



中铁建设集团有限公司

中国铁建 CHINA RAILWAY CONSTRUCTION GROUP CO.,LTD.

中国新时代高速铁路精品智能客站建设新理念

New Concept of Construction of China's Quality Intelligent Passenger Station and
High-speed Railways in New Era

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富 阳 站





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中国新时代铁路客站建设新理念

New Concept of Construction of China's Railway Stations in New Era



一、中国铁路客站建设历程回顾

I. Review of China's Railway Passenger Station Construction



中国铁路客站建设历程回顾

Review of China's Railway Passenger Station Construction



旧中国的铁路客站
Railway Passenger
Stations in Old China





中国铁路客站建设历程回顾

Review of China's Railway Passenger Station Construction



北京火车站 Beijing Railway Station



上海站 Shanghai Railway Station

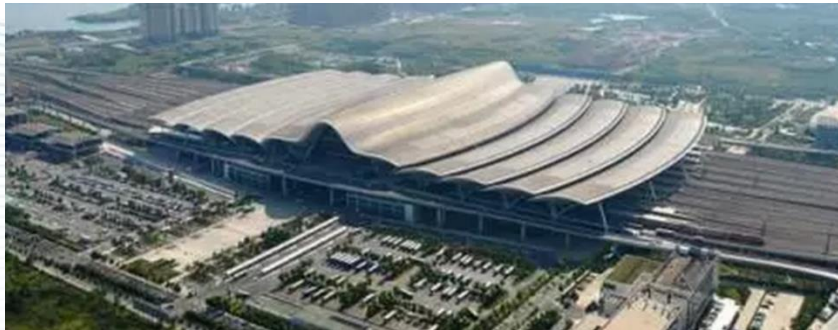
建国初期及改革开放后的铁路客站

Railway Passenger Stations in the Early Stage of the Founding of the People's Republic of China and after Reform and Opening-up



中国铁路客站建设历程回顾

Review of China's Railway Passenger Station Construction



武汉站 Wuhan Railway Station



昆明南站 Kunming South Railway Station



贵阳北站 Guiyang North Railway Station

新型高铁客站
New High-speed Railway
Passenger Station



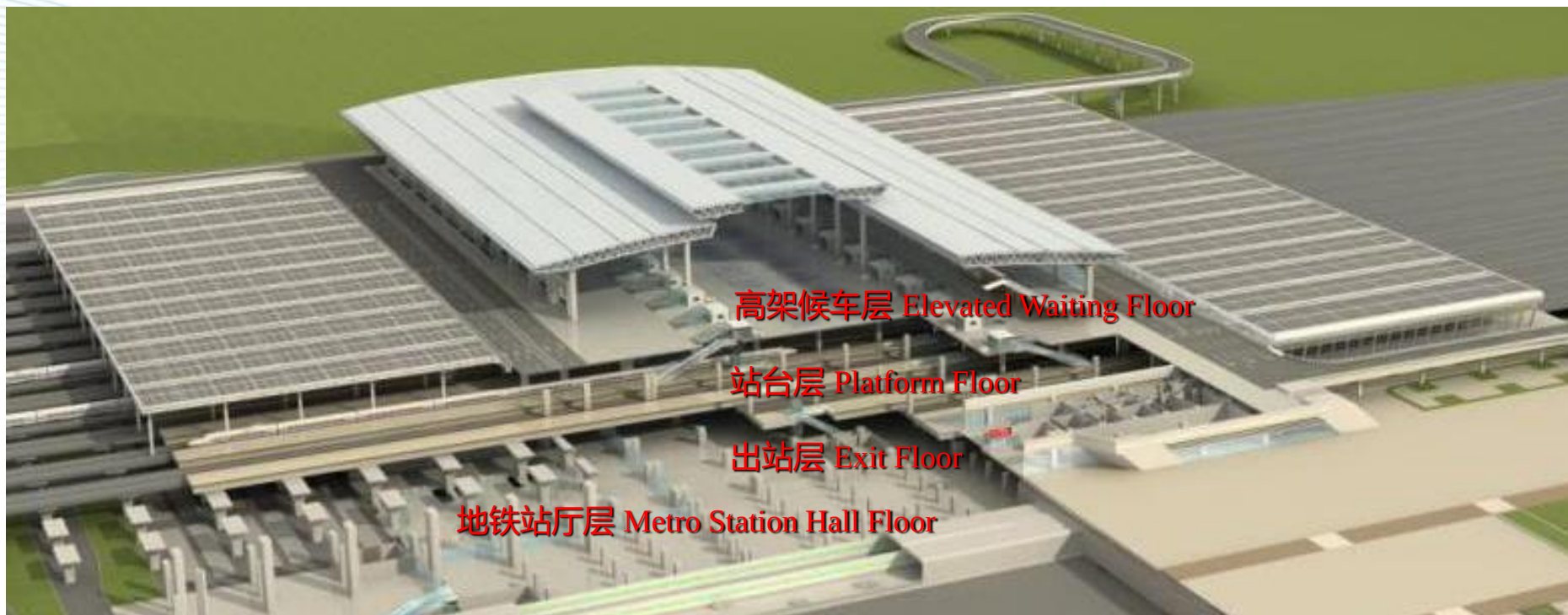
二、高速铁路客站类型

II. Types of High-speed Railway Passenger Stations



高铁客站类型 Types of High-speed Railway Passenger Stations

大型“桥建合一”客站 Large-scale "Integrated Bridge and Architecture" Station





出站厅及候车厅层采用了大跨度混凝土框架结构，
承轨层桥梁成为了站房建筑的一部分。

Long-span concrete frame structure is adopted in
the departure hall and waiting hall floors, and the
bridge on the rail-bearing floor becomes a part of the
station building.



