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# 北京市房山区政府第三 办公区屋顶花园景观设计

## Landscape Design of Roof Garden at the Third Office Area of Fangshan District Government, Beijing

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1. 游息园黄槽竹掩映的入口
2. 总平面图
3. 4. 心语园
1. The entrance to Yousi Garden shaded by *Phyllostachys aureosulcata*
2. Site plan
3. 4. Xinyu Garden



摘要 ……

房山区政府第三办公区屋顶花园采用简约的设计风格，按照空间的不同功能分为“心语园”、“喧聚园”、“聆听园”和“游思园”4个主题园。项目在实施的过程中解决了屋顶荷载、排水以及防水问题，为屋顶花园的建设提供了可供借鉴的参考。

关键词 ……

屋顶花园；简约设计；荷载；排水

Abstract ...

The design of the roof garden of the third office area of the Fangshan District government takes a minimalist approach. Based on the various functions of the space, four themed gardens were designed, namely “Xinyu Garden”, “Xuanju Garden”, “Lingting Garden”, and “Yousi Garden”. The project throws new light on ways to resolve common issues — such as loading, drainage, and water proofing — in the construction of roof gardens.

Key words ...

Roof Garden; Simple Design; Load; Drainage

项目地址：北京市房山区

项目面积：5 000m<sup>2</sup>

项目委托：房山区园林绿化局

景观设计：中外园林建设有限公司

首席设计师：郭明

项目负责人：谢卫丽、杨宇琼

设计时间：2012年7~10月

施工时间：2012年10月~2013年5月

建成时间：2013年5月

所获奖项：中国建筑学会2013年全国人居经典环境金奖

Location: Fangshan District, Beijing

Area (size): 5,000 m<sup>2</sup>

Client: Landscape Bureau of Fangshan District

Landscape Architecture: Landscape Architecture Corporation of China

Chief Designer: Ming Guo

Project Leaders: Weili Xie, Yuqiong Yang

Design Period: July ~ October, 2012

Construction Period: October, 2012 ~ May, 2013

Completion Time: May, 2013

Award: 2013 the Classic Habitat Environment Gold Award (Architectural Society of China)





北京房山区政府第三办公区位于房山中央休闲购物区，是房山的人气聚集之地，也是其展示窗口。办公区建筑外观现代、简约，屋顶花园的设计与这种“简约主义”的风格相呼应。

### 1 设计构思

整个屋顶花园被三栋高大建筑分割成4个独立空间，根据办公楼人群不同的使用需求，设置了独处、聚会、谈心、游动4种功能，形成静观式、聚集开敞式、散置多空间式、回游式的空间形态，并分别命名为“心语园”、“喧聚园”、“聆听园”和“游思园”。

心语园主要营造一种独处的空间意境，通过圆形的花境、灰色调的铺装、成



丛的常绿植物、特色花箱和弧形灯箱，烘托出空灵的意境，使用者可独自在此冥思遐想。喧聚园形成四面围合、中间开敞的空间布局方式。通过多样化的条形种植带、舒适的木栈道、精致的景亭、极富光影变化的长廊，营造出适合工作之余在此聚会小憩的内聚性空间。聆听园采用散置、多空间分布的方式，种植以景天类植物（*Sedum* spp.）为主，通过灯箱、长廊、花带、步道、镜面花阶等元素，打造出静谧、私密的“谈心”空间。游思园以特色坐凳和花带形成回游式的空间形态，结合观赏草飘逸的姿态、金银木（*Lonicera maackii*）红色的果实、龙爪枣（*Ziziphus jujuba* ‘Tortuosa’）奇特的形态，营造出一派轻盈、丰饶的景象。

