



让我们共同打造气候中和的未来
Building a climate-neutral future together



中华人民共和国
住房和城乡建设部



Schweizerische Eidgenossenschaft
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intep
skat

Swiss Resource Centre and
Consultancies for Development

中瑞零碳建筑项目系列研讨会 陕西示范工程生物多样性设计

ZEB TALK Biodiversity Design of Shaanxi Demonstration Project

2025年5月22日

May 22nd 2025

罗智星教授

Prof. Zhixing Luo

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项目负责人
Project leader:
罗智星
Dr.Zhixing Luo

- 西安建筑科技大学建筑学院教授，绿色建筑全国重点实验室青年骨干，西安建筑科技大学绿色建筑评估研究中心副主任。兼任西安建筑科技大学设计总院建筑学院设计院副总建筑师，绿色低碳建筑中心主任。
- Professor of School of Architecture, Xi'an University of Architecture and Technology (XAUAT), youth backbone of National Key Laboratory of Green Building, deputy director of Green Building Evaluation and Research Centre of XAUAT. He is also the deputy chief architect of the School of Architecture, Xi'an University of Architecture and Technology, and the director of the Green and Low Carbon Building Centre.
- **研究成果 Group numbers for this project**
- **主持国家级与省部级科研课题7项；**
发表论文**50余篇**，其中SCI检索论文13篇，ESI高被引论文1篇；
发明专利11项、专利授权转化 13 项，软件著作权16项；
作为第一负责人获得省级科技进步二等奖1项，厅局级科技进步一等奖1项。
- **Over 7 national and provincial research projects;**
More than **50 papers**, including 13 SCI research papers and 1 ESI highly cited paper;
Obtained 11 invention patents, 13 patent authorisations and 16 software copyrights;
As the first person in charge, gained the second prize of provincial scientific and technological progress and he first prize of departmental and bureau-level scientific and technological progress.



Bing Song
宋冰



Yanwen Wu
武艳文



Bing Han
韩冰



Tianran Zhang
张天然



Kongbo Pei
裴孔博



Wei Wang
王伟



Yitian Cai
蔡宜恬

Associate Professor at the School of Architecture, XAUAT.

Senior Engineer of Master's degree student

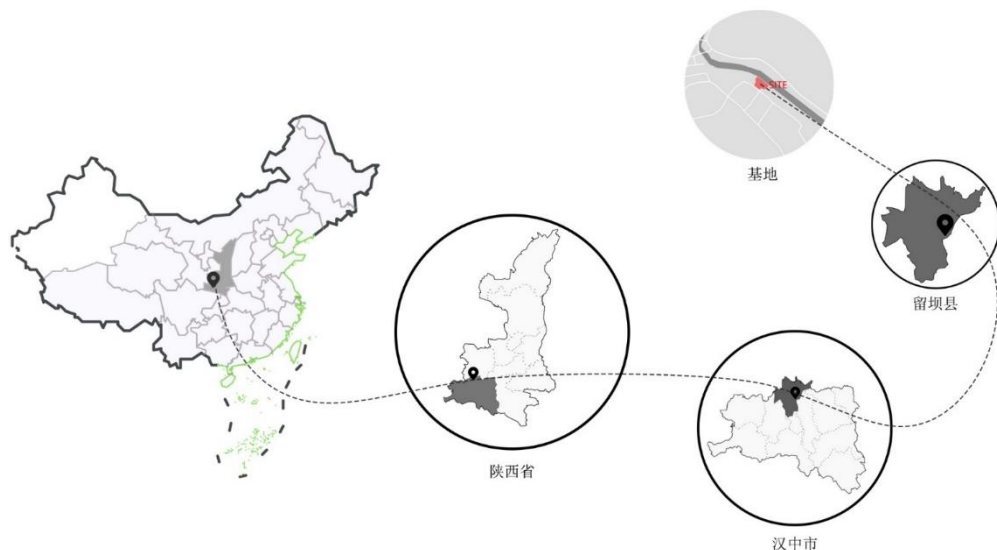
Senior Engineer of Master's degree student

Graduate student of architecture, XAUAT, studied in green building design.

Graduate student of architecture, XAUAT, studied in green building technology.

Graduate student of architecture, XAUAT, studied in green building design.

