Global Sustainable Buildings Guide - China

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# Authors

# Green Certification

## Is there a nationally adopted and recognized form of certification for buildings? What is it and is it mandatory for all new buildings and refurbished buildings?

\* Full list of cited regulations at the end of this chapter.

Under China’s national regime, there are four levels of certifications for green buildings (in ascending order of quality requirements): Basic Grade, 1-Star Grade, 2-Star Grade and 3-Star Grade.

The current green building certification regime in China is mainly based on the following regulation and evaluation standard:

2019 Green Building Evaluation Standard\* (Note: The first version of this standard was issued in 2006; draft revisions to the current version are now under public consultation.)

2021 Green Building Label Management Measures\*

These documents coexist and cross-interact with many other regulatory documents and technical standards governing construction planning, design, safety, conservation of energy and other resources, and measures to combat climate change and reach decarbonization. Some of the documents will be discussed below.

Over the years, many projects in China have also applied for other internationally recognized green building certifications, most notably, the Leadership in Energy and Environmental Design certification launched by the US Green Building Council.

As of the first half of 2022, more than 25,000 projects have been certified under the current green building regime.

Under China’s current green building certification regime:

The 3-Star Grade is to be granted by the national building authority, i.e., the Ministry of Housing and Urban-Rural Development (MOHURD).

The other certification grades (Basic Grade, 1-Star Grade and 2-Star Grade) can be granted by the local building authorities. In addition, the local authorities may make certain adjustments to the evaluation standards applicable to the lower certification grades.

While all types of buildings are now eligible to apply for a green building certificate and label, it is still not a nationwide mandatory requirement. Specifically:

Under the 2013 Green Building Work Plan\*, only certain new government-invested buildings, affordable housing in certain cities and large-scale public buildings over 20,000 square meters must attain a green building certification.

Under the Urban and Rural Construction Area Carbon Peaking Implementation Plan\* and the Building Energy Conservation and Green Building Development Plan during the 14th Five-Year Plan Period\*, China targets that all new buildings in China shall attain at least the Basic Grade rating and at least 30% of them reaching at least 1-Star rating by 2025.

Local regulations may set higher requirements and mandate all new buildings to attain green building certification. For example, under the Shenzhen Green Building Regulation\*, from 1 July 2022, all new buildings in Shenzhen must attain a 1-Star rating, and all new government-invested projects must attain no lower than 2-Star rating.

A green building rating label is to be granted after construction is completed. (Note: A project owner can apply for a pre-assessment for a green building label during the construction design stage)

The current assessment criteria under the 2019 Green Building Evaluation Standard are grouped under the following building aspects:

Safety and durability

Health and comfort

Occupancy convenience

Conservation of resources

Environmental habitability

Overall, more consideration is now given to various green building aspects, such as the project’s adaption to the climatic and physical environment and users’ comfort and convenience.

Under the above-mentioned national regulations and certain local regulations, if buildings are mandated to obtain green building certification but fail to obtain the required certification, it could result in the relevant buildings not being allowed to be put into use and/or other regulatory sanctions.

Under the 2019 Green Building Evaluation Standard, the relevant energy conservation standards are still mainly expressed in terms of energy consumption intensity, but the standard requires that there be specific reporting on carbon emission intensity if the project intends to apply for green financing. In addition, if the project owners calculate the buildings’ carbon emission intensity and adopt measures to lower the emission intensity, it will help the relevant buildings obtain a higher rating.

China has enacted the following technical standards for calculating and prescribing carbon emission intensity of buildings:

2019 Building Carbon Emissions Calculation Standard\*

2021 General Rules for Building Energy Conservation and Use of Renewable Energy (“2021 General Rules”)\*

In February 2023, the MOHURD published draft revisions to the 2019 Green Building Evaluation Standard\* for public comments. The draft revisions aim to align the 2019 Green Building Evaluation Standard with the 2021 General Rules and to include more specific provisions in relation to carbon emissions. For example, building owners must specify the buildings’ carbon emission intensity and their proposed measures to reduce this carbon emission intensity to obtain a 1-Star rating or above.

