

Building Energy Efficiency Code in China

Center of Science and Technology construction

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How China develops codes

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Adoption process

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What Chinese codes cover

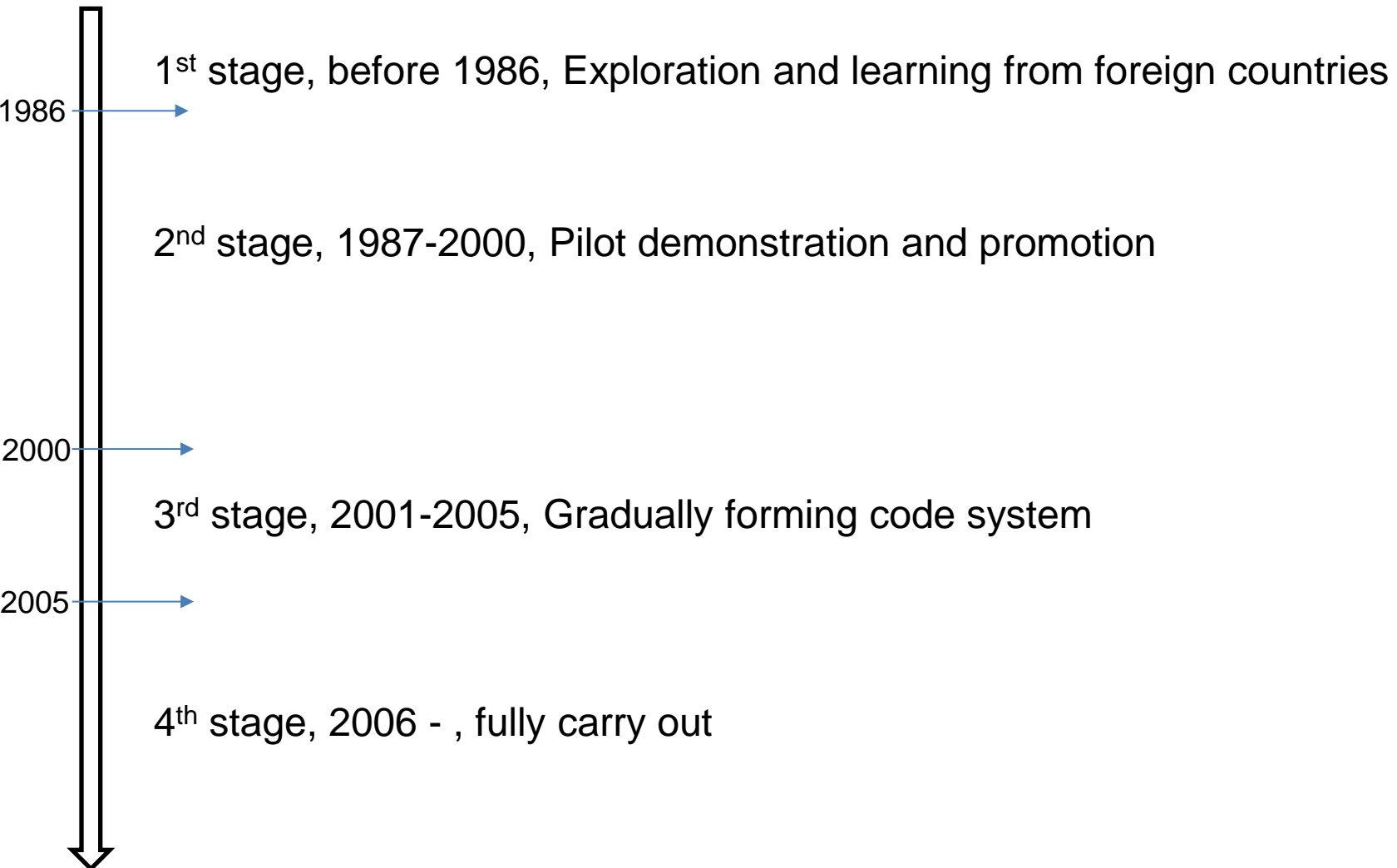
4

Stringency improvements over time