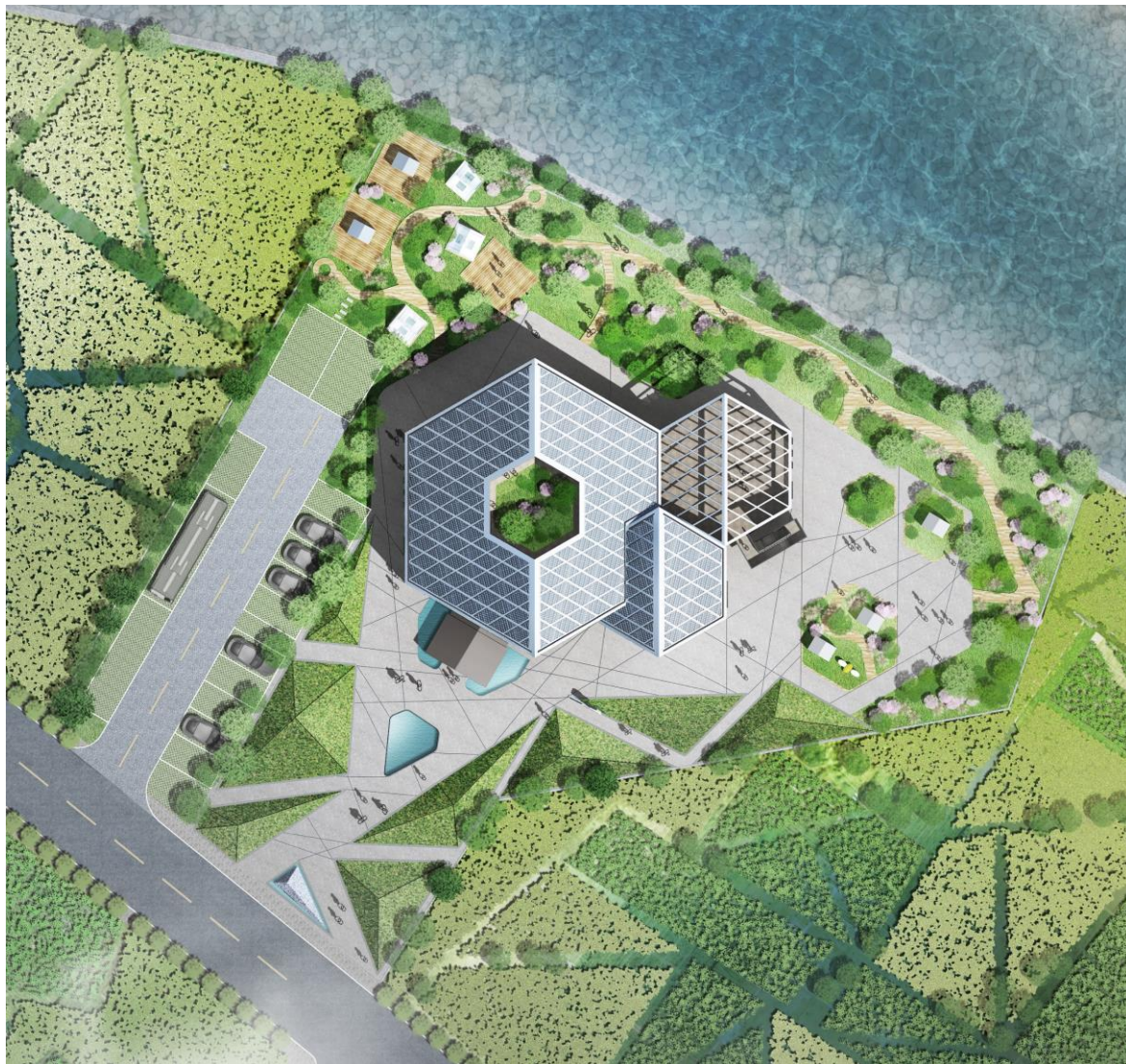
Graduate student of architecture, XAUAT, studied in green building design.



独特的地理位置和气候特征，孕育了留坝丰富的自然资源，森林覆盖率达**91%**。境内全年**三分之二时间花期不断**，被列为中国天然蜜源基地县，“留坝蜂蜜”成为了国家地理标志农产品。

The unique geographical location and climatic characteristics have given rise to Liuba's abundant natural resources, with a **forest cover of 91%**. Liuba has a continuous **flowering period for two-thirds of the year**, and is listed as a natural honey source base county in China, and "Liuba Honey" has become a national geographical indication agricultural product.