# Energy Performance Certificates and Minimum Energy Standards

## Is there a mandatory form of energy performance certification? When does it apply and are there any prescribed minimum standards?

\* Full list of cited regulations at the end of this chapter.

China’s current national regime for prescribing minimum energy performance standards is principally based on the following regulation and standard:

2008 Civil Buildings Energy Conservation Regulation (“**2008 Regulation**”)\*

2021 General Rules\*

In connection with the 2008 Regulation, China has enacted the 2008 Civil Building Energy Performance Labeling Interim Measures\* to provide for a system of certification and labeling of energy performance. In practice, this labeling system was largely absorbed by the green building certification regime discussed under “Green certification” and was only used in certain provinces and cities. The 2021 General Rules apply to all new buildings, renovation and expansion work of existing buildings, and energy conservation renovation of existing buildings. Buildings must also comply with the specific mandatory requirements in other applicable standards. For details on how China implements its building energy performance and conservation requirements, please refer to our discussions in relation to the green building regime under “Green certification”.

In April 2023, China issued the revised 2023 Fixed Assets Investment Energy Conservation Review Measures\*. The measures set out which authorities are responsible for carrying out the energy conservation review. Furthermore, local authorities are specifically required to conduct random post-completion inspections to ensure that buildings comply with all mandatory energy conservation requirements.

According to the 2015 Interim Measures for the Administration of Energy Audit of Public Institutions\* and certain local regulations, certain major public facilities and buildings of public bodies are required to undergo regular energy performance audits. Save for these specified types of buildings, there are currently no general statutory requirements for regular audits of buildings’ energy performance.

# Incentives for Green Retrofit

## Are there any government-funded or sponsored schemes for improving the energy efficiency of existing buildings and, broadly, how do they work?

\* Full list of cited regulations at the end of this chapter.

Improving the energy efficiency of existing buildings is increasingly becoming a significant part of China’s energy conservation, carbon peaking and carbon neutrality plan. China has established various financial support plans and subsidy funds for specific improvements, such as the following:

In 2014, China consolidated several special funds and established the **Subsidy Fund for Affordable Housing Projects in Urban Areas**. Among other things, this subsidy fund supports energy conservation renovations of existing old residential buildings. Specifically, local authorities are required to improve the energy efficiency of existing buildings in the northern heating area. The northern heating area in China covers 15 municipalities and provinces in Northern China that need heating systems in winter.
In 2022, the central government allocated approximately CNY 30 billion to support renovations of old residential buildings, including improving their energy efficiency.

In 2015, to promote energy conservation, reduce carbon emissions and enhance energy efficiency, China established the **Subsidy Fund for Energy Conservation and Carbon Emission Reduction**.

In November 2023, the State Council issued the Carbon Peaking Pilot Scheme\*. Under this scheme, 100 cities or areas will be selected to implement various measures to reach carbon peaking, with the initial phase covering 15 cities. Among other things, the major tasks for the pilot cities include improving energy conservation in new buildings, and promoting energy conservation renovation of existing buildings and green construction methods.

Local authorities have also rolled out various financial incentives for improving the energy efficiency of existing buildings:

In January 2021, Shenzhen established the **Special Fund for Green Innovative Development in the Field of Engineering and Construction**. Among other things, the special fund supports green renovation and energy conservation renovation of existing buildings. In 2024, Shenzhen announced that it plans to allocate CNY 4.16 million for energy conservation renovation of existing buildings in the next two years.

In June 2023, Beijing established the **Incentive Fund for Green Building Development**. The incentive fund provides financial incentives for energy conservation renovation of public and other existing buildings.
For public buildings, the energy conservation renovation must have a minimum energy conservation rate of 15% for ordinary public buildings and a minimum energy conservation rate of 20% for large-scale public buildings. The amount of the cash incentive is up to CNY 20 per square meter based on the approved building area and should not exceed 30% of the total renovation cost.
For energy conservation renovation of other existing buildings, it should attain at least a 2-Star rating under the Green Renovation of Existing Buildings Evaluation Standard\* or the comparable local standard in Beijing. The amount of the cash incentive is up to CNY 60 per square meter based on the implemented construction area and should not exceed CNY 6 million.