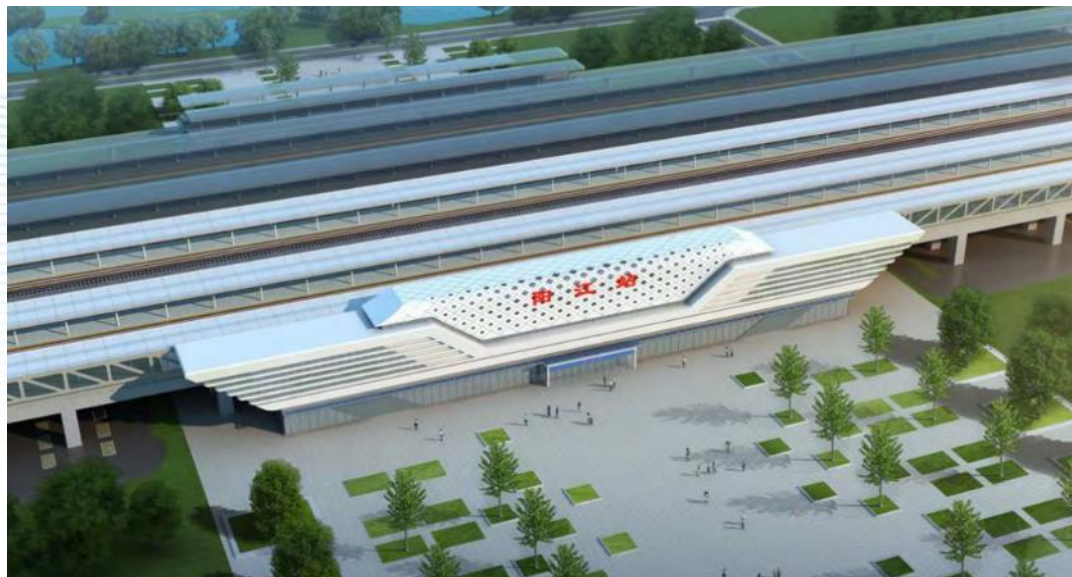


线下站 Off-line station



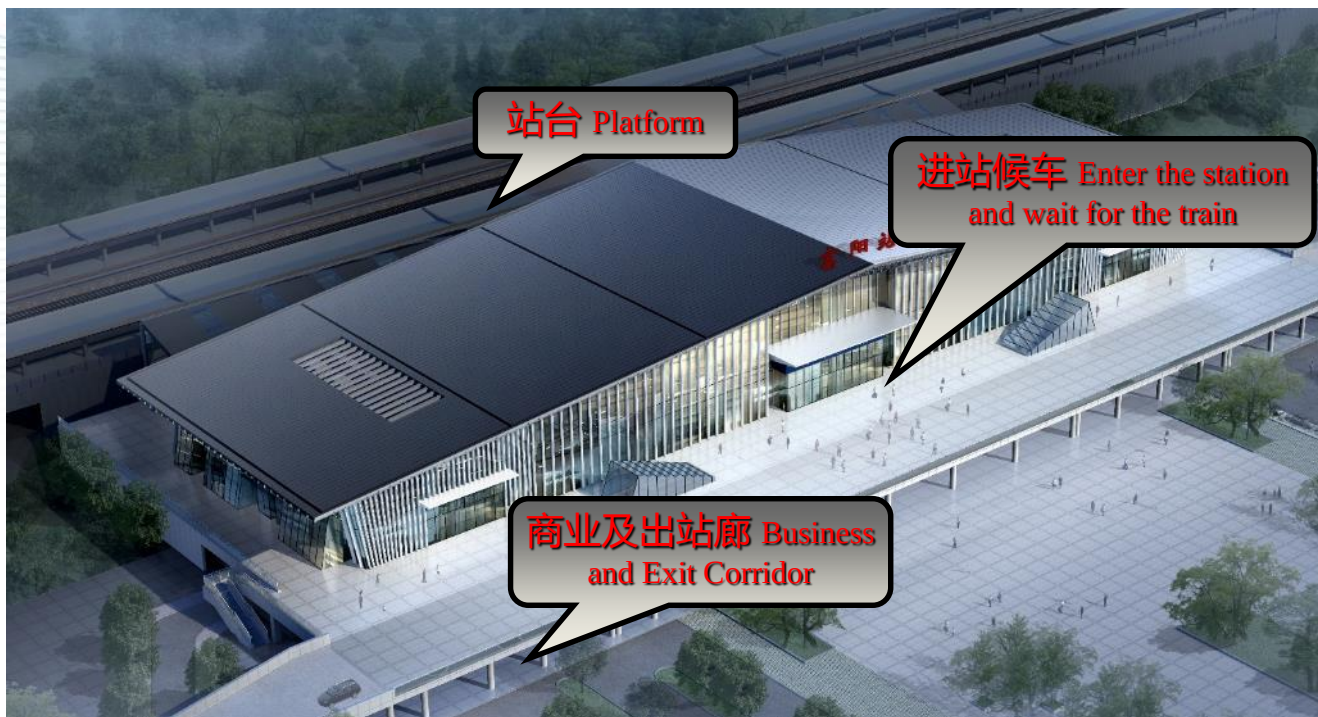


线侧+线下站 Side-line + Off-line Station



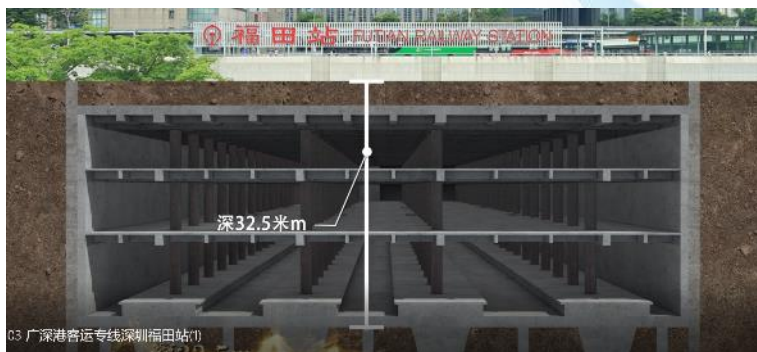


线侧站 Side-line Station





地下站 Underground Station



福田站是亚洲最大的全地下高铁站，国内首次在城市中心建成区建设过站客站，“站场融合、场站层叠”的空间布局，是全地下现代化综合交通枢纽。建筑面积15.1万平米，长1023m、宽78.86m、深32.5m。

Futian Railway Station is the largest all-underground high-speed railway station in Asia. It is the first time in China to construct a passenger station in a built-up area of central urban area. The spatial layout of "integrated station and yard, layered yard and station" is an all-underground modern comprehensive transportation hub. The floor area is 151,000 square meters, with length of 1023m, width 78.86m, depth 32.5m.



