

# Timber Use in the Chinese Gardens and Architecture

木材在中国园林及建筑中的应用



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- 1、Reasons why timber constructions appear and become mainstream in China
- 为什么中国会发展出木结构建筑并形成主流
- 2 The development of timber constructions in ancient China
- 木结构建筑在中国古代的发展
- 3 The development of timber constructions in ancient China
- 木结构建筑在中国近现代的发展
- 4 The advantages of timber
- 木材的优点
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Climate  
气候



In the ancient times, the weather and geographical condition is suitable for growing plants in the Yellow River basin.

Hydrology  
水文



Geography  
地理



The dense forest and river here make it easy to get raw materials and transport them.

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Cutting easy  
采伐容易

processing easy  
加工容易

Light weight  
重量轻

Timber becomes the first choice to build houses because it is lighter and more easily to cut and process.

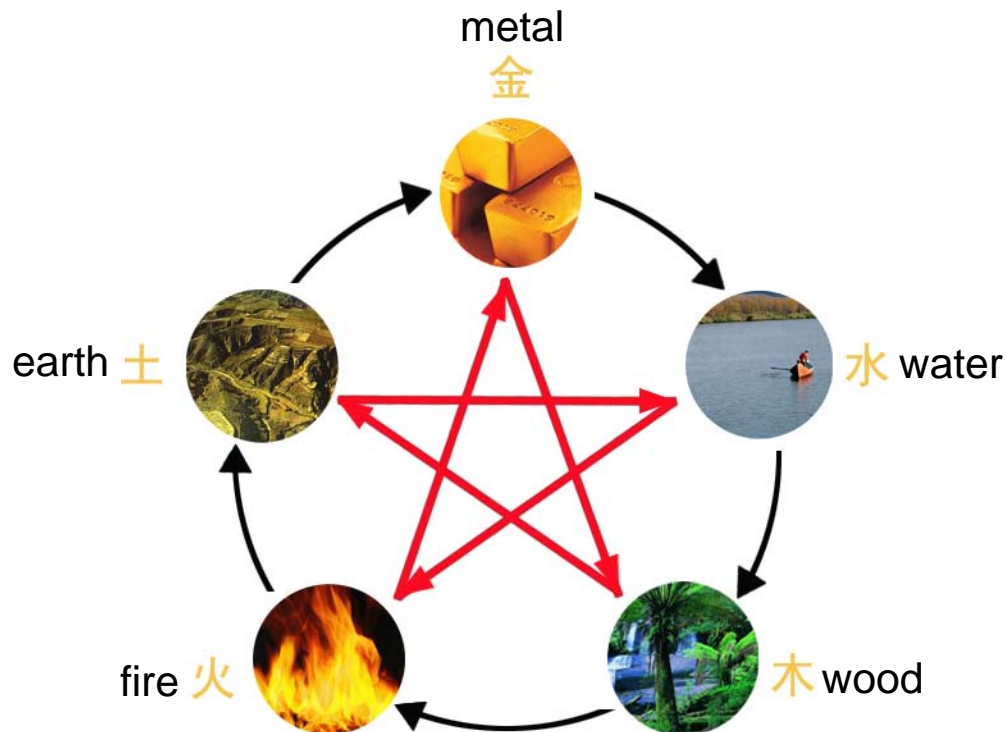


Mining hard  
开采困难

processing hard  
加工困难

heavy weight  
重量沉

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The Chinese philosophy- Taoism believes that the basic substances that compose the world are metal, wood, water, fire and soil, and each of them corresponds to one of the five direction. Soil represents Central on behalf of the load of all earth things and soil would have a high status. Five elements of wood represent east and symbol of spring and vitality; while Gold acting on behalf of the West and a symbol of force and punishment to kill; water, fire for the intangible thing, therefore, the five elements represent the most advocates of the five substances, only "soil" and "wood" is the most suitable for the construction of housing people live.