# CO2 and Energy Targets

## Are there any national targets for CO2 reduction and/or energy use reduction from buildings? If there are, are there any exclusions?

\* Full list of cited regulations at the end of this chapter.

At the 75th Session of the UN General Assembly in September 2020, President Xi Jinping of China announced that China will make efforts to peak its carbon emissions by 2030 and attain carbon neutrality by 2060. Since then, China has promulgated a number of policy documents to outline its national CO2 reduction target and action plan, including the following:

2021 14th Five-Year Plan and 2035 Plan\*

2021 Opinions on Full Implementation of Decarbonization\*

2021 Action Plan for Peaking Carbon Emissions before 2030\*

2022 National Climate Change Adaptation Strategy for 2035\*

2023 Guidelines for Establishing Carbon Peaking and Carbon Neutrality Standards\*

Based on these macro policies and targets, China has further promulgated other national regulations to set out its CO2 reduction targets for the building sector, including the following:

2019 Near-Zero Energy Consumption Buildings Technical Standard\*

2020 Green Building Promotion Action Plan\*

2021 Opinions on Driving Green Developments in Urban and Rural Areas\*

2021 General Rules\*

Under these documents, China has set the following national CO2 reduction targets for the building sector:

The carbon intensity level of all new buildings, renovation and expansion of existing buildings, and energy retrofitting of existing buildings, must comply with the applicable standards. (Note: These standards do not apply to industrial buildings that do not have heating supply or air-conditioning equipment or temporary buildings with a use duration of less than two years.)

By 2025, the energy conservation rate of new residential buildings in urban areas must be improved by 30%.

By 2025, the energy conservation rate of new public buildings in urban areas must be improved by 20%.

Further, China is drafting the following documents to quicken its progress on the above CO2 and energy reduction targets for its building sector:

Carbon-Neutral Buildings Technical Standard\*

Revisions to the Green Building Evaluation Standard\*

# Renewable Energy

## Are there any regulations requiring a percentage of energy consumption to come from renewable sources?

\* Full list of cited regulations at the end of this chapter.

Under the 2021 General Rules\* and the 2021 Action Plan for Peaking Carbon Emissions before 2030\*, China has set the following targets for the use of renewable energy in the building sector:

All new buildings must have solar power systems.

By 2025, renewable energy substitution rate of 8% must be achieved in urban buildings.

By 2025, a rooftop photovoltaic coverage rate of 50% must be reached for all new public buildings and industrial buildings.

# Regulation

## What other national regulatory measures are there, such as taxes on energy consumption and/or tax reliefs on energy-saving measures, that can encourage more efficient use of energy in buildings?

In addition to the mandatory requirements and financial support under the various regulations outlined under “Energy performance certificates and minimum energy standards” and “Incentives for green retrofit”, China also issued the 2022 Tax Reliefs Policy Guidelines Supporting Green Development\*, which provides for income tax relief for qualifying building projects that use renewable energy or green lighting, or improve energy efficiency generally.

While the local authorities in China can grant various types of local regulatory support or financial incentives, they are not permitted to grant support in the form of tax support. For example, Beijing’s Incentive Fund for Green Building Development provides cash grants for buildings with nearly zero energy consumption and new green buildings that attain a 3-Star rating and are used for more than one year. The cash grant amount is up to CNY 60 per square meter based on the implemented construction area for new green buildings and up to CNY 200 per square meter based on the implemented construction area for buildings with nearly zero energy consumption. For both types of buildings, the cash grant amount should not exceed CNY 6 million per building project.

Beside the cash grant, local authorities can also grant plot ratio incentives for new green buildings. For example, in December 2023, Guangzhou issued the Green Buildings and Buildings Energy Conservation Management Regulation\*(taking effect on 1 March 2024). The regulation provides that some qualifying areas in new green buildings can be exempted from the calculation of the plot ratio, and, for certain types of buildings, the external wall areas up to 3% of the total building areas can be exempted from the calculation of the plot ratio.

