



中国建筑科学研究院有限公司
China Academy of Building Research

中国绿色建筑标准介绍

Introduction to Green Building Standards of China

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1. Green Building Standard System

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“Green design standard of civil buildings” JGJ/T 229-2010 (industrial standard)

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■ 施工阶段 Construction stage:

“Assessment standard for green construction of building” GB/T 50640-2010
(national standard)

“Construction Code for green building” GB/T 50905-2014 (national standard)

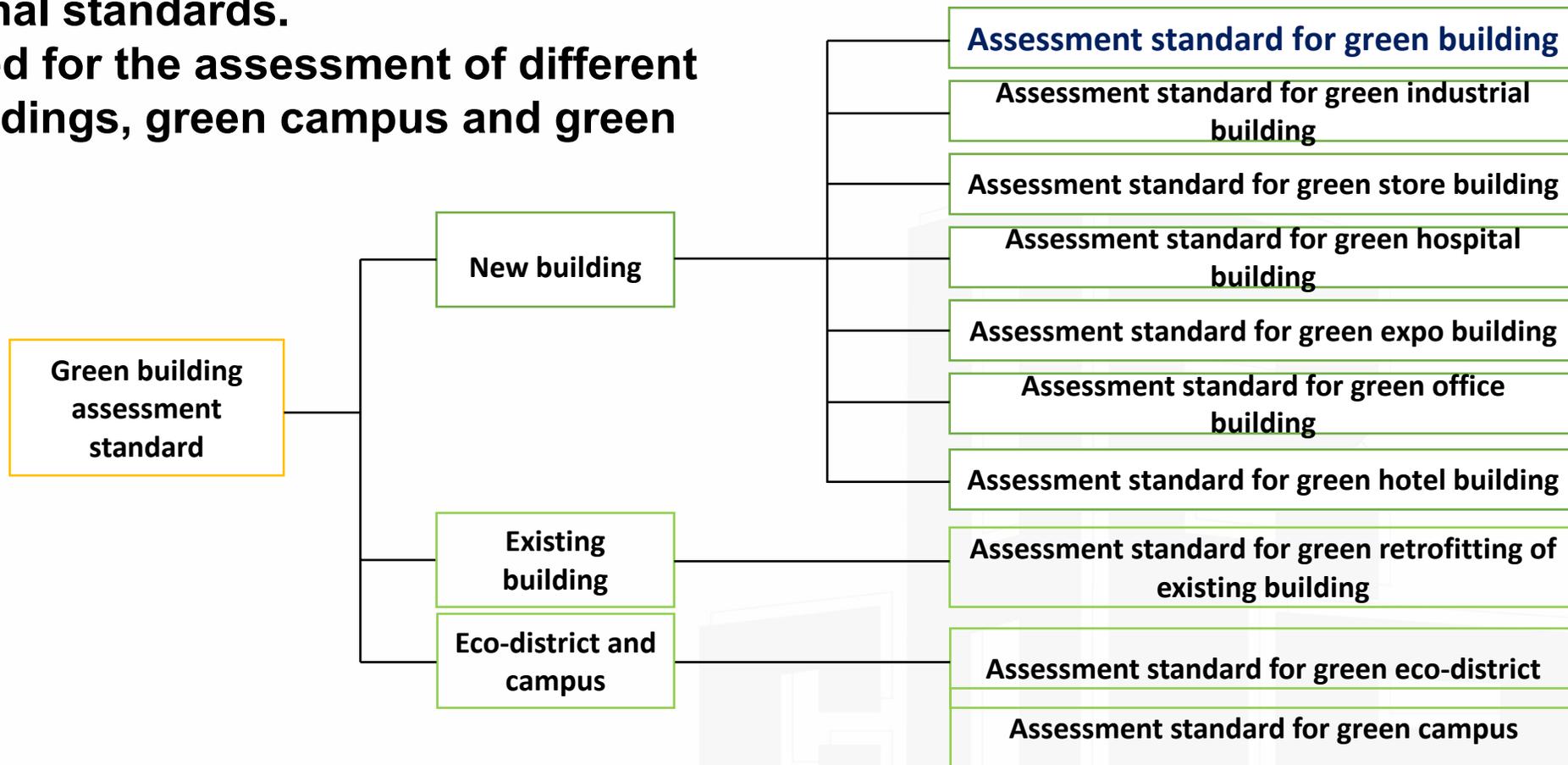
■ 运行阶段 Operation stage:

“Technical standard for green building operation and maintenance JGJ/T 391-
2016 (industrial standard)

■ 评价标准 Assessment standards: 10 national standards

2. Assessment Standards for Green Buildings

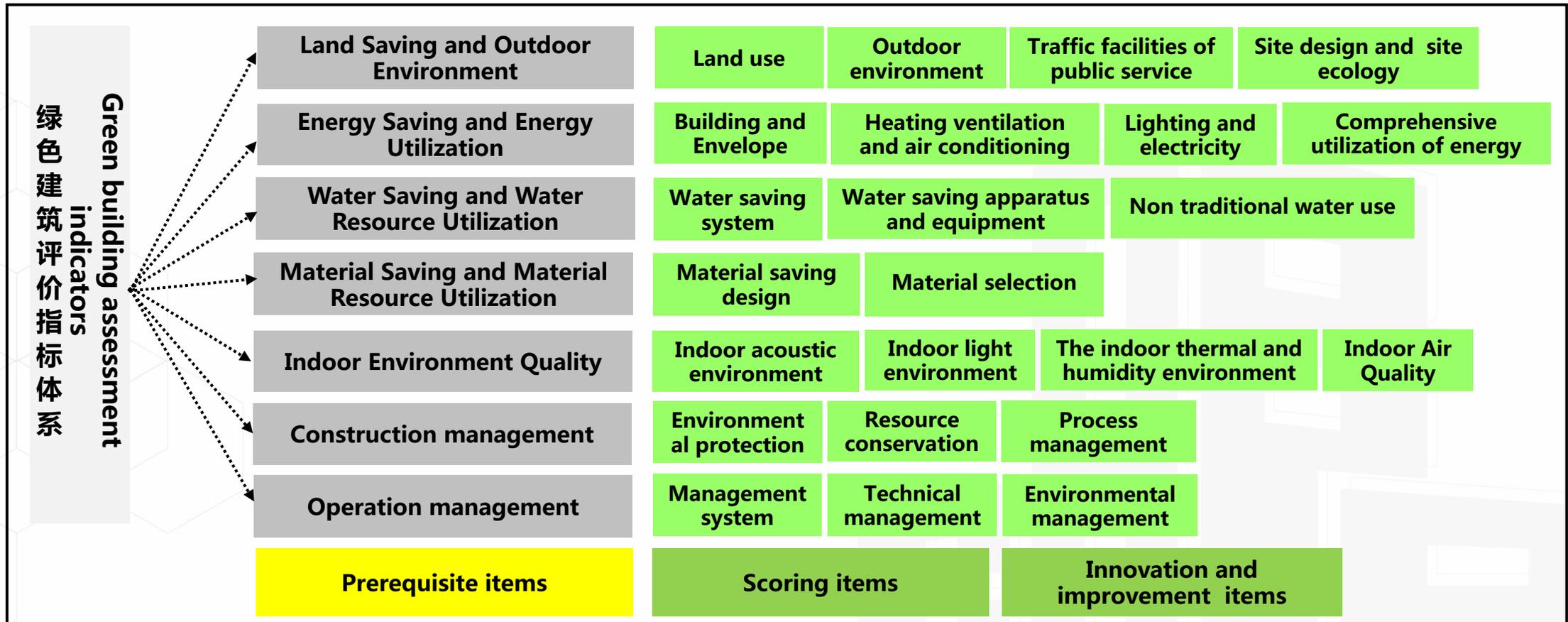
There are 10 national standards.
All of them are used for the assessment of different types of green buildings, green campus and green eco-district.