三、中国新时代铁路客站建设新理念

III. New Concept of Construction of China's Railway Stations in New Era



铁路站房建设由原来的以功能性为主转为功能性、艺术性、人文性、生态性并重，是新时代铁路站房建设的新特征。

Railway station building construction has changed from functionality to the combination of functionality, artistry, humanity and ecology, which is a new feature of railway station building construction in the new era.

新时代催生新理念，新理念催生新发展

The new era leads to new ideas, new ideas lead to new development

Smooth and integrated 暢通融合

车站建设与城市轨道交通等配套设施无缝衔接，旅客
 换乘便捷顺畅，与城市统筹规划、互为融合。
 有与城市发展相协调的建筑选址，与城市风
 貌相融合的建筑风格，与城市空间相结合的
 建筑格局，与城市交通通达的客流组织，
 与城市业态相匹配的综合开发，与城市服务
 相联动和管理系统，

Economic and artistic 经济艺术

[illegible]

绿色温馨 Green and warm

客站建设尊重自然、顺应自然、保护自然，尊重自然规律，妥善处理自然保护与经济社会发展之间的关系，坚持生态优先、绿色发展，加强生态保护和修复，提升生态系统质量和稳定性，实现人与自然和谐共生。

智能便捷 Intelligent and convenient

车站建设智能化、乘客服务智能化应用、推行智能建造、推进数字化建模和机器人制造技术等研究开发应用、推行智能建站结构安全监测预警能综合机辆设备设施节能管理、智能调度、智能应急响应、智能运营维护等配置高装备的动车组、智能检修服和客开南并子零务、智能导航、所检移站进站等创新型技术研究和应用 implement electronic ticketing, intelligent navigation, face scanning verification and other research and application of innovative technologies.



3.1 畅通融合 Smooth & integrated

客站建设与城市交通等配套无缝衔接，旅客流线便捷顺畅。与城市统筹规划，互为融合。有与城市发展相协调的建筑选址，与城市风貌相融合的建筑风格，与城市空间相结合的建筑格局，与城市交通相通达的客流组织，与城市业态相匹配的综合开发，与城市服务相联动的管理系统。

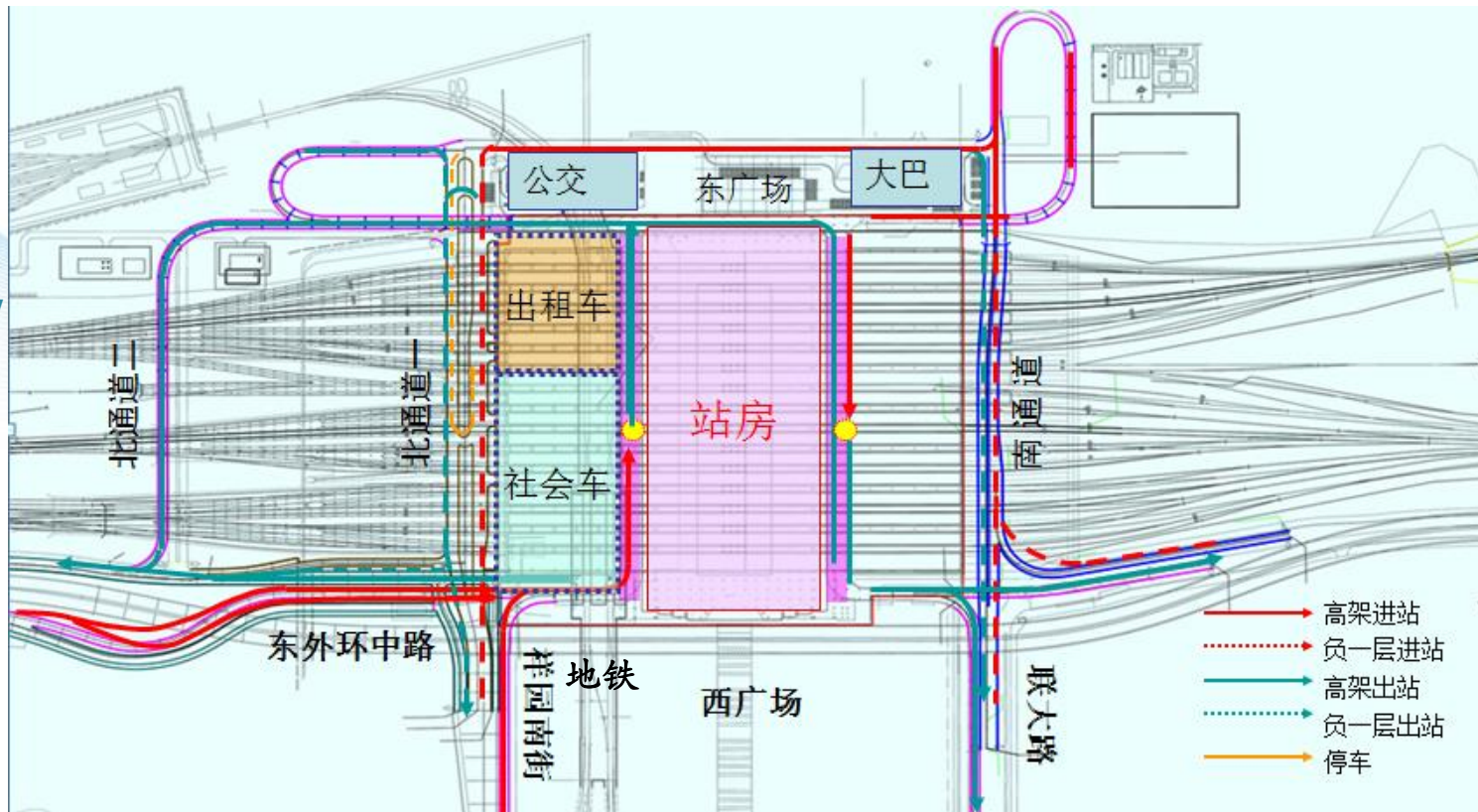
The construction of passenger stations is seamlessly connected with urban traffic, and the passenger flow is convenient and smooth. Integrated with the overall planning of the city. There are building site selection coordinated with urban development, architectural style integrated with urban features, architectural pattern combined with urban space, passenger flow organization connected with urban transportation, comprehensive development matched with urban format, and management system linked with urban services.