## 2 实施中面临的问题

在项目实施的过程中，主要面临的问题有：

### (1) 荷载问题

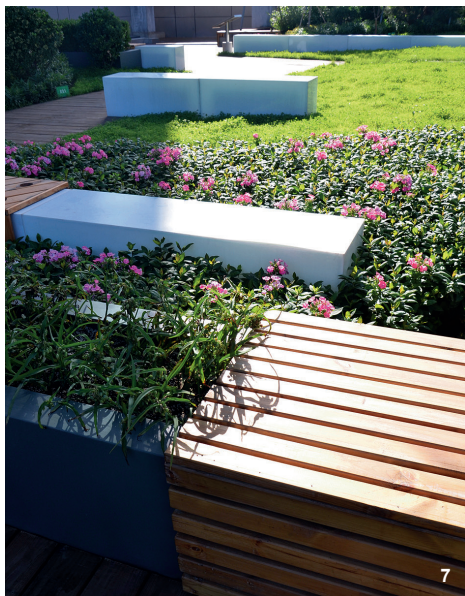
经建筑结构设计师计算，屋顶花园的荷载仅为 $3.5\text{KN}/\text{m}^2$ ，这是游憩式屋顶花园的荷载极限。但业主极力要求在屋顶设置亭、廊等休憩设施，并在景观上要尽可能地保证丰富度，这给我们的设计带来了极大的难度。我们将景观亭、廊架以及排风口外装饰面等构筑物布置在建筑的主次梁上，并使用法兰盘进行固定。采用大兴安岭腐殖土配合珍珠岩等基质配置成种植土，并在表面整体覆盖环保草毯，这样配比而成的轻质土能有效地降低覆土的厚度和土壤容重。

### (2) 排水问题

屋顶花园所在的位置为建筑裙房，两侧均为24层高的玻璃幕墙建筑。为满足瞬时暴雨的排水要求，屋顶花园遍布 $200\text{mm} \times 200\text{mm}$ 的排水沟；为避免排水沟影响屋顶花园的视觉效果，使用不锈钢材料做成排水沟，并在其上覆盖定制设计的雨水算子，使得整个排水沟也变成了一道风景线。

### (3) 防水层和屋顶障碍物的处理

原建筑的屋顶条件不能满足屋顶花园的建造要求，因此我们为屋顶设计了防水层和阻根层。但场地众多的排风口、空调机、广告牌的支撑物为防水层的施工带来了很大的困难。经过多次现场踏勘和分析



探讨，我们根据各个障碍物的情况，采用覆盖、砌墙、特殊防水处理等多种方法，以最大限度地保证屋面安全。空调、排风口等设备对屋顶花园的视觉效果造成了影响，我们通过增加木格栅、钢结构等装饰面，或采用覆土和植物覆盖等方式，使之与花园景观融为一体。

## 3 结语

在城市化的进程中，屋顶花园拥有广阔的推广前景。同时，大面积绿色屋顶花园的建设在增加城市绿量的同时，也将有效地改善生态环境。目前，北京乃至全国存在着大量有待改造的可上人屋面，该项

目的设计、实施为改造型游憩式屋顶花园提供了可借鉴的范例。LAF

5. 喧聚园
6. 喧聚园中的木质景观亭与金光菊花境
7. 喧聚园条带状景观小品形成的错落空间
8. 喧聚园白色雨水算子也成为了景观的一部分。
- 9, 10. 聆听园夏季的细叶芒通过镜面不锈钢花阶的反射，扩大了绿意。
5. Xuanju Garden
6. The wood pergola and *Rudbeckia laciniata* L. at Xuanju Garden
7. Furniture divide Xuanju Garden into several gathering space.
8. The white colored drainage graters add a distinctive look to Xuanju Garden.
- 9,10. The stainless steel planting terraces at Lingting Garden color themselves green by reflecting *Miscanthus sinensis* and other vegetation.





The third office area of Fangshan District Government is located in the Central Shopping District in Fangshan District, Beijing. This prosperous area is a central gathering spot for the community and acts as a visitor gateway for the district. The design of the roof garden resonates with the minimalist style of the building which takes on a simple and contemporary look.