3. Green Building Assessment Criteria

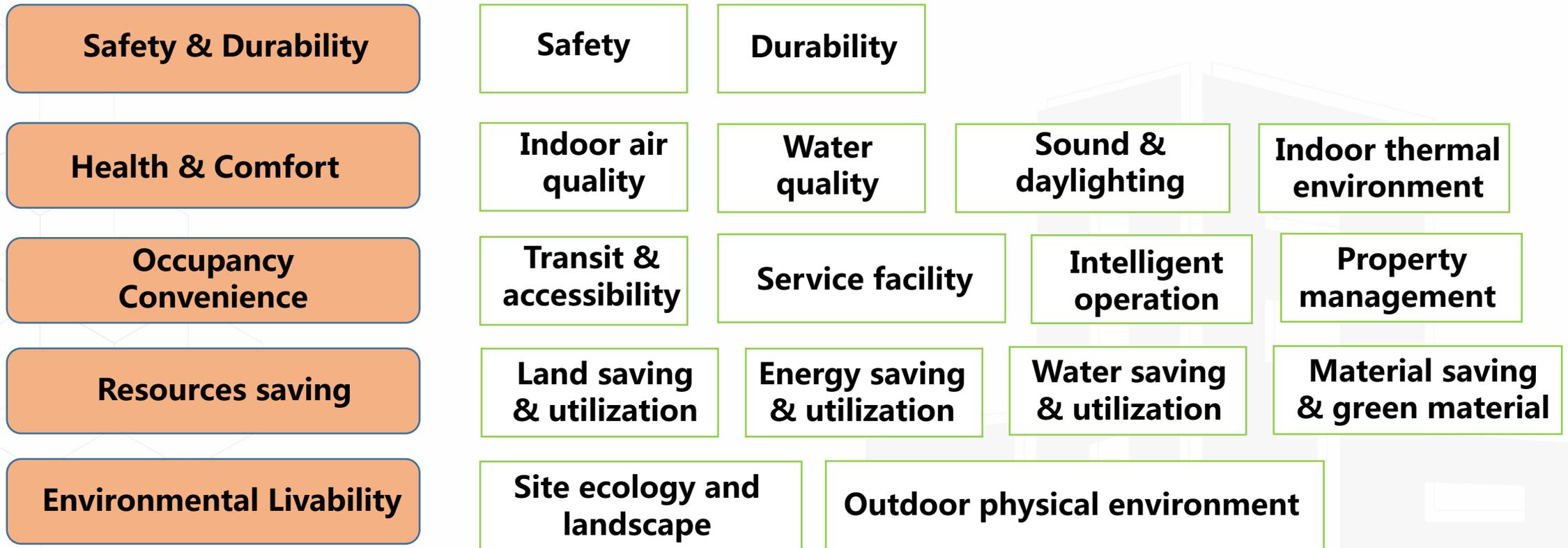
Assessment standard for green building GB/T 50378-2014 (2nd edition)





3. Green Building Assessment Criteria

Assessment standard for green building GB/T 50378-2019 (3rd edition)



The new “Assessment standard for green building” was approved by MoHURD as a national standard, and will be put into effect from August 1st 2019. The standard number is GB/T50378 – 2019.

中华人民共和国住房和城乡建设部

公告

2019年 第61号

住房和城乡建设部关于发布国家标准 《绿色建筑评价标准》的公告

现批准《绿色建筑评价标准》为国家标准，编号为GB/T50378-2019，自2019年8月1日起实施。原《绿色建筑评价标准》(GB/T50378-2014)同时废止。

本标准在住房和城乡建设部门户网站（www.mohurd.gov.cn）公开，并由住房和城乡建设部标准定额研究所组织中国建筑工业出版社出版发行。



第二部分 Part Two

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1 修订背景 Revision Background



(1) 政策导向

- 绿色发展理念提出：2015年，党第十八届中央委员会第五次全体会议提出“创新、协调、**绿色**、开放、共享”的五大发展理念。
- 新时期的建筑方针：适用、经济、**绿色**、美观。
- “十九大”新要求：社会主要矛盾变化，贯彻绿色发展理念，坚持人与自然和谐共生，以人民为中心，强调增进民生福祉，关注人民获得感、幸福感。

(1) Policy orientation

- Green Development Concept of China : Innovation, Coordination, **Green**, Openness, Sharing.
- New Architecture Principles : Applicable, Economical, **Green** and Beautiful.
- New requirements of 19th CPC National Congress : Consistent with the people's needs for a better life in the new era.