畅通融合 Smooth & integrated

客站规划分区合理，布局严密，实现客站交通流线与城市交通规划整体融合，便捷顺畅，无缝衔接。

Passenger station planning is reasonable in zoning and meticulous in layout, so as to achieve the overall integration of passenger station planning and urban planning, and seamless connection.





畅通融合 Smooth & integrated



富阳在杭州市的西侧，是“交通西进”、“旅游西进”的第一站。站区整体交通组织以富阳站为中心向外发散，以“零换乘”的理念，高架落客进站，广场设置公交车场，地下为出租车、私家车停车场，预留地铁接驳空间，布置原则：“规模合理，人车分流，通达兼顾，近远结合”。

Fuyang, on the west side of Hangzhou, is the first stop for "Westward Transportation" and "Westward Tourism". The overall traffic organization of the station area is centered on Fuyang Station and diverges outward. With the concept of "zero interchange", there are drop-off entrances on the elevated bridge, bus parks in the square, underground parking lots for taxis and private cars, and reserved metro connecting space. The layout principle is "reasonable scale, diversion of passengers and vehicles, consideration of balanced accesses, and combination of near and far".



畅通融合 Smooth & integrated



桐庐站北接富春江科技城，南邻健康城，紧邻杭千高速，北与迎春商务区、行政中心等互通立交。

Tonglu Station is adjacent to Fuchunjiang Science and Technology City in the north and Health City in the south. It is closely adjacent to Hangqian Expressway and interchanges with Yingchun Business District and Administrative Center in the north.

桐庐站前广场配套工程：站前广场，地面景观；东兴路两侧景观延伸带。地面配建旅游大巴车场、公交停车场及出租车等候区。社会车辆均停放于广场地下室。地面建筑配有广场管理综合楼、旅游导服中心、停车场配套用房等。

Supporting works of Tonglu Station Front Square: front square, ground landscape; landscape extension zone on both sides of Dongxing Road. The ground is equipped with tourist bus parking lot, bus parking lot and taxi waiting area. Social vehicles are parked in the basement of the square. Ground buildings are equipped with square management complex building, tourist service center, parking lot supporting rooms, etc.



立足“畅通融合”挖掘地域特色

Based on "smooth & integrated" and explore regional characteristics



龙门驿站
Longmen post station



富阳民居
Fuyang civil residences



富阳站全景图
Full view of Fuyang Station

富阳高铁站以古驿站的建筑造型融入到富阳的青山碧水中，简洁的双坡折屋面截取浙江民居元素并进行设计，采用现代的手法描述出富春山居“山水驿站”的优美意境。建筑风格与城市风貌相融合，与城市空间相结合的建筑格局。

Fuyang High-speed Railway Station integrates the architectural modeling of the ancient post station into the green mountains and clear waters of Fuyang, intercepts the elements of Zhejiang folk houses and designs the simple double-slope roofs, and describes the beautiful artistic conception of Fuchun Mountain Residence of "Mountain and Water Post Station" with modern methods. The architectural style and urban landscape are integrated, and the architectural pattern is combined with urban space.



立足“畅通融合”挖掘地域特色 Based on "smooth & integrated" and explore regional characteristics



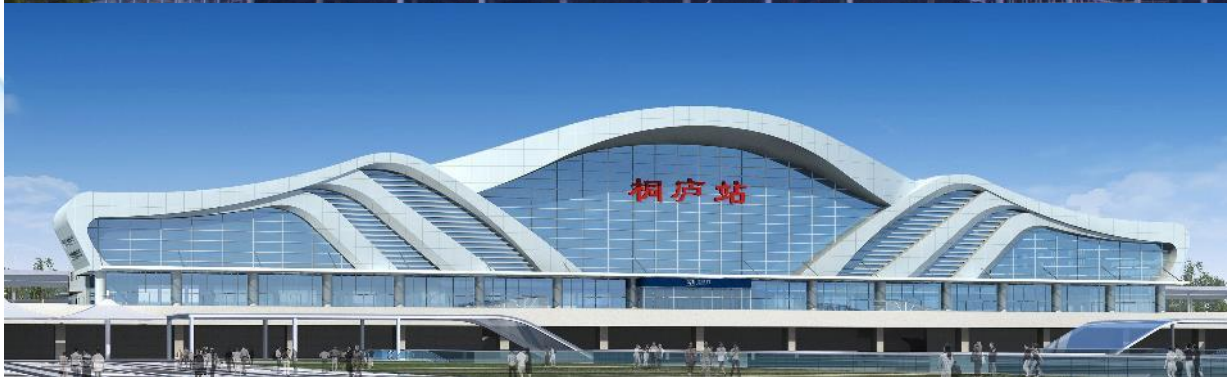
大奇山—气质凝练

Daqi Mountain—Temperament Condensation

Daqi Mountain, historically known as "the first mountain in the south of the Yangtze River", is a comprehensive forest park on the south bank of the Fuchun River, which integrates the landscapes of mountains and waters in the south of the Yangtze River and the grassland scenery. It is located at the back of Tonglu Station building. It resembles the "backing hill" of Tonglu Station, which echoes the beautiful mountain shape of Tonglu Station, and outlines the visual feeling of distinct layers and overlapping mountains.