Another example of how the local authorities provide indirect nontax support for energy efficiency is through the local carbon emission trading scheme (ETS). Since 2011, China has been testing a carbon ETS through establishing local carbon emission exchanges in Beijing, Tianjin, Shanghai, Chongqing, Guangdong, Hubei and Shenzhen. Under the local schemes in Beijing and Shanghai, designated major local buildings are required to participate in the carbon ETS. Participants will be granted carbon credits and can sell them in the local exchange for monetary income.

In 2021, China established its National ETS Exchange in Shanghai, in additional to the preexisting local exchanges. At this stage, mainly the major electricity power generation companies are mandated to participate in trading the carbon emissions quotas at the National ETS Exchange. Other sectors with heavy carbon emissions (such as steel, cement and chemicals) will also be mandated to participate in the National ETS Exchange in the near future. National and local authorities are actively studying how the building sector can participate in both local and national ETS.

In January 2024, China also started to allow trading of voluntary carbon credits in the energy sector. It is reasonably hoped that, in the longer term, voluntary carbon credits arising from energy-saving measures can also be traded in the national exchanges and all the local exchanges to deliver further nontax incentives for the building sector in China.

# Financing

## Are there any public or private “green” financing initiatives for sustainable real estate projects?

\* Full list of cited regulations at the end of this chapter.

China is the world’s second-largest country in terms of the quantity of green bonds and green finance, with USD 155 billion issued in 2022 and USD 3.5 trillion outstanding as of the end of the first quarter of 2023.

China has built up its massive green financing market for building and other sectors through a regime comprised of the following major national regulations:

2016 Guiding Opinions on Creating the Green Finance Framework\*

2021 Green Bond Support Catalog\*

2022 IPSF Common Ground Taxonomy - Climate Change Mitigation\*

2023 Green Industry Catalog\*

2023 Notice on Accelerating the Coordinated Development of the Green Building Industry and Green Finance\*

To obtain the lower-cost benefit of green financing, a building project must meet the green building requirements stipulated by the above regulations and the financing documents of the lenders concerned. Sustainable real estate/green building projects have always been one of the most active business sectors in receiving green financing support.

# Planning

## Is the national or local/state government able to mandate green initiatives via the planning/zoning regime (e.g., district heating systems on large developments)?

\* Full list of cited regulations at the end of this chapter.

As noted in the preceding topics, China has enacted mandatory energy performance, environmental and other green standards for all types of buildings. These standards are cross-linked and cross-enforced with the national and local zoning and building construction regulations. Since noncompliance with these standards and regulations could result in the refusal of planning or construction permits, Chinese authorities have fully effective means to mandate their required green initiatives, such as installing solar panels in buildings and district heating or cooling systems in large developments.

Some local authorities have implemented their own green requirements in planning and zoning regimes for local buildings and projects through local regulations and standards. The requirements vary among localities. For instance, Beijing aims to construct super-low energy consumption buildings covering an area of 5 million square meters and apply heat-pump heating to additional areas of 45 million square meters by 2025. As for Shanghai, it aims to complete the energy conservation renovation of existing buildings covering an area of over 20 million square meters or more, construct super-low energy consumption buildings covering an area of 5 million square meters or more and apply at least one kind of renewable energy in all new buildings starting from 2022.

In addition to regulations, local authorities also use contract terms in land-grant contracts they sign with real estate developers as a tool to mandate the construction of buildings with a specific green building rating standard.

As for renewable energy, the Modern Energy System Plan during the 14th Five-Year Plan Period\* outlines that China will develop major clean energy bases in Yunnan, Guizhou, Sichuan, Xizang and Qinghai, as well as promote the use of hydropower, wind power and solar power in these areas. In addition, China plans to, among other things, use geothermal energy in the Beijing-Tianjin-Hebei region, and nuclear and marine energy and wind power in the Yangtze Delta region and Pearl River Delta region. Local authorities are expected to also mandate these renewable energy initiatives through various planning policy tools.

# Green Leases

## Are green leases or green lease provisions mandatory or optional? If mandatory, to whom do they apply? If optional, is there significant take up?