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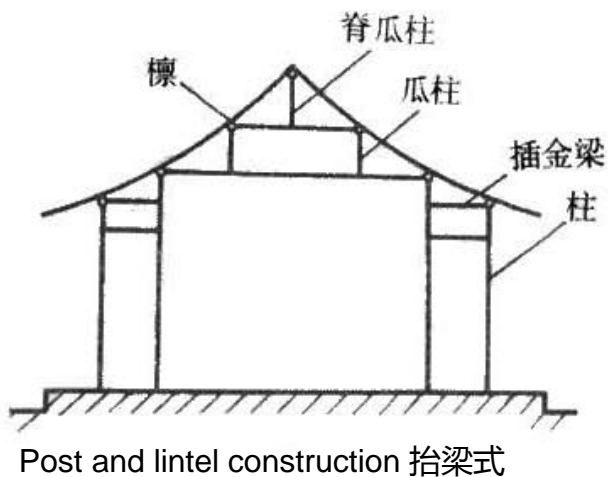
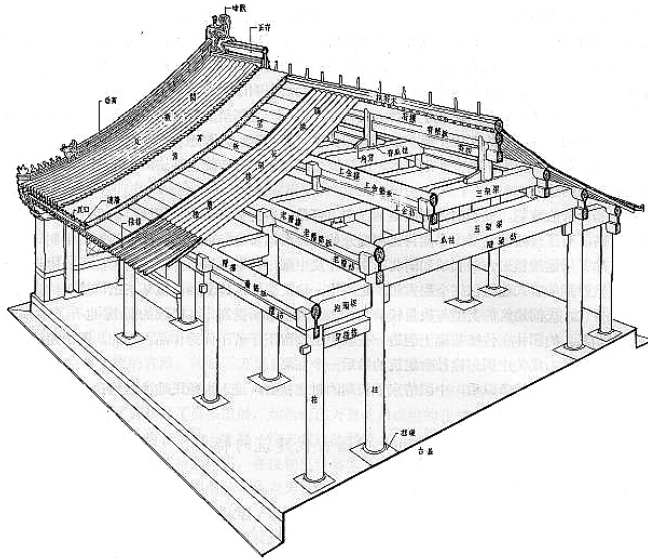


The yin and yang concept stresses the contrast with the conversion of the things, a tree thanks to the available material become into the pillars of the construction of Buildings, after the use of a number of years decadent gradually come into the soil which the Taoists emphasized the negative yin yang, again and again with endless process.



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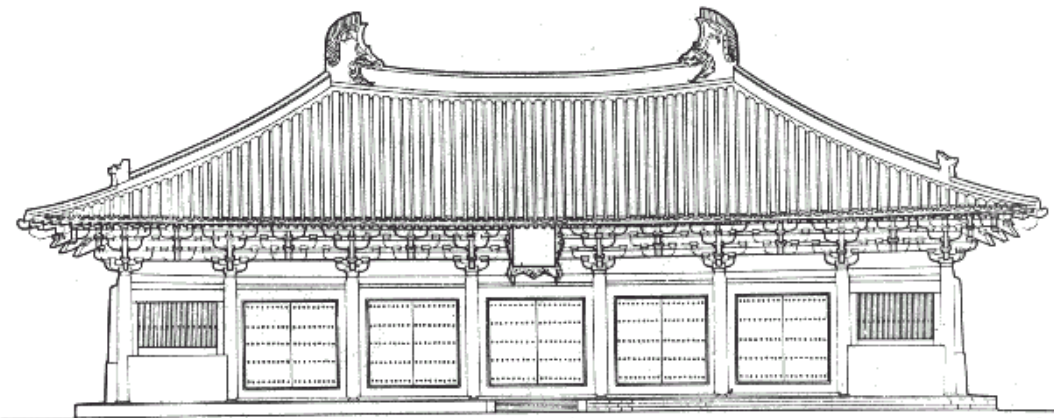
The carrying beam post-and-lintel construction was added to Liang in the column and the beam also lifts the short columns with and beams also known as the stacked beam type. The post-and-lintel construction frame has been existed in the late Spring and Autumn Period and thanks to improvement which gradually formed a complete set of practices.