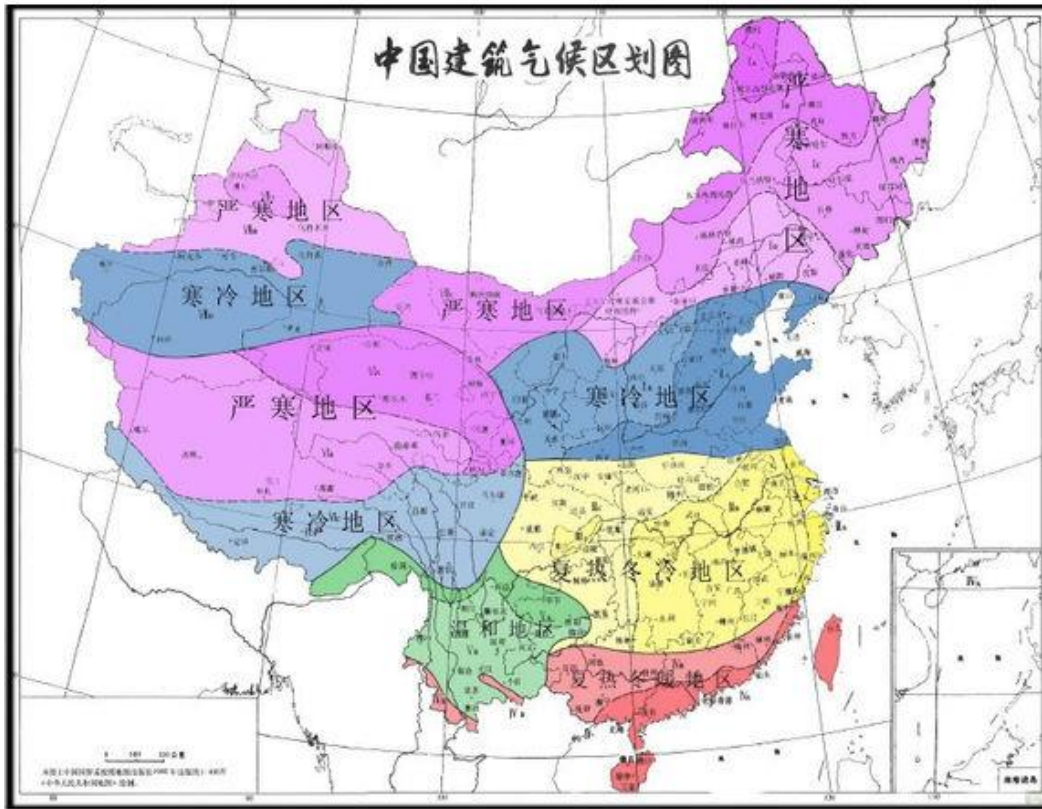
5

Feedback between implementation and code development

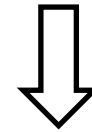
- There are four stages from 1980s



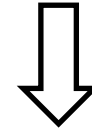
- Codes from ... to ...



1st, serve cold and cold zone



2nd, HSCW zone



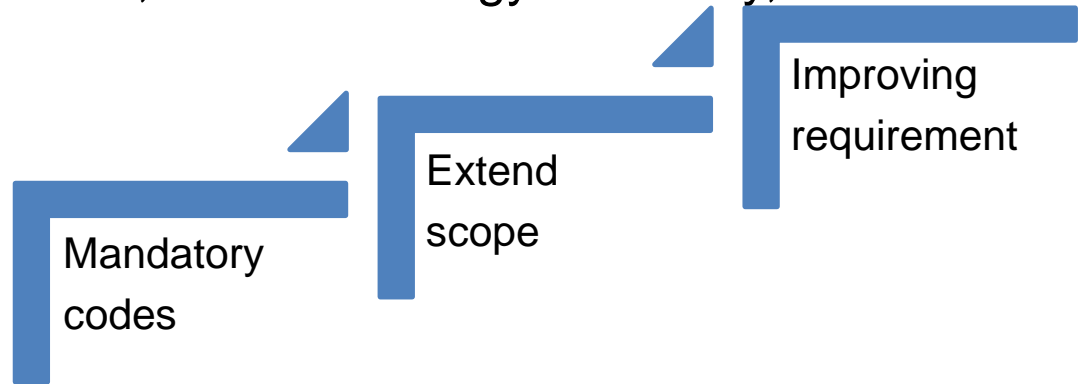
3rd, HSWW zone

Building type: Urban residential → C& P → Rural residential
newly- built → existing