While “green lease” provisions are not mandatory in China, in recent years, some landlords and tenants have started to adopt green leases. So far, the active participants in green leases in China are mainly the well-known international companies. The driving force is not only from the landlords’ side; quite often, the tenant drives or demands the use of green leases. Generally speaking, green lease provisions are still mostly based on aspirational goals, with both sides committing to collaborating closely and making best efforts to achieve the green lease goals. It is still very rare that green lease provisions will contain stringent negative consequences or legal remedies for noncompliance. It is expected that green lease provisions will continue to become more prevalent as the building sector continues with its green development.

**Full list of cited regulations:**

2008 Civil Buildings Energy Conservation Regulation (民用建筑节能条例)

2008 Civil Building Energy Performance Labeling Interim Measures (民用建筑能效测评标识管理暂行办法)

2013 Green Building Work Plan (绿色建筑行动方案)

2015 Interim Measures for Public Institutions Energy Audit (公共机构能源审计管理暂行办法)

2016 Guiding Opinions on Creating the Green Finance Framework (关于构建绿色金融体系的指导意见)

2019 Green Building Evaluation Standard (《绿色建筑评价标准》（GB/T50378-2019）)

2019 Near-Zero Energy Consumption Buildings Technical Standard (《近零能耗建筑技术标准》(GB/T51350-2019))

2020 Green Building Promotion Action Plan (绿色建筑创建行动方案)

2021 14th Five-Year Plan and 2035 Plan (中华人民共和国国民经济和社会发展第十四个五年规划和2035年远景目标纲要)

2021 Action Plan for Peaking Carbon Emissions before 2030 (2030年前碳达峰行动方案)

2021 General Rules for Building Energy Conservation and Use of Renewable Energy (《建筑节能与可再生能源利用通用规范》（GB 55015-2021）)

2021 Green Bond Support Catalog (绿色债券支持项目目录)

2021 Green Building Label Management Measures (绿色建筑标识管理办法)

2021 Opinions on Driving Green Developments in Urban and Rural Areas (关于推动城乡建设绿色发展的意见)

2021 Opinions on Full Implementation of Decarbonization (关于完整准确全面贯彻新发展理念做好碳达峰碳中和工作的意见)

2022 IPSF Common Ground Taxonomy — Climate Change Mitigation (可持续金融共同分类目录报告—减缓气候变化)

2022 National Climate Change Adaptation Strategy for 2035 (国家适应气候变化战略2035)

2022 Tax Reliefs Policy Guidelines Supporting Green Development (支持绿色发展税费优惠政策指引)

2023 Green Industry Catalog (绿色产业指导目录)

2023 Guidelines for Establishing Carbon Peaking and Carbon Neutrality Standards (碳达峰碳中和标准体系建设指南)

2023 Notice on Accelerating the Coordinated Development of the Green Building Industry and Green Finance (关于加快推动绿色建筑产业与绿色金融协同发展的通知)

Building Carbon Emissions Calculation Standard (建筑碳排放计算标准)

Building Energy Conservation and Green Building Development Plan during the 14th Five-Year Plan Period (“十四五”建筑节能与绿色建筑发展规划)

Carbon Peaking Pilot Scheme (国家碳达峰试点建设方案)

Carbon-Neutral Buildings Technical Standard (零碳建筑技术标准)

Energy Audit Measures for Public Institutions (公共机构能源审计管理暂行办法)

Fixed Assets Investment Energy Conservation Review Measures (固定资产投资项目节能审查办法)

Green Building Evaluation Standard (Draft for Comments) (绿色建筑评价标准（局部修订征求意见稿）)

Green Renovation of Existing Buildings Evaluation Standard (GB/T51141) (《既有建筑绿色改造评价标准》（GB/T51141）)

Guangzhou Green Buildings and Buildings Energy Conservation Management Regulation (广州市绿色建筑和建筑节能管理规定)

Modern Energy System Plan during the 14th Five-Year Plan Period (“十四五”现代能源体系规划)

Shenzhen Green Building Regulation (深圳经济特区绿色建筑条例)

Urban and Rural Construction Area Carbon Peaking Implementation Plan (城乡建设领域碳达峰实施方案)

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