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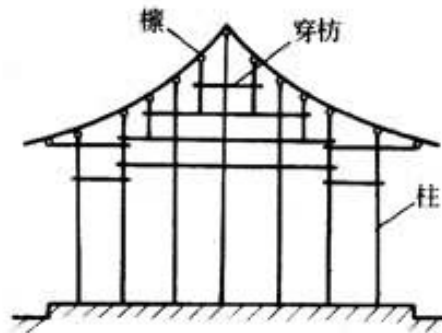
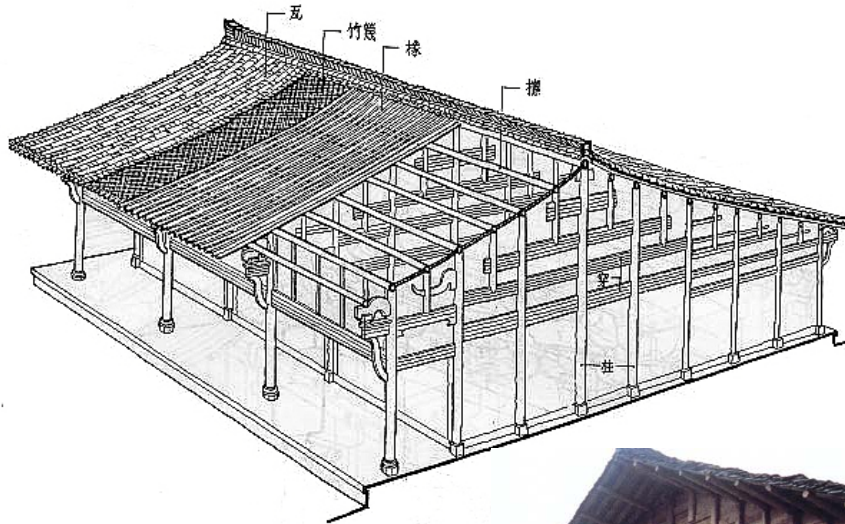
Tiantai Nunnery 天台庵



Foguang Temple 佛光寺大殿

It has been developed until the Tang Dynasty and emerge of the hall and hall are two types to create a French hall Buddha Temple, Wutai, in Shanxi province.

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Chuan Dou-style timber frame column along the depth direction of the housing, but more dense between column spacing, column directly under the weight of the purlins, without the overhead of carrying beam through each column and several layers of “Chuan Fang” and composed of a bundle of architecture. Chuan Dou-style timber frame no later than the Han dynasty is already quite mature and spread to the present. Now is common to use wooden structures in the southern China.

Column and tie construction 穿斗式



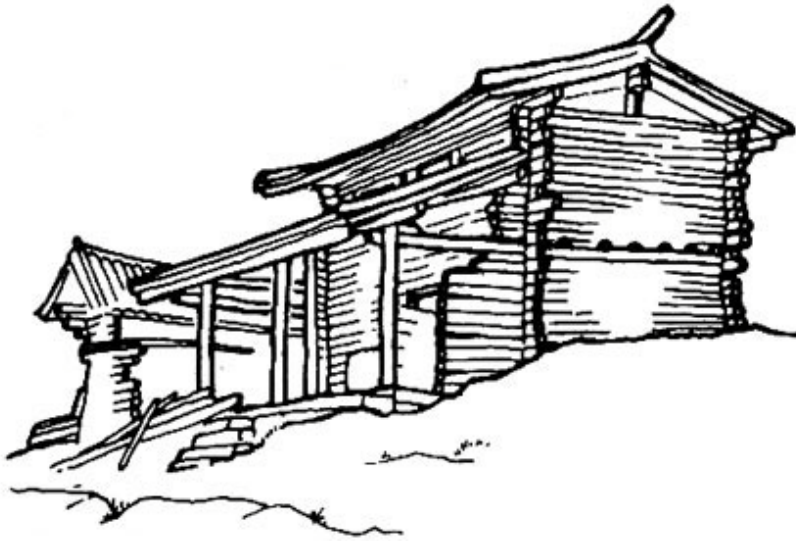
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Column and tie construction dwellings 穿斗式民居