### 1 Design Concept

The roof garden is divided into four independent spaces by three high-rise

buildings. Based on different dispositional modes of the office workers, the design concept focuses on four functional activities: seclusion, meeting, conversation, and movement. Therefore, four spatial forms are created, namely a contemplation form, an open-gathering form, a dispersed multi-space form, and a winding form with the names of “Xinyu Garden”, “Xuanju Garden”, “Lingting Garden” and “Yousi Garden”, respectively. The design of “Xinyu Garden” aims to create a sense of solitude and intimacy. Circular flower border, gray pavement, clusters of

evergreen plants, featured flower boxes and curvilinear light boxes express a simple and ethereal ambience, which makes the garden suitable for contemplation. “Xuanju Garden” is enclosed on all sides but remains open in the middle. A variety of planting strips, comfortable wooden boardwalk, exquisite landscape pergola, and a promenade full of interplay between light and shadow work together to create a strong sense of enclosure perfect for relaxation after work. The layout of “Lingting Garden” is distributed with multiple spaces. A quiet, intimate space is created by integrating sedum planting with light boxes, a corridor, flowering beds, pathways and mirror-surface flower terraces. “Yousi Garden” features customized benches and a flower-shaped winding space. A light and lush scenery is created through combination of elegant gesture of ornamental grasses, red fruits of honeysuckle (*Lonicera maackii*) and the unique shape of African jujube (*Ziziphus jujuba* ‘Tortuosa’).

### 2 Real-Life Problems During Implementation

Main problems during the implementation of the project include:

#### (1) Load problems

The load limit of the roof garden suggested by the structural engineer was only  $3.5\text{KN/m}^2$ . However, the owner expressed strong preference for a design with a rich landscape and recreational facilities such as pavilions, which posed a great challenge to the design. In order to minimize the load of the rooftop, we arrange the architectural structures including landscape pavilion, gallery frame and ventilation decorative surface, to be aligned with both primary and secondary beams, and reinforce them using fixed flanges. Humus from the Greater Khingan Mountains is mixed with base

material such as perlite to serve as planting soil. Eco-friendly grass blankets were used to cover the entire surface. The light soil form in this way can effectively reduce the thickness and bulk density of the soil.

### (2) Drainage issue

The roof garden is situated as an annex between two 24-story buildings with glass facades. 200 mm × 200 mm drain ditches are installed all over the rooftop in order to meet the requirements of instantaneous storm drainage. On the top of the ditches, customized drainage grates make the entire gutter network become a decorative landscape feature.

### (3) Treatment for water proofing layer and roof obstacles

The original building was not designed for the construction of a rooftop garden, so we constructed the entire garden with a water proofing and root barrier layer. However large equipment, such as the vents, air conditioners, billboard support caused great difficulty for the construction of the waterproof layer. After several rounds of site survey and analysis, we utilized coverage, walls and a variety of approaches of special waterproofing treatments depending on the individual circumstance of each obstacle to ensure maximum safety of the roof. Air conditioners, vents and other equipment create a visual impact on the aesthetic of the garden. In an effort of minimize the impact, and make them seem to blend into the surrounding, we achieved the effect by various methods based on each individual situation, such as using wood fence, decorative steel surface, or covering with planting or soil.

### 3 Conclusion

In the process of urbanization, there is great prospect for the promotion of the roof gardens. Meanwhile, constructing large area of green roof garden will effectively



improve the ecological environment while increasing the total amount of planted area and greenery. Currently, there are abundant vacant rooftops that can be improved in Beijing and other cities in China. The design and implementation of this project provides a exemplar of transforming a normal rooftop into a comfortable leisure garden. **LAF**

11. 游思园橘色不锈钢种植池
12. 植物种植施工过程
13. 廊架施工过程
14. 排风口外装饰面施工过程
11. Orange colored planting beds made of stainless steel at Yousi Garden
12. Planting progresses
13. The corridor under construction
14. Covering the vents