远观建筑为山

architecture looks like a
mountain



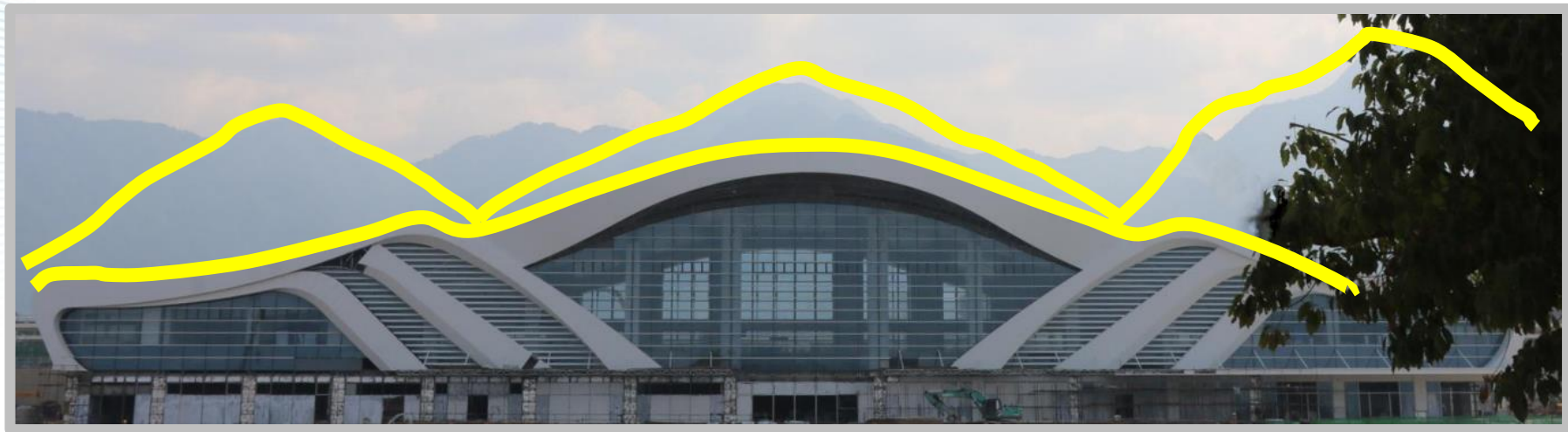
以“山水桐庐”为设计寓意，建筑整体形态为山，玻璃幕墙颜色似水，背靠大奇山国家森林公园，与大奇山形成一道层次分明的优美风景，完美体现了人与自然的和谐共处。

Taking "Landscape Tonglu" as the design implication, the overall shape of the building is a mountain and the glass curtain wall is water-like in color. It is backed by Daqi Mountain National Forest Park, forming a beautiful scenery with distinct layers with Daqi Mountain, which perfectly reflects the harmonious coexistence of man and nature.



立足“畅通融合”挖掘地域特色

Based on "smooth & integrated" and explore regional characteristics



桐庐站与山体交相呼应
Tonglu Station echoes with the mountain

立足“畅通融合”挖掘地域特色

Based on "smooth & integrated" and explore regional characteristics



Urban design and space

3.3 城市设计与空间节点

总平面图

- ① 富阳高铁站
- ② 公交枢纽
- ③ 高铁商务商业片
- ④ 山区酒店
- ⑤ 江南创业展示区
- ⑥ 儿童综合体
- ⑦ 杭美南镇综合体
- ⑧ 春江Mall
- ⑨ 幼儿园
- ⑩ 社区商业
- ⑪ 农贸市场
- ⑫ 小学
- ⑬ 幼儿园
- ⑭ SOHO



车站与城市统筹规划，高效发挥高铁沿线龙头和城区建设龙头“两个龙头”作用，规划江南新城的空间结构为“一轴三带六片区”。其中高铁商务商业片以富阳站为建设的主战场，重点规划建设商务、居住、休闲旅游等各有所长、相互协同的功能布局，并把高端、智能制造建设作为重中之重，打造现代化高铁新城。The overall planning of stations and cities give full play to the role of "two leaders" in the construction of high-speed railway and urban areas. The spatial structure of Jiangnan New Town is planned as "one axis, three zones and six areas". Among them, the high-speed railway commercial area takes Fuyang Station as the main target of construction, which focuses on the planning and construction of business, residential, leisure tourism and other functional layout which have own advantages and mutual coordination. It also takes the construction of high-end and intelligent manufacturing as the top priority to build a modern new city of high-speed railway.