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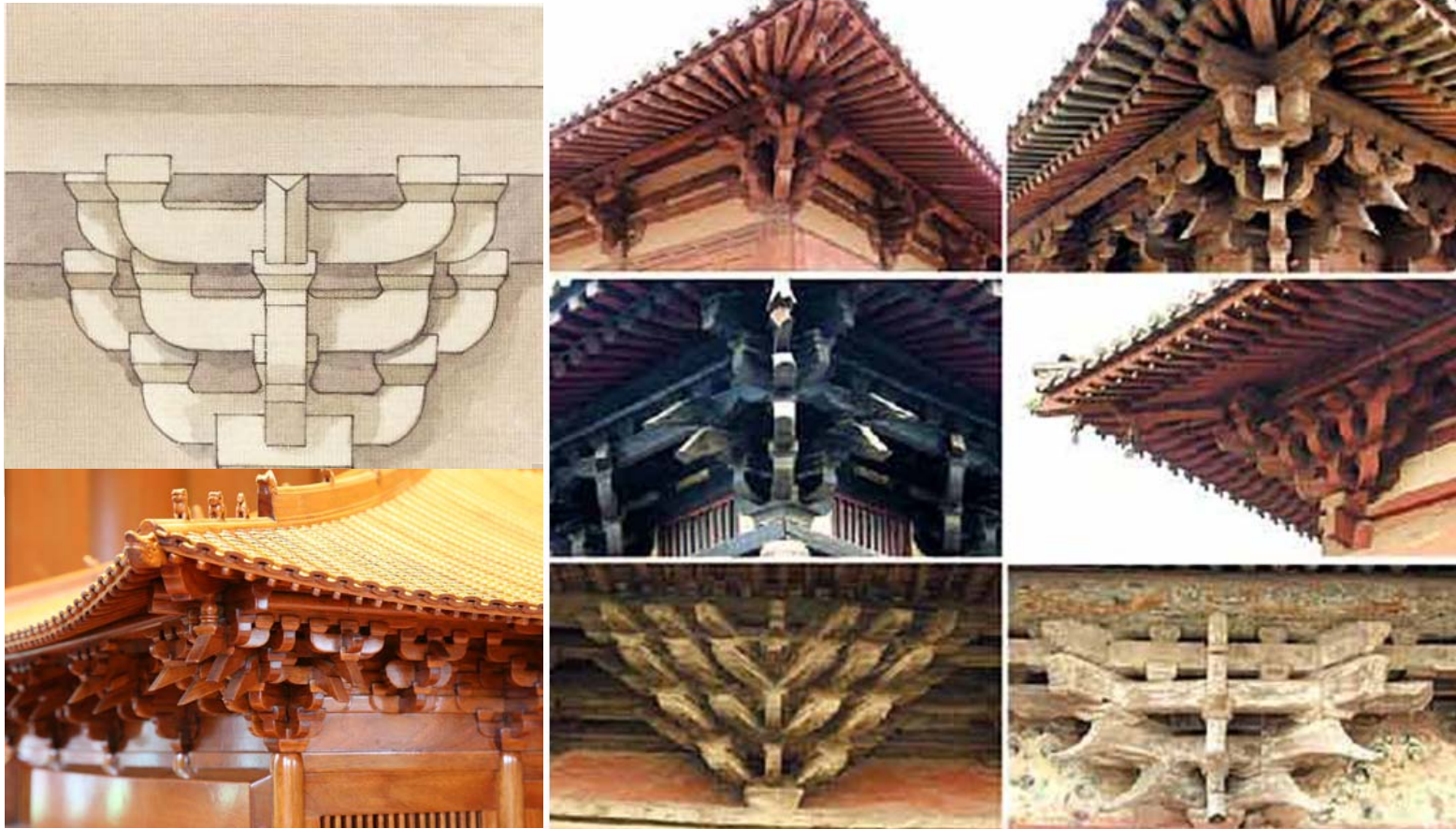
Wells dry wooden structure logs (or square timber) made of stacked pile structure, most of the logs by simple processing with vertical and horizontal stack to form a rectangular space. This structure not only in China can be seen but also in the forest-rich countries.



log cabin construction 井干式



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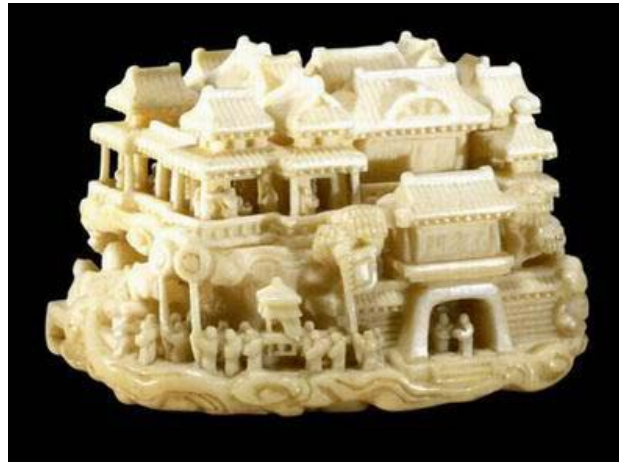


brackets 斗拱

Bracket is on the columns and beams junction from layers stuck arched bearing members. Brackets appearance made the roof can be with a greater degree of overhang so as to forming a beautiful roof contour.