- 规划用地面积：4674.1 平方米
Planned land area: 4674.1 square meters
- 总建筑面积：1404.3 平方米
Total building area: 1404.3 squaremeters
- 建筑层数：地上2层
Total building area: 1404.3 squaremeters
- 容积率：0.3
Volume rate: 0.3
- 建筑密度17.7%
The building density is 17.7%
- 绿地率：37%
Green land rate: 37%
- 结构体系：钢结构
Structural system: steel structure

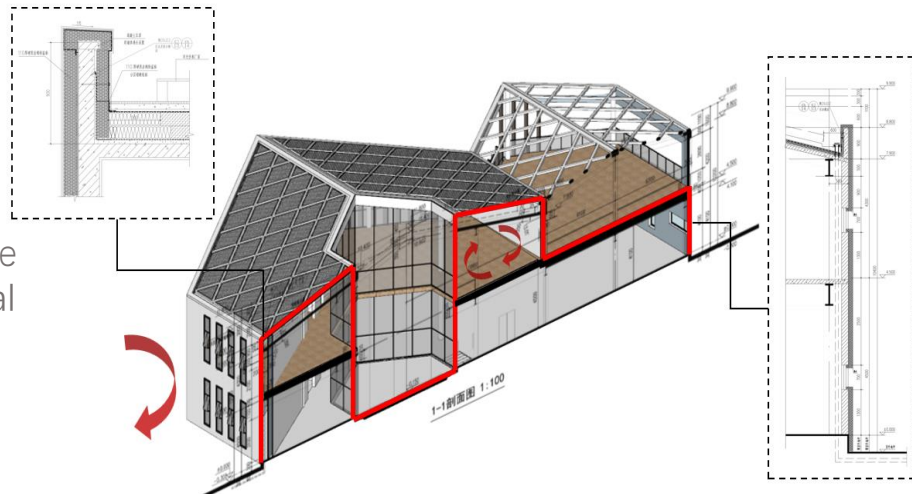
03

关键绿色技术——节点与设备设计

Key green technology —— Node and Device Design

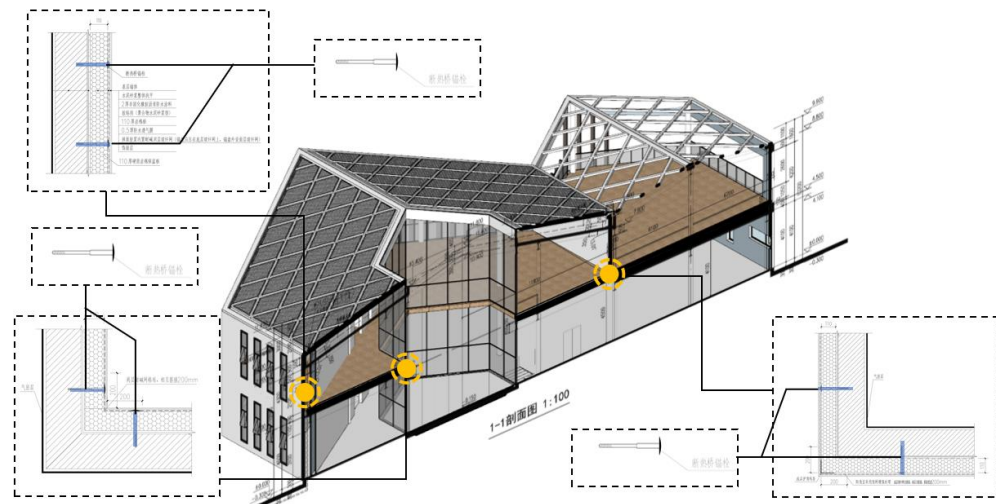
适宜的围护结构 保温性能

Suitable envelope
structure Thermal
insulation
performance



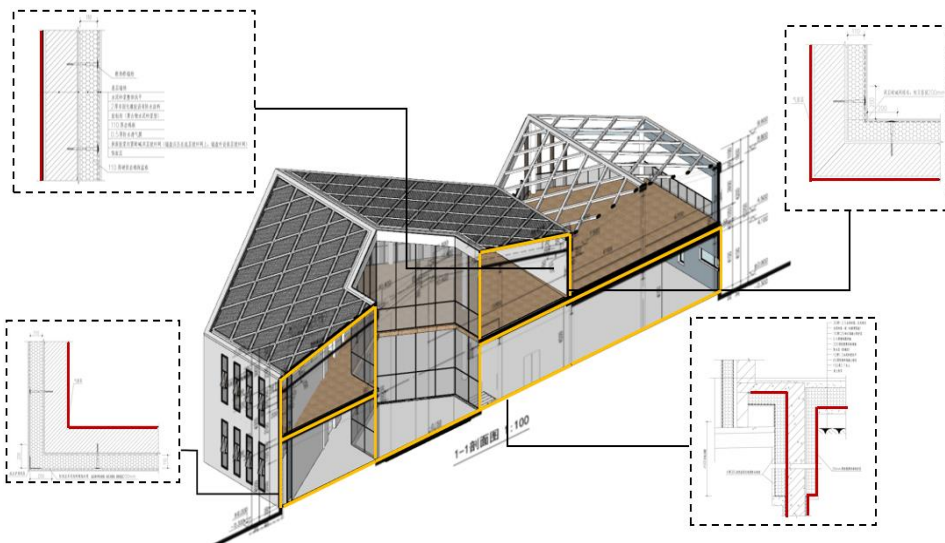
断热桥设计

Thermal
bridge free
design



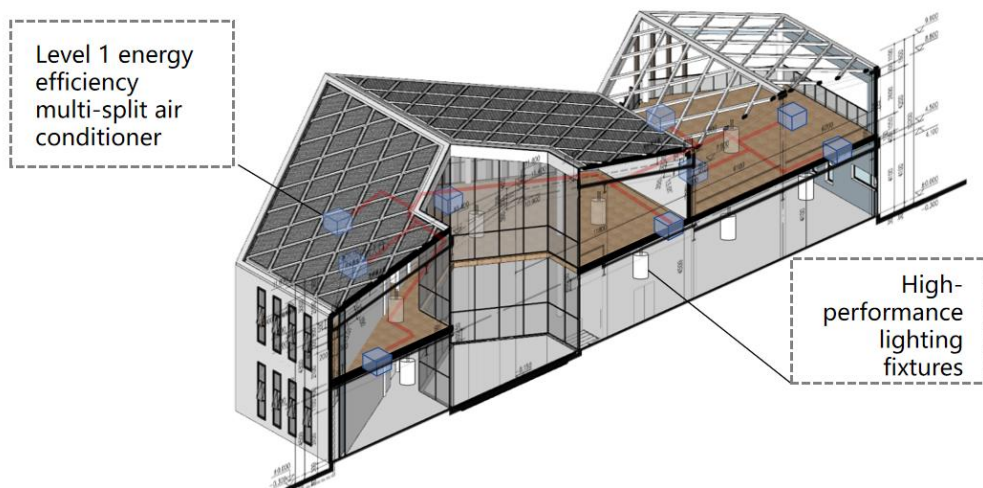