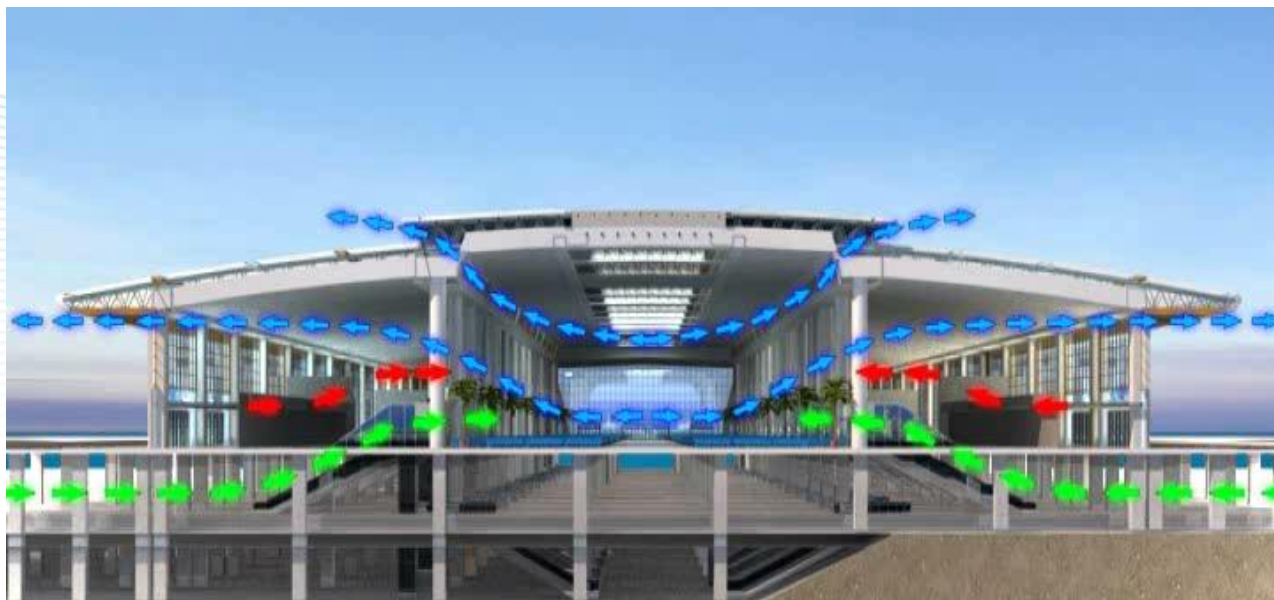
3.2绿色温馨 Green and warm

客站建设尊重自然、顺应自然、保护自然。落实安全、健康、适用并对生态系统扰动最小的可持续、可再生及可循环的系统设计；因地制宜，注重技术集成与优化，引进绿色创新技术；提高资源利用率，节材、节水、节能、节地。客站建设以人为本，细节细部精雕细琢，空间环境温馨舒适，安保消防功能齐备，运营维护安全可靠。

The construction of passenger stations respects nature, conforms to nature and protects nature. Implement a sustainable, renewable and recyclable system design with safety, health, applicability and minimal disturbance to the ecosystem. Pay attention to technology integration and optimization according to local conditions and introduce green innovation technology. Improve resource utilization rate, save material, water, energy and land. The passenger station construction is people-oriented. The details are carefully crafted, the space environment is warm and comfortable, the security and fire protection functions are complete, and the operation and maintenance are safe and reliable.



混合通风系统 the mixed ventilation system



屋顶排风

Rooftop ventilation

溶液除湿新风

Solution dehumidification fresh air

室外新风

Outdoor fresh air

昆明南站是国内唯一一座候车厅不设置空调系统的绿色客站。工程提出了温和地区站房通风室内热舒适性评价指标，填补了站房建筑通风室内热环境控制参数的设计空白；创新性提出了取消集中空调设置，采用自然通风+机械通风+除湿通风的混合通风系统设计方案，达到室内环境控制系统的最佳节能效果。

Kunming South Railway Station is the only green passenger station in China with no air conditioning system in the waiting hall. The project puts forward the evaluation indicator of indoor thermal comfort of station building ventilation in mild areas, becoming the first to design control parameters of indoor thermal environment of station building ventilation. It innovatively puts forward the design scheme of canceling centralized air conditioning and adopting the mixed ventilation system of natural ventilation, mechanical ventilation and dehumidification ventilation, so as to achieve the best energy-saving effect of indoor environment control system.



筑牢着眼绿色发展的意识 Consciousness of Green Development



坚持绿色环保，着眼周边建筑形态进行绿化美化，增加落客平台、基本站台、候车室绿化，全面适应可协调、可持续的发展要求。

Adhere to green environmental protection, focus on the surrounding building forms for greening and beautification, increase the greening of drop-off platforms, basic platforms and waiting rooms, and fully meet the requirements of coordinated and sustainable development.

合理布设绿化景观，提升站房环保性能

Reasonably set the greening landscape to improve environmental protection performance of the station building



候车室花池实景图 Flower Pool in the Waiting Room

候车室内的进站交通单元后方增设花池，种植各类景观花卉，美化候车室内环境，有效的改善了室内空气质量。 A flower pool is added to the rear of the inbound traffic unit in the waiting room where various kinds of landscape flowers are planted to beautify the indoor environment of the waiting room and effectively improve the indoor air quality.

**常山站航拍
整体效果**
Overall
effect of
aerial
photography
at
Changshan
Station



常山站设立“何处心安、慢城常山”为主题的建筑小品
Changshan Station sets up an architectural sketch with the theme of "Slow City Changshan Is the Place to Be at Ease"

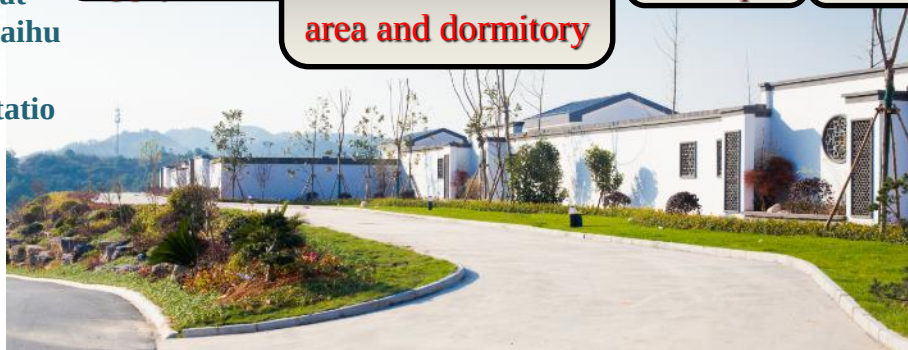


开化
站航
拍整
体效
果
Overall
effect
of
aerial
photo
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y at
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徽派建筑围墙