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A number of characteristics of the structural system and architectural forms of ancient Chinese architecture to the Han Dynasty had been basically formed. Chinese ancient wooden structures in addition to widely used in palaces, temples, houses and other low-rise buildings, but also used to build multi-storey or high-level Chong building Court.

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The wooden structure of the skilled construction technology and timber processing experience economic prosperity, they generated a lot of beautiful buildings and gardens.



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Timber has become a favored material by the Chinese people and used widely after a long period. Yet the long-term logging has reduced the amount of large diameter class wood that is suitable for construction.





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The division of bricks and timber usage begins from the Ming Dynasty. Most fine wood is used to make furniture and decorations. Many mansions are made from similar wood but with worth performance. Meanwhile, the peak of furniture design-furniture in Ming Dynasty appears. Chinese historic gardens show unity and harmony with the delicate wooden furniture.

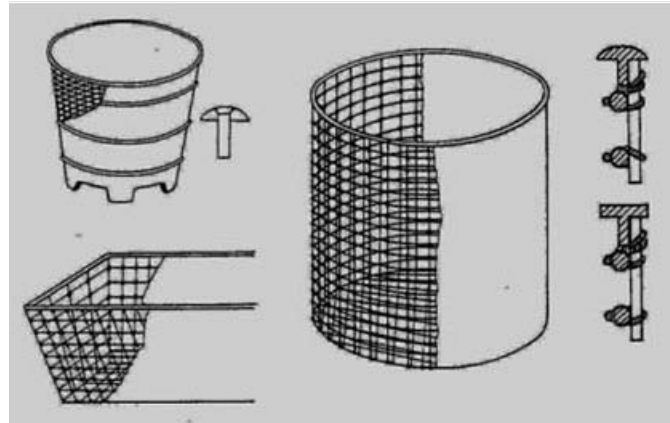




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Joseph Monier 约瑟夫·莫尼哀



In 1824, a British named Joseph Aspdin invented cement. Later in 1865, French gardener Joseph Monier invented reinforced concrete.

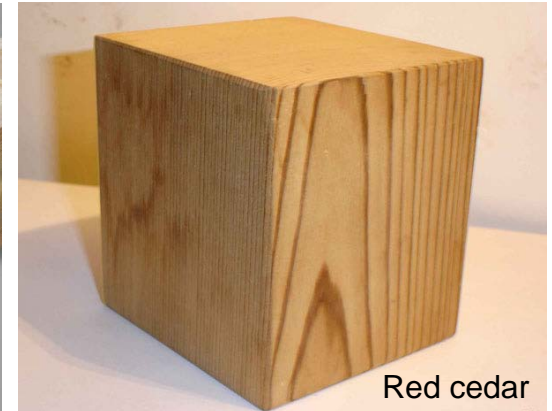
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Because of the urban development, population increase, woodland reduction and invention of new building materials, timber has been used less and less in our daily lives. Things also happen in landscape architecture for more and more reinforced concrete has taken place of timber.