连续的气密层

Continuous
innerliner



高效用能

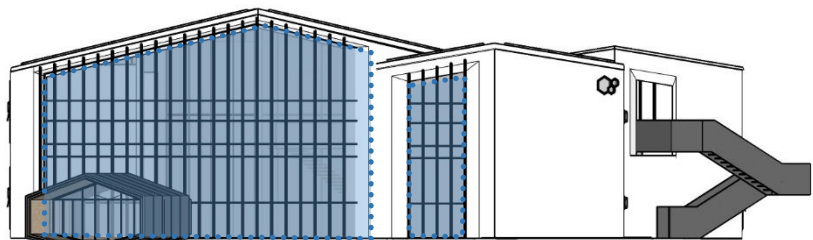
Energy
Efficient



03

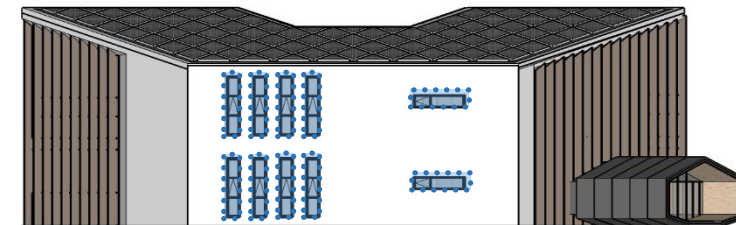
关键绿色技术——被动式太阳能利用

Key green technology —— Passive Solar Energy Utilization



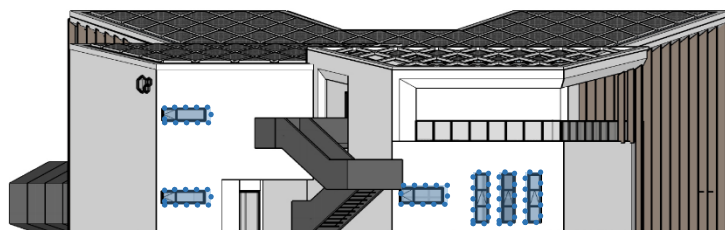
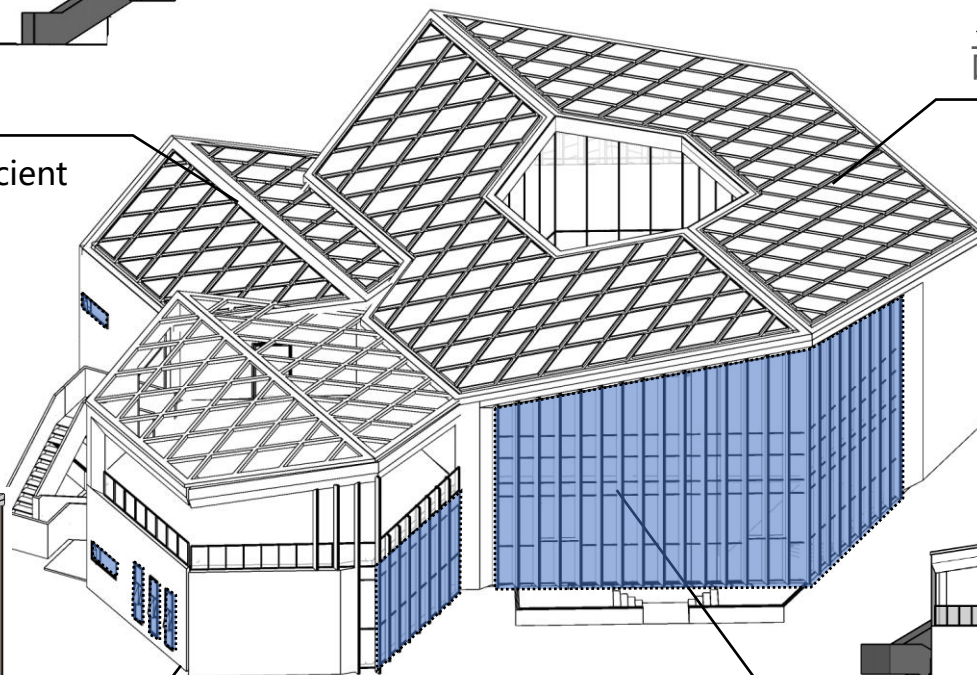
南向立面综合太阳得热系数0.342

The comprehensive solar heat gain coefficient of the south-facing facade is 0.342



西向立面综合太阳得热系数0.4

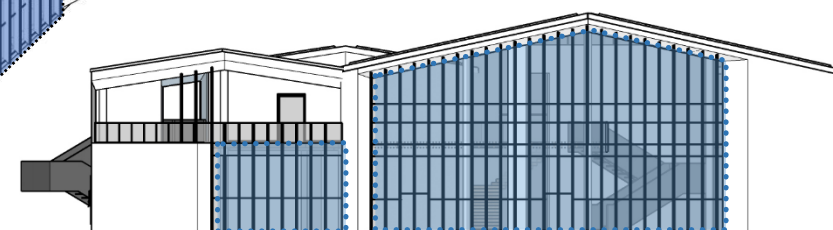
The comprehensive solar heat gain coefficient of the west-facing facade is 0.4



东向立面综合太阳得热系数0.4



The comprehensive solar heat gain coefficient of the east-facing facade is 0.4



北向立面综合太阳得热系数0.348

The comprehensive solar heat gain coefficient of the north-facing facade is 0.348



04

建议的生物多样性措施

Suggested Biodiversity Design



昆虫友好型互动设施

Insect-friendly facilities



玻璃幕墙鸟类防撞措施

Bird collision prevention measures



鸟类友好型互动设施

Bird-friendly facilities



本项目场地内已设计并落实一些木质设施。昆虫旅馆及蜂箱主要是根据当地特色“蜜蜂元素”设计，同时此类设施还能吸引建筑使用者的互动参与。

Some wooden facilities have been designed and implemented within the project site. The insect hotels and bee boxes are primarily designed based on the local feature "**bee elements**," while such facilities can also attract interactive participation from building users.