(2) 发展现状

- 绿色建筑全国范围内规模化发展
 - ✓ 省会以上城市保障性安居工程、大型公共建筑全面**强制执行**绿色建筑标准。
 - ✓ 《住房城乡建设事业“十三五”规划纲要》新建绿色建筑**50%**。
 - ✓ 绿色建筑施工图审查。

(2) Current situation of green building in China

- Large-scale green building development in China
 - ✓ Green building is **mandatory** for government-subsidised housing projects, and large scale public buildings in provincial capital cities.
 - ✓ *The 13th Five-Year Plan for Housing and Urban-Rural Development* requires that green buildings shall account for **50%** of all new buildings in cities.
 - ✓ Construction drawings examination for green building in many provinces and cities.



(2) 发展现状

- 国标《绿色建筑评价标准》GB/T 50378，明确了绿色建筑的定义、评价指标和评价方法，对我国绿色建筑发展发挥了极其重要的作用。
- 建立了我国绿色建筑技术标准体系，朝向**精细化发展**。

(2) Current situation of green building in China

- In the national standard for green building assessment (GB/T 50378), the definition, assessment criteria and assessment method of green building are clarified, which plays a significant role in promoting green building development in China.
- Standard system of green building in China is formed, and goes towards a **refined development trend**.

(3) 发展进程中显现的问题

- 设计标识多，运行标识少；
- “以人为本”体现得不够；
- 对建筑领域的新技术、新理念响应性有待提高；
- 绿色建筑的可感知性有待提高，使用者难以感受到绿色建筑在健康、舒适、高质量等方面的优势。

(3) Problems raised in green building development

- More design labels, and less operational labels.
- People-oriented requirements are not enough.
- Poor responsiveness to the new technologies and new concepts in building industry.
- Perceptible requirements need to be improved to let occupants feel the benefits of green building (safety, health, comfort, convenience, livable, etc.).

(4) 新时代新要求

- 响应当前建筑科技新理念新技术发展；
- 构建新时代的绿色建筑评价技术体系；
- 契合新时代绿色建筑高质量发展需求。

(4) New demands of green building in the new era

- to response to the new technology development and new ideas in building industry.
- to build a new green building evaluation criteria for the new era.
- to meet the high quality development demand of green building.



2 修订要点 Revision Highlights



(1) 更新评价指标体系，响应社会主要矛盾的变化

Update the assessment criteria to respond to the change of major social contradiction

修订前：四节一环保

Before : 4-saving+1-protection

- 节地 Land Use Saving
- 节能 Energy Saving
- 节水 Water Saving
- 节材 Material Saving
- 环境保护 Environmental Protection



修订后：五大性能

After : 5-performance

- 安全耐久 Safety and Durability
- 健康舒适 Health and Comfort
- 生活便利 Occupancy Convenience
- 资源节约 Resource Saving
- 环境宜居 Environment Livability

新的指标体系

安全耐久

- I 安全
- II 耐久

Safety and Durability

- I Safety
- II Durability

Established new assessment criteria

健康舒适

- I 室内空气品质
- II 水质
- III 声环境与光环境
- IV 室内热湿环境

Health and Comfort

- I Indoor Air Quality
- II Water Quality
- III Sound and Daylighting
- IV Indoor Thermal Environment

生活便利

- I 出行与无障碍
- II 服务设施
- III 智慧运行
- IV 物业管理

Occupant Convenience

- I Transit and Accessibility
- II Service Facility
- III Intelligent Operation
- IV Property Management

新的指标体系

Established new assessment criteria

资源节约

- I 节地与土地利用
- II 节能与能源利用
- III 节水与水资源利用
- IV 节材与绿色建材

Resources Saving

- I Land Saving and Land Utilization
- II Energy Saving and Energy Resources Utilization
- III Water Saving and Water Resource Utilization
- IV Material Saving and Green Materials