pseudo-classic building constructed of reinforced concrete  
钢筋混凝土仿古建筑

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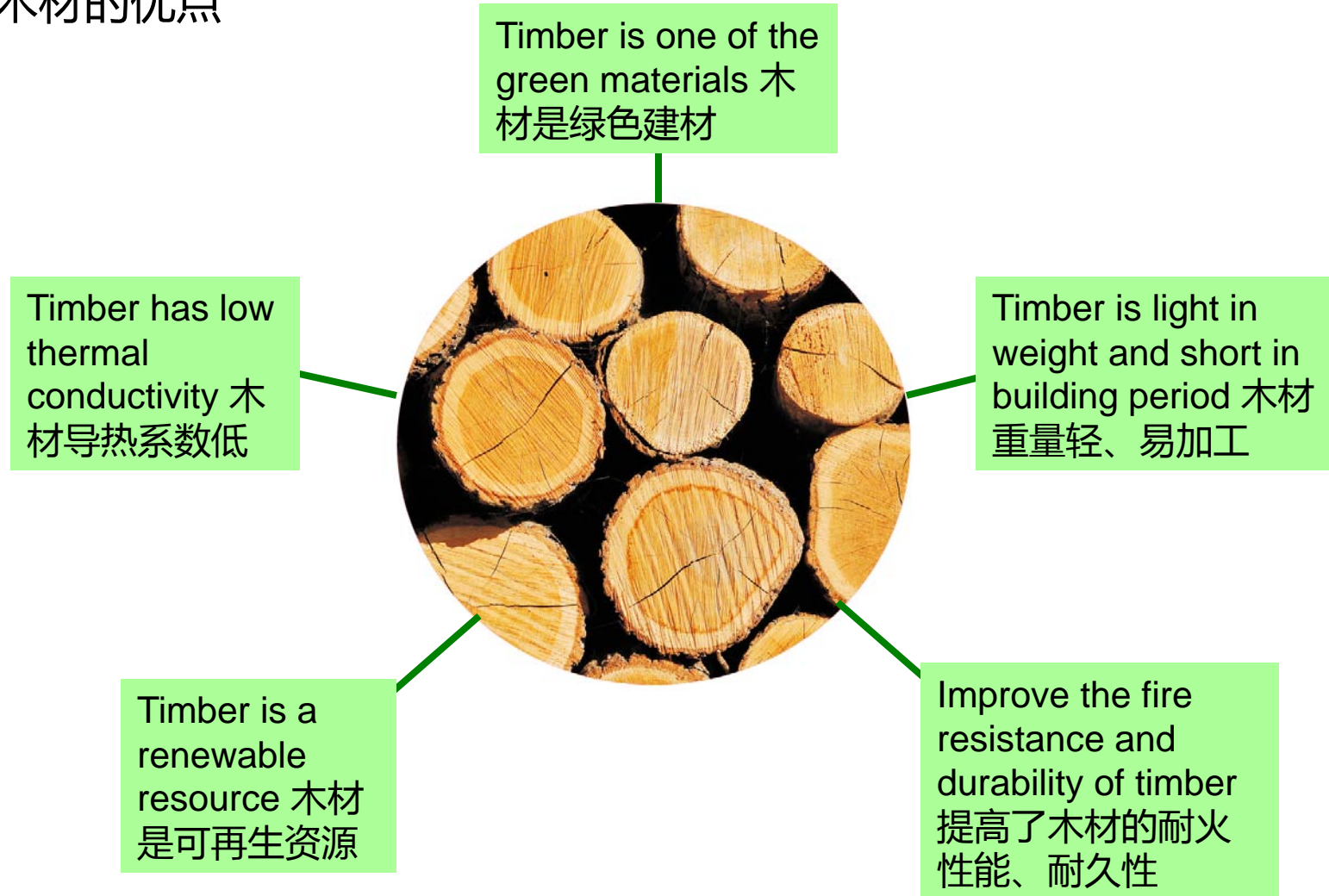
People have been exploring the antiseptic and panel processing technology over the years. The antiseptic technology extended the service life of timber and improved its weather resistance, and reduced the damage by corrosion and worms.



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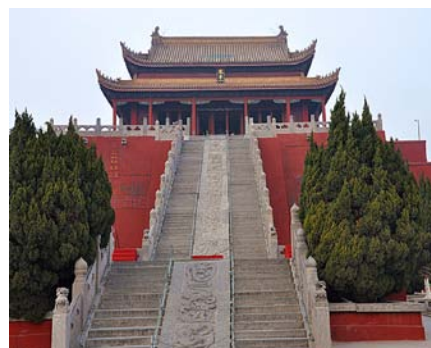
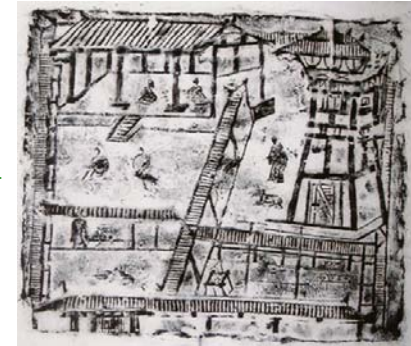






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Timber has carved deeply both in Chinese architectural history and every individual's mind. However, the long-term immoderate logging destroyed forest, vegetation and ecological environment, and almost made timber disappear from the stage of architecture. With the development of new technology, timber has returned with a brand new look. We are looking forward to timber- the beloved building material- will shine again.



**THE END**

**THANK YOU**