在留坝，分布有5种备受瞩目的珍稀保护鸟类，其中以雉类为主。本项目场地内已设计并落实一些木质设施，包括保护性鸟巢以及雉鸟类木雕，保护当地生物多样性同时也向建筑使用者进行科普。

In Liudaba, there are **5 types of prominent rare and protected birds**, mainly pheasants. Within the project site, some wooden facilities have been designed and implemented, including protective **bird nests and wooden sculptures** of pheasant birds, protecting local biodiversity while also educating visitors.

05

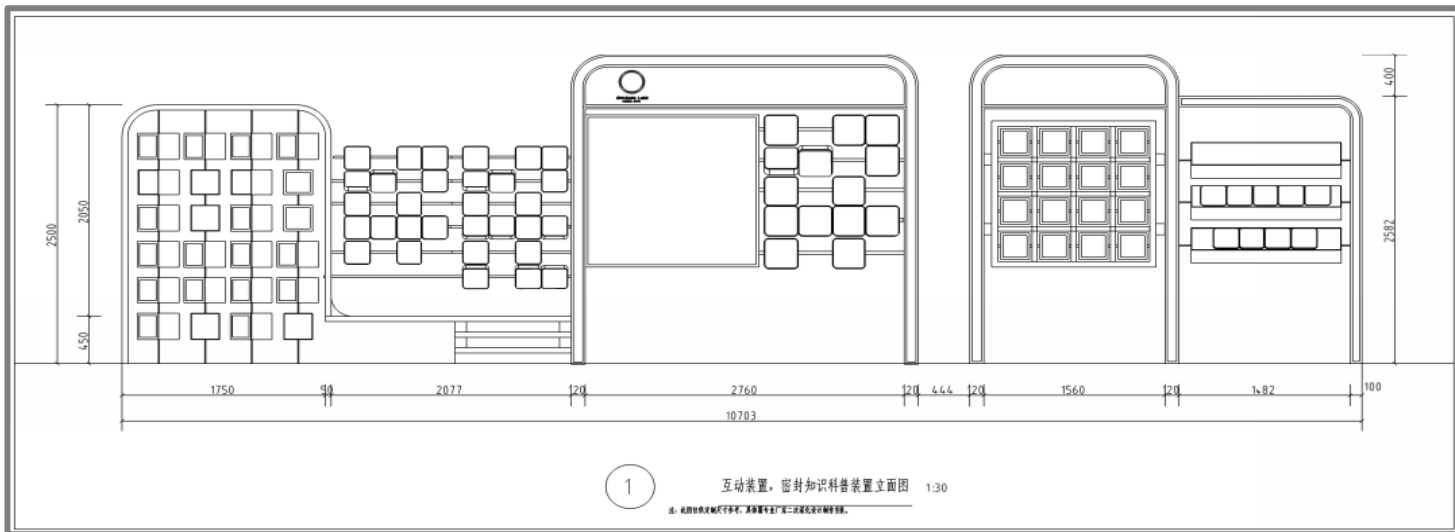
示范项目改进后生物多样性措施 —— 玻璃幕墙鸟类防撞措施

Implemented Biodiversity Measures —— Bird collision prevention measures for glass curtain wall



本项目对透明外立面区域进行优化设计，有效避免鸟类碰撞的同时还能增强透明外立面的遮阳效果。

This project optimizes the design of transparent facade area, effectively preventing bird collisions while also enhancing the shading effect of transparent facade area.



留坝生物资源丰富，项目初期即规划生物科普区，现已优化布局。

Liuba is rich in biological resources. From the early stages of the project, a biological science popularization area was planned and has now been optimized.

科普设施正面展示当地特色动植物，背面则简述其特征等小知识，设计巧妙融合自然与科普。

The science popularization facilities showcase the local characteristic flora and fauna on the front side, while the back side briefly describes their characteristics and other knowledge, cleverly integrating nature with science popularization.





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感谢您的关注!

THANK YOU!

提问环节

YOUR QUESTIONS?