环境宜居

- I 场地生态与景观
- II 室外物理环境

Environmental Livability

- I Site Ecology and Landscape
- II Outdoor physical Environment

- **与新时代人民美好生活需要相统一，体现“以人民为中心”的基本理念，创新重构了五大指标体系**
- **旨在增进建筑使用者对于绿色建筑的幸福感和获得感。**
- **In line with the people's needs for a better life in the new era, the five assessment criteria have been innovatively reconstructed to reflect the basic concept of "people-centered".**
- **It aims to enhance the sense of happiness and gain of the users to green buildings.**

(2) 重新设定评价阶段，引导绿色技术的实施落地

Re-set the assessment stage to ensure the implementation of green technologies

- 以促进绿色技术措施落地、提高绿色建筑的运行实效为目标，将绿色建筑评价的节点设定在建筑工程竣工后。
- 另外规定在建筑工程施工图设计完成后，可进行预评价。
- In order to promote the implementation of green technologies and improve the operation efficiency of green buildings, the node of green building assessment are set after the completion of construction project.
- After completion of construction project, pre-assessment can be carried out.

重设了绿色建筑评价时间节点

The time node of green building assessment is reset.

■ 2014版: 2014 versions

- 设计评价 Design Assessment : 施工图审查通过后 After the construction drawing reviewed
- 运行评价 Operation Assessment : 竣工验收并使用一年后 After 1-year' s operation

■ 2019修订版 : 2019 version

- 绿色建筑的评价应在**建设工程竣工验收后进行**
- 取消设计评价, 代之以设计阶段**预评价**

Green building assessment will be done after the building is completed and accepted. The Pre-assessment is allowed to be done in the design stage.

(3) 新增绿色建筑等级，与全文强制工程规范相协调并推进绿色建筑的普及推广

Add a green building grade, coordinate with the mandatory engineering codes and promote the popularization of green buildings

■ 基本级、一星级、二星级、三星级, 总共4个等级

- 满足“控制项”的要求即为“基本级”；扩大评价覆盖面，推动普及绿色建筑；
- 全文强制规范衔接，实现“普遍绿”。

■ Basic grade, one - star, two - star, three – star, totally 4 green building grades

- If all the requirements of “Prerequisite Items” are met , it is “Basic grade green building”.
- The green building coverage is expand, and promoted the popularization more widely.
- To coordinate with the mandatory engineering codes, so as to achieve “all green”.

(4) 分层设置性能要求，提高了绿色建筑的性能水平

Set the performance requirements of 1~3 star green building in four levels, to improve the green building performance

- 对于一星、二星和三星绿色建筑：①每类指标设置最低得分；②应进行全装修；③分别达到60分、70分、85分；④满足对应星级在围护结构热工性能、隔声性能、节水器具用水效率、室内主要空气污染物浓度等方面的附加要求。
- For 1-star , 2-star and 3-star green building: ① Set the lowest score for each criterion ; ② shall be fully decorated ; ③ scored 60, 70 and 85 respectively ; ④ meet the additional requirements in the aspects of building envelope thermal performance, sound insulation performance, water efficiency of sanitary appliances, concentration of main indoor air pollutants etc.

提出了绿色建筑星级评价特殊要求

For 1~3 star green building, more high requirements shall be met.

总得分 Scores : $Q = (Q_0 + Q_1 + Q_2 + Q_3 + Q_4 + Q_5 + Q_A) / 10$

	控制项 基础分值 Basic score of control term	评价指标体系评分项满分值 Full score of scoring items in evaluation index system					提高与创新项加分值 Bonus point of improvement & innovation
		安全耐久 Safety and Durability	健康舒适 Health and Comfort	生活便利 Occupancy Convenience	资源节约 Resource Saving	环境宜居 Environment Livability	
预评价分值 Pre-evaluation score	400	100	100	80	200	100	100
评价分值 Evaluation score	400	100	100	100	200	100	100

星级确定：最低得分（每类指标满分值的30%）+ 全装修 + 总得分（60、70、85）
The lowest score for 1-star, 2-star and 3-star is 60, 70 and 85 respectively.