Anhui-style architecture enclosing walls



园林式生产办公区

Landscape-style production office area





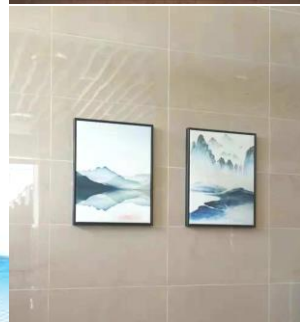
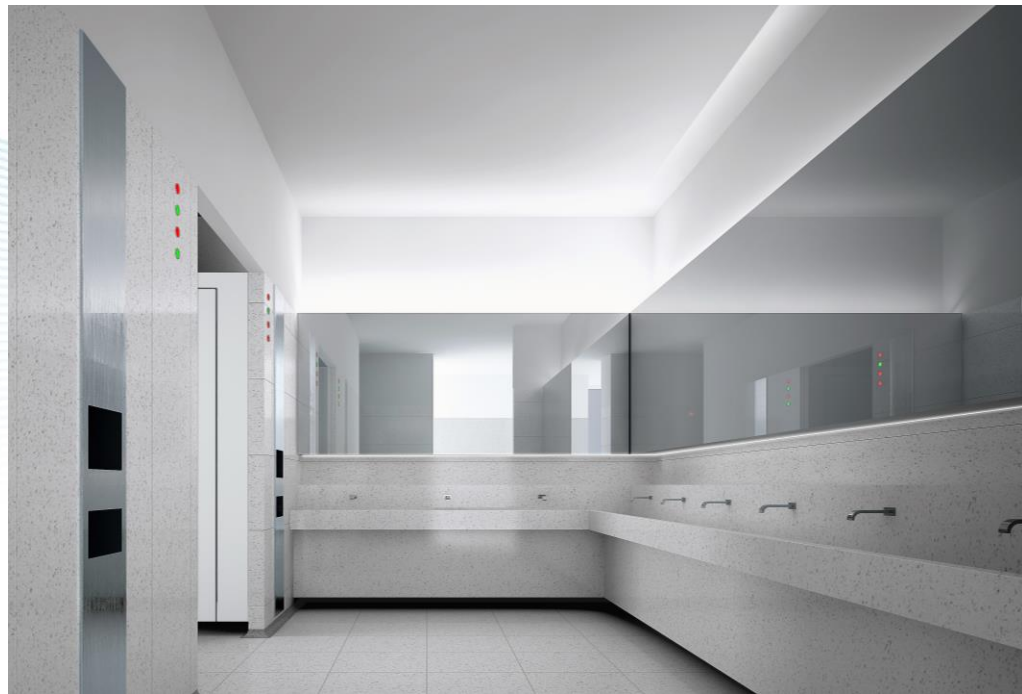
响水站生产生活用房 Production and Livelihood Housing of Xiangshui Station



人在画中，画在景中，放眼望去，绿意葱葱，生机盎然。People are in paintings and paintings are in the scenery. Looking around, the whole scenery is green and full of vitality.



营造卫生间舒适的环境 Create a comfortable environment for toilets



卫生间优化方案现代简洁，增加吊顶式新风机组，空气清新器，干手器，调整调压水箱和隐形灯光，广播、排气、通风系统暗藏灯槽内，细化家庭卫生间，增设母婴室，注重私密性，提高使用舒适度。The toilet optimization plan is modern and concise. Ceiling fresh air units, air fresheners and hand dryers are added. Pressure-adjusting water tanks and invisible lights are adjusted. Broadcast, exhaust and ventilation system are hidden in light slots. Family toilets are refined, adding mother-infant rooms, paying attention to privacy and improving comfort in use.



营造卫生间舒适的环境 Create a comfortable environment for toilets



在功能提升方面，增加第三卫生间、父婴间、母婴间，有效地满足家庭出行、残障人士、父婴、母婴需求。In terms of function improvement, the third bathroom, father-infant room and mother-infant room are added to effectively meet the needs of family travel, disabled persons, father and infant and mother and infant.



3.3 经济艺术 Economic and artistic

客站建设强本简末，集约发展。合理确定站房和站场规模、站房型式和建设标准，近远期结合，适度预留；充分利用先进的建造技术，科学确定结构选型和建筑材料。客站建设尊重传统文化、地域文化和时代文化。体现城市精神，凸显人文历史脉络，表达新时代价值观和审美观，展示客站建筑艺术，树立中国高铁国际良好形象。

The construction of passenger stations is based on the principle of simplicity and intensive development. Reasonably determinate station and yard scale, station type and construction standards with short-term and long-term combination and moderate reservation. Make full use of advanced construction technology, scientific determination of structural selection and construction materials. The construction of passenger stations respects traditional culture, regional culture and contemporary culture. It embodies the spirit of the city, highlights the cultural and historical context, expresses the values and aesthetics of the new era, demonstrates the architectural art of passenger stations, and establishes a good international image of China's high-speed railway.



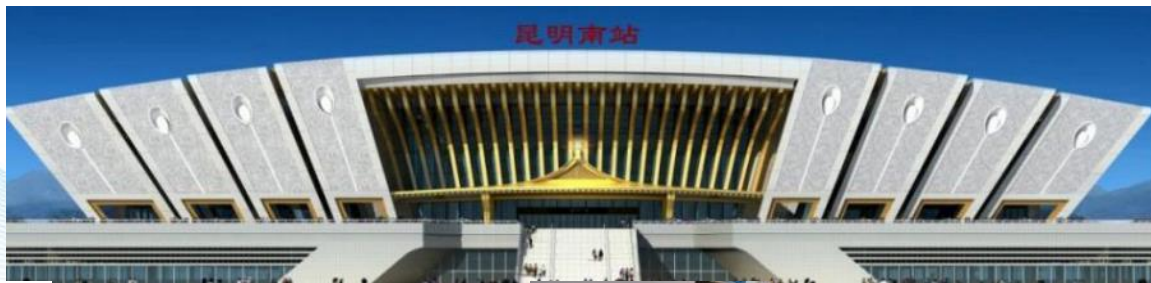
立足“经济艺术”，精准设计优化

Based on "Economic and artistic" to make accurate design optimization

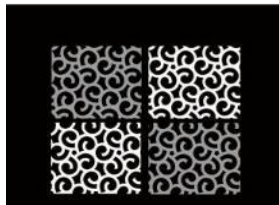


立足“经济艺术”，精准设计优化

Based on "Economic and artistic" to make accurate design optimization



该图案为昆明南站站房外立面装饰图案，由中铁设计所设计，经专家评审通过，现作为昆明南站站房外立面装饰图案使用。该图案为昆明南站站房外立面装饰图案，由中铁设计所设计，经专家评审通过，现作为昆明南站站房外立面装饰图案使用。



