
 新址地基，其地基为土质，  
 此地为宋代城址遗址(新址)，新址，其地基为土质，  
 中丁制，立碑，其地基为土质，  
 新址地基，其地基为土质，

**Song Dynasty Brick Laying Techniques**

By the Song Dynasty (960-1279), brick production technology had developed to an advanced level. Through firing, they had greatly improved on brick hardness and resistance to water and wear. A book on construction techniques issued by the Song government specified standards of brick making, including usage and dimensions, which facilitated large-scale construction projects. For the most part the Song no longer used decorative impressions, commonly used lime mortar and is well know for techniques such as the inverted-'V' shaped brick laying configuration and using alternating vertically with horizontally laid bricks. Most Song Dynasty bricks seen in Sichuan are found in structures such as tombs, walls, buildings and city walls. Such bricks are usually plain lime-grey in color and 32 cm x 16 cm x 4 cm in size, making them marginally smaller than those of the preceding Tang Dynasty (618-907).





**And What Was the  
Magic Ingredient?**

# Sticky Rice



**Bingjian Zhang** is a professor of physical chemistry, the head of the Institute of Physical Chemistry at Zhejiang University.

**Qinglin Ma** is a professor of cultural relic preservation and vice president of the Chinese Academy of Cultural Heritage.

**Fuwei Yang** is a Ph.D. candidate in physical chemistry.....

.....whose work was published in the American Chemical Society (ACS) monthly journal, Accounts of Chemical Research....



# Inorganic-Organic Mortar

**The inorganic component is calcium carbonate, and the organic component is amylopectin, which comes from the sticky rice soup added to the mortar. The amylopectin slows down the reaction resulting in a much tighter and smaller molecular structure in the lime.**

Quote.....Zhang.....

“The inorganic component is calcium carbonate, and the organic component is amylopectin. Calcium carbonate crystal was controlled by the organic amylopectin.

Quote.....

“Test results show sticky rice-lime mortar has more stable physical properties, has greater mechanical strength, and is more compatible, which make it a suitable restoration mortar for ancient masonry”.





**And then you got the mud  
bricks.....**

- Which have an extremely long history in China.





森林防火  
人人有责

# What's with the Dirt?

**Loess is an aeolian sediment formed of wind-blown silt, typically in the 20–50 micrometer size range, twenty percent or less clay, and the balance equal parts sand and silt that are loosely cemented by calcium carbonate.**





清江路 四牌楼 中山路  
人民路 解放路







# Structure

- The New Stuff....Who Knows? The Old Stuff? It's Pretty Cool.....

















Civil Engineering.....Of Earth & Wood

土木

# Traditional Structure

- New construction in urban areas, traditional methods abandoned for modern methods, resulting in charmless concrete boxes w/Euro design elements.
- The interesting stuff is often found in rural areas, and is slowly being restored

# First Principles

- “Duicheng” ...Articulation & bilateral symmetry, even numbers of columns to enclose an odd number of bays, etc. (Gardens, otoh, are asymmetrical, to create enduring flow & to balance structure)
- Property is filled, no “yards”; space is enclosed, courtyards & central gathering space predominate w/skywell to Heaven (Tian)
- Horizontal emphasis, width opposed to height
- Hierarchical layout, buildings w/doors facing front of property are more important than those w/doors facing sides. In multiple courtyard complexes, central spaces are more important than peripheral spaces

# Cosmological Concepts

- Feng Shui, literally interprets as “Wind Water”
  - Screens & offset entries to shield against evil spirits, as evil travels in straight lines.
  - Talismans & imagery of good fortune abound
  - Animals & fruits symbolizing good fortune (magic animals on roofs)
  - Orienting structure to back into elevated landscape (hill/mountain) & ensuring there is water in front
  - Ponds, pools, wells built into structure



# Primary Support

- Buildings erected on raised platforms that serve as foundation, earliest being rammed earth & later stone, then decorative elements
- Timber frame supporting roof structure. Walls delineate space, they were not supporting structure
- Timber frames held together with joinery, not fasteners
- Dougong (corbel) brackets to distribute loads to columns
- Decorative structure, w/dougong being most recognizable









- Dougong Brackets, sometimes described as baskets of flowers or even clouds holding up the sky





# Yaoli Village Clan Halls

- Structure Made Beautiful





乡村振兴 产业兴旺  
RURAL REVITALIZATION PROSPEROUS INDUSTRY

天帮生意腾腾起

天帮生意腾腾起

天帮生意腾腾起























敦叙堂

敦叙堂

敦叙  
功績  
無量

**Ming 1368-1644**

**Qing 1644-1911**

**Politically, they were similar with primary difference being new rulers. The times were very similar to our own, with China exploding onto the world by way of commerce while at the same time tightening internal controls and closing borders to outside influence.**

- At the inception of the Ming Dynasty, the West had made full contact with China and the West wanted what China had... porcelain, silks, spice, and exotic treasures unknown in the West. In previous decades, class was 4 part...Emperor, Administrative Bureaucracy, Agriculture/Farmers, and Merchants at the bottom of the heap.
- Now, merchants vaulted to the upper ranks of society with untold riches that sometimes exceeded what the local administrators and sometimes even the Emperor, not entirely unlike what we're experiencing today.
- Suddenly, there was the confusion of a pleasurable life.