提出了星级绿色建筑评价特殊要求

For 1~3 star green building, more high requirements shall be met.

- **一、二、三星级绿色建筑应实现全装修，全装修工程质量、选用材料及产品质量应符合国家现行有关标准的规定。**

1-star, 2-star, 3-star green buildings shall be fully decorated. The quality of the decoration, selected materials and products shall comply with the relevant national standards and codes.

全装修：在交付前，住宅建筑内部墙面、顶面、地面全部铺贴、粉刷完成，门窗、固定家具、设备管线、开关插座及厨房、卫生间固定设施安装到位；公共建筑公共区域的固定面全部铺贴、粉刷完成，水、暖、电、通风等基本设备全部安装到位。



	一星级 1-star	二星级 2-star	三星级 3-star
围护结构热工性能的提高比例，或供暖空调负荷降低比例 The proportion of building envelope thermal performance increased, or the heating and air conditioning load decreased	围护结构 building envelope : 5% ; 负荷 load : 5%	围护结构 building envelope : 10% ; 负荷 load : 10%	围护结构 building envelope : 20% ; 负荷 load : 15%
严寒寒冷地区住宅建筑外窗传热系数降低比例 The ratio of heat transfer coefficient of exterior Windows of residential buildings in cold and severe cold regions reduced	5%	10%	20%
节水器具用水效率等级 Water efficiency level of sanitary appliances	3级 grade 3	2级 grade 2	
住宅建筑隔声性能 Sound insulation performance of residential building	/	室外与卧室之间、分户墙（楼板）两侧卧室之间的空气声隔声性能以及卧室楼板的撞击声隔声性能达到低限标准限值和有关要求标准限值的平均值	室外与卧室之间、分户墙（楼板）两侧卧室之间的空气声隔声性能以及卧室楼板的撞击声隔声性能达到有关要求标准
室内主要空气污染物浓度降低比例 The ratio of main indoor air pollutant concentration reduced	10%	20%	
外窗气密性能 Airtight performance of external window	符合相关节能设计标准的规定，且外窗洞口与外窗本体的结合部位严密 The combination of the external window opening and the external window body is strict		

(5) 优化计分评价方式，增强了评价方法的可操作性

Optimize the scoring method of assessment to enhance the operability of the assessment method

- 2006版采用条目法，2014版采用权重打分法。新记分方法改为绝对分值累加法，简便易于操作。条文的设置综合考虑了气候、地域以及建筑类型的适用性。通过条款的合理设置避免了不参评项。整体条文数量也较2014版大幅减少，进一步增强了评价方法的可操作性。
- The new scoring method is changed into score accumulation method, which is simple and easy to use. The clauses (assessment indicators) take into account the applicability of climate, location and building type. Through the reasonable setting of the clauses to avoid the non-assessed assessment indicators. The number of total clauses is also significantly reduced compared with the 2014 edition, further enhanced the operability of the new standard.

(6) 扩展绿色建筑内涵，提升了绿色建筑的质量

Expand the connotation of green building, and improve the quality of green building

- **汲取建筑科技发展过程中产生的新技术与新理念，新增在安全耐久、节约能源、健康宜居、全龄友好等方面的技术内容.多途径、多角度提升建筑整体质量，全面推进绿色建筑高质量发展。**
- **Absorb the new technologies and new ideas in the process of construction technology development, including safety, durability, energy saving, BIM, building industrialization, building quality insurance, carbon emission, low energy, building adaptability, and so on.**
- **Improve and add new people-centred requirements such as indoor air quality, water quality, fitness facilities, environmental livability, all ages friendly design, convenient services, etc.**
- **Improve the green building performance through multiple ways, and comprehensively promote the high-quality development of green buildings in China.**

更新了绿色建筑术语

The definition of green building is redefined

■ 原定义：Definition of Green Building in 2014

在全寿命期内，最大限度地节约资源（节能、节地、节水、节材）、保护环境、减少污染，为人们提供健康、适用和高效的使用空间，与自然和谐共生的建筑。

The environmental-friendly building that is able to maximally conserve the resources (energy, land, water and material), to protect the environment and reduce pollution to provide people with a healthy, applicable and efficient space in its whole life cycle.