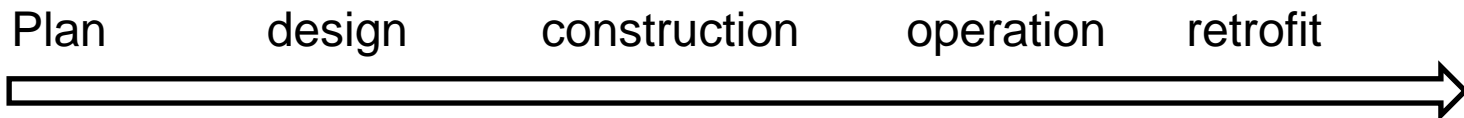
- Laws and regulations

- Permit for newly- built buildings: should be energy saving building
- Requirement for existing buildings: retrofit if low efficiency
- Energy saving for operation, label for energy efficiency, data statistic...

- Standards and codes



- Energy saving technologies



Envelop Insulation, nature ventilation, shading, HVAC, lighting etc.

- Laws and regulations

| Name | Contents |
|----------|--|
| 节约能源法 | 节能管理、合理使用与节约能源（工业节能、建筑节能、交通运输节能、公共机构节能、重点用能单位节能）、节能技术进步、激励措施 |
| 可再生能源法 | 资源调查与发展规划、产业指导与技术支持、推广与应用、价格管理与费用分摊、经济激励与监督措施 |
| 民用建筑节能条例 | 新建建筑节能、既有建筑节能、建筑用能系统运行节能 |
| 公共机构节能条例 | 节能规划、节能管理、节能措施 |

• Standards and codes

| Type | Name |
|------|-------------------------------|
| 基础标准 | 民用建筑能耗数据采集标准JGJ/T154-2007 |
| | 建筑能耗数据分类及表示方法JG/T358-2012 |
| | 建筑节能气象参数标准JGJ/T346-2014 |
| 设计标准 | 公共建筑节能设计标准GB50189-2005 |
| | 严寒和寒冷地区居住建筑节能设计标准JGJ26-2010 |
| | 夏热冬冷地区居住建筑节能设计标准JGJ134-2010 |
| | 夏热冬暖地区居住建筑节能设计标准JGJ75-2012 |
| 验收标准 | 建筑节能工程施工质量验收规范GB/T50411-2007 |
| 检测标准 | 居住建筑节能检测标准JGJ/T132-2009 |
| | 公共建筑节能检测标准JGJ/T177-2009 |
| 评价标准 | 节能建筑评价标准GB/T50668-2011 |
| | 建筑能效标识技术标准JGJ/T288-2012 |
| | 可再生能源建筑应用工程评价标准GB/T50801-2013 |
| | 绿色建筑评价标准GB/T50378-2014 |
| 改造标准 | 公共建筑节能改造技术规范JGJ176-2009 |
| | 既有居住建筑节能改造技术规程JGJ/T129-2012 |

• Residential building

| Year | Area | Targets |
|-----------|--------------------------|------------|
| 1986 | North space heating area | 节能设计30%标准 |
| 1995 | 北方采暖地区 | 节能设计50%标准 |
| 2001 | 夏热冬冷地区 | 节能设计50%标准 |
| 2003 | 夏热冬暖地区 | 节能设计50%标准 |
| 2008 | 全国范围 | 节能设计50%标准 |
| | 部分有条件的省市 | 节能设计65%标准 |
| 2011-2020 | 全国范围 | 节能设计65%标准 |
| | 部分有条件的省市 | 节能设计75%标准 |
| 2021-2030 | 全国范围 | 节能设计75%标准 |
| | | 被动房设计标准 |
| | | 绿色建筑设计标准 |
| | | 超低能耗建筑设计标准 |
| | | 近零能耗建筑设计标准 |
| | | |

- C&P building

| Year | Area | Targets |
|------|---------------|--|
| 2005 | Whole country | 节能设计50%标准 |
| 2015 | Whole country | 涵盖建筑热工、供暖通风与空气调节、给水排水、电气和可再生能源应用，实现建筑节能专业领域全覆盖；建立典型公共建筑模型及数据库；全面提升围护结构热工性能强制性指标要求，冷源设备及系统能效强制性要求且分气候区规定。 |

- What China does to make the code requirements themselves implementable
- Establish
 - review system for energy-saving building construction drawing design
 - acceptance system for newly-built buildings
 - Inspection and supervision system for existing buildings
 - Target Responsibility system for local government
- Updated or revised standards
- EEB Publicizing training, Technical exchanges and global cooperation

Thank you for your attention!