# Wuzhen

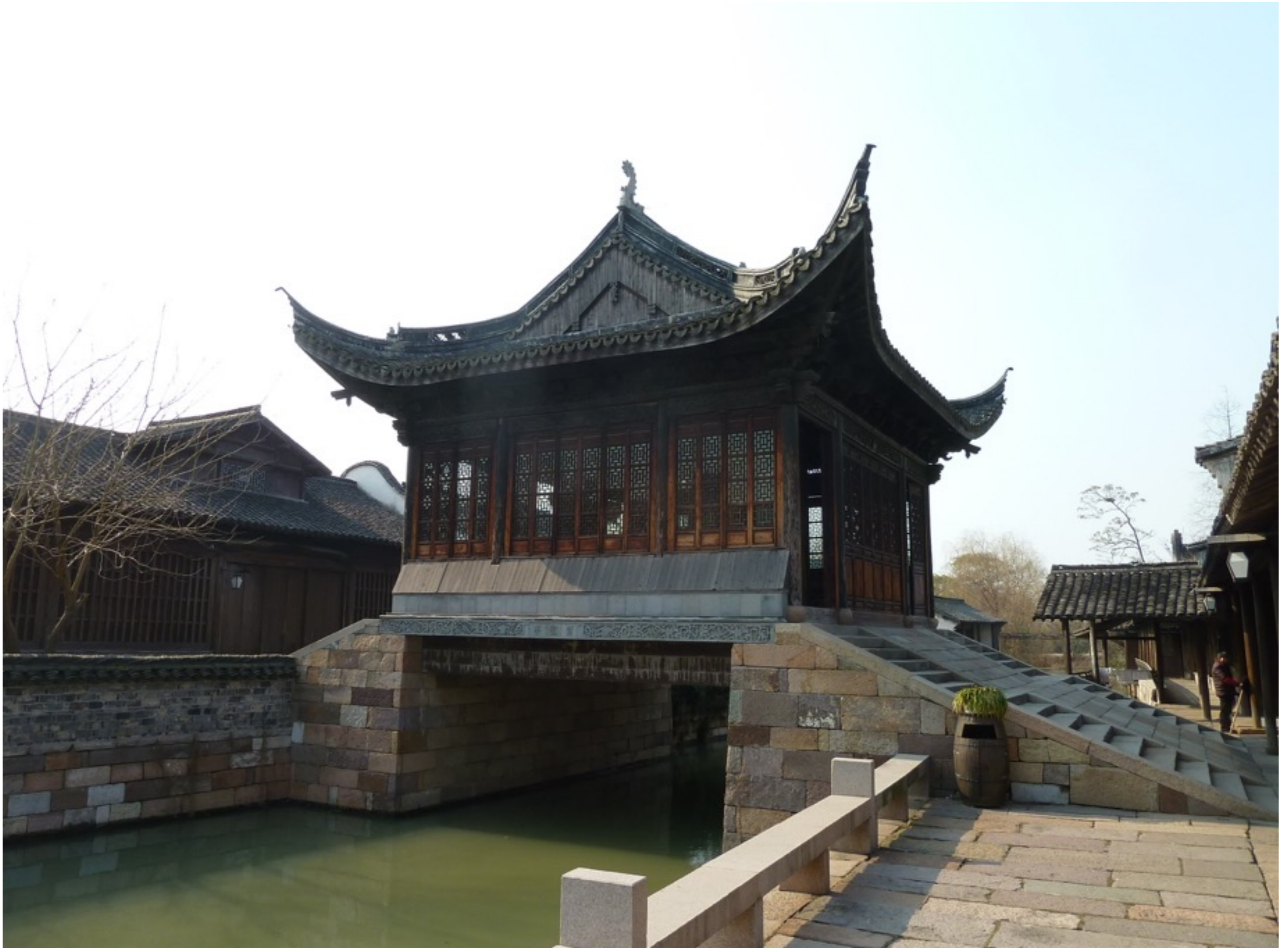
- Where and How We Would All Live if We Could







# Wind and Rain Bridge





















# Lijiang

- Always Springtime.....



天友茶莊







ay 1

ay

ay













**But the Majority of the Population  
still lived in rural villages**















































售  
建始无烟煤芋  
872701503  
570513017



# Grandfathers House in Bai Ping Village

- It's Not So Long Ago That Life Was About Survival















# Tower Blocks



# Grandfather



# Tower Blocks



# Grandfather











**Thank you Joe, Betsy, Jeffrey,  
and all the folks at BSC**

- And thanks to all of you for listening to a little bit about building in China





设备故障  
暂停使用

The facility does not work  
because of its malfunction