■ 新定义：Definition of Green Building in 2019

在全寿命期内，节约资源、保护环境、减少污染，为人们提供健康、适用、高效的使用空间，最大限度地实现人与自然和谐共生的**高质量建筑**。

The **environmental-friendly** and **high quality building** that is able to conserve the resources, protect the environment, reduce pollution, to **maximally provide people with a healthy, applicable and efficient space** in its whole life cycle.



3 未来计划 Future Works



(1) 编写《绿色建筑评价技术细则》

- 为配合标准的使用和技术内容解释，本标准2006版、2014版均组织编写了《绿色建筑评价技术细则》。
- 目前《标准》2019版已正式发布，编制组将组织专家编写《绿色建筑评价技术细则》，指导绿色建筑的设计和评价工作。

(1) Write the technical guidelines for green building assessment

- In order to help the use of the assessment standard, “*Technical specifications for green building assessment*” of 2006 edition and 2014 edition were published respectively.
- Currently, the 2019 edition standard has been officially released. The drafting group will organize experts to compile the new *technical specifications for green building assessment* to guide the construction and evaluation of green buildings.

(2) 编写《绿色建筑典型案例集》

- **吸纳优质的绿色建筑项目案例，组织编写《绿色建筑典型案例集》，通过案例展示和促进新标准的实施。**

(2) Compile a book for case studies of green buildings based on the new national standard.

- **Absorbing high-quality cases of green building projects, organizing the compilation of "Typical case studies of green building" to demonstrate and promote the implementation of new standards through real green building cases.**

(3) 启动新《绿色建筑评价标准》的培训工作

- **新《标准》的技术指标体系、评价时间节点、等级设置等均发生了较大变化。**
- **为使技术人员全面理解和掌握绿色建筑技术要求，便于开展绿色建筑设计、施工、运行和评价工作，将面向全国开展广泛的技术宣传和培训工作。**

(3) Start to train green building professionals of the new standard.

- **The technical criteria, evaluation time node and grade setting of the new standard have changed greatly.**
- **In order to enable technicians to fully understand and master the green building technical requirements and facilitate the design, construction, operation and evaluation of green building, extensive technical publicity and training will be carried out nationwide.**

(4) 出版新《绿色建筑评价标准》英文版

- **国际社会高度关注中国绿色建筑发展，对《标准》的修订表示了极大的兴趣。**
- **为便于国际间的交流及国外项目使用中国《标准》进行项目认证，将出版《标准》的英文版。**

(4) Publish the English version of this new green building standard, exchange green building concepts with international counterparts.

- **The international community has paid great attention to the development of green buildings in China and expressed great interest in the revision of the new standard.**
- **In order to facilitate international exchanges and foreign projects to use the Chinese standard for project certification, the English version of the standard will be published.**

(5) 做好新版《绿色建筑评价标准》的宣传工作

- **加强对新标准的宣传力度，让百姓了解新标准在安全、耐久、健康、舒适、便利、宜居、全龄友好等方面的特点，把新标准以人民为中心的理念广泛传播给老百姓。**
- **通过国际组织、国际网站、国际交流、科技合作等途径，宣传我国绿色建筑的理念和技术。**

(5) Publicize the new green building assessment standard

- **Strengthen the publicity of the new standard, let people understand the characteristics of safety, durability, health, comfort, convenience, livable, age friendly and other aspects, widely spread the people-centered concept of the new standard.**
- **Through international organizations, international websites, international exchanges, scientific and technological cooperation and other ways, publicize the green building concepts and technologies of China.**

一代人有一代人的使命。建设生态文明，功在当代，利在千秋。让我们从自己、从现在做起，把接力棒一棒一棒传下去。

Each generation has its own mission. The construction of ecological civilization has a significant benefit on the contemporary era and the future generations. Let's start from ourselves, from now on, and pass on the baton one by one.

知者
愈物



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谢谢 thanks