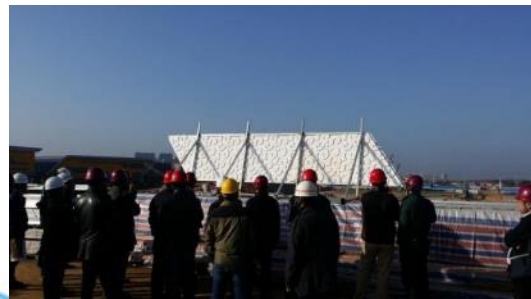
指导
Guidance



单花小样确定
Determination of single pattern sample



指导
Guidance



花纹小样确定
Determination of pattern samples

标准：70m视线纹理清晰
Standard: the texture is clear in sight from 70m distance

设计院初定花型比例
Initial pattern proportion determined by design institute



立足“经济艺术”，精准设计优化

Based on "Economic and artistic" to make accurate design optimization

1

铸造

Casting



- 1、厚度及纹路精准度低；
- 2、易出现断裂和气孔；
- 3、工效低。

1. The thickness and accuracy of patterns is low.
2. Fractures and pores are easy to occur.
3. Low efficiency.

2

蚀刻

Etching



- 1、适用薄板；
- 2、不适用大体量生产；
- 3、工效低。

1. Applicable for thin plates
2. Not applicable for mass production.
3. Low efficiency.

3

冲压

Stamping



- 1、适用薄板，棱线不清晰；
- 2、板块易变形、裂纹；
- 3、机械设备限制。

1. Applicable for thin plates with unclear edges.
2. Plates are easily deformed and cracked.
3. Mechanical equipment limitation.

4

雕刻

Engraving



- 1、数控排版、激光雕刻精准度高；
- 2、工效高，适宜大体量生产；
- 3、质量一致性较好。

1. High accuracy of numerical control typesetting and laser engraving;
2. High efficiency, suitable for mass production;
3. Good quality consistency.



立足“经济艺术”，精准设计优化

Based on "Economic and artistic" to make accurate design optimization



雕刻机整版 Engraving machine edition



蜂窝衬板安装位置准确、牢固

Honeycomb lining plate installation position is accurate and firm

富阳站布局调整 Layout Adjustment of Fuyang Station



施工图设计过程中建筑规模为6000平方米。
In the process of construction drawing design, the building scale is 6000 square meters.



最终建筑规模为12000平方米。
The final building scale is 12000 square meters.

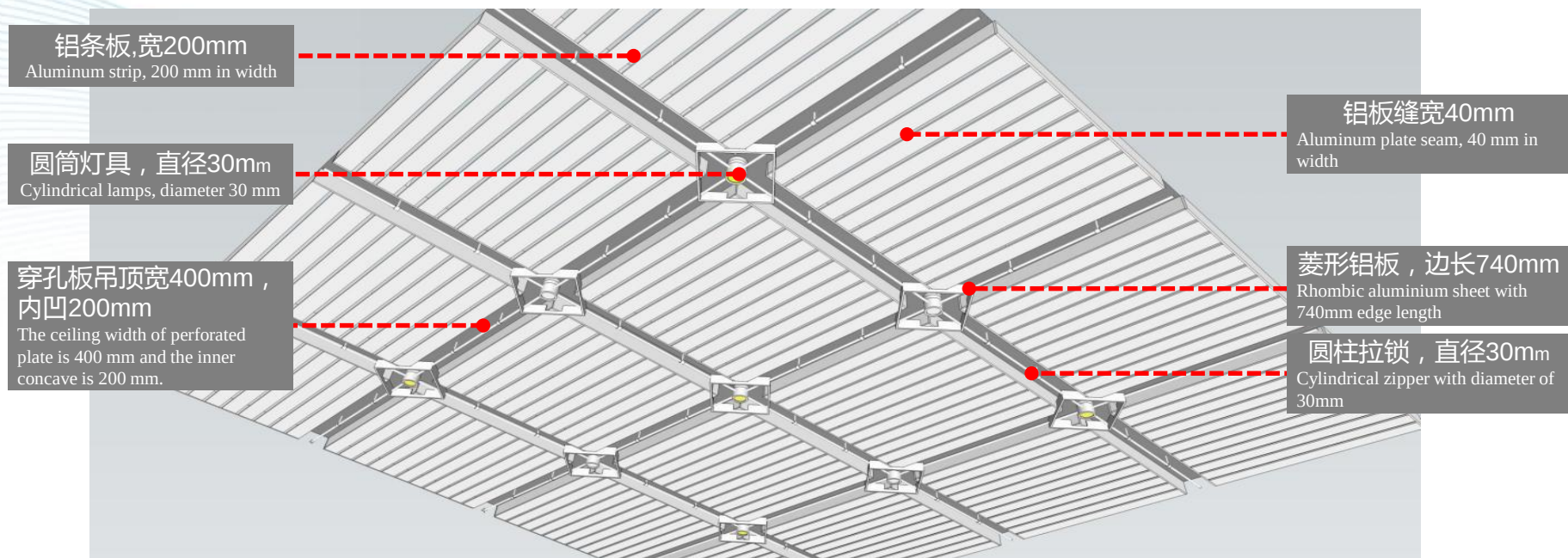




富阳站候车厅原天花 Former ceiling of waiting hall of Fuyang Station

吊顶局部透视

Local perspective of ceiling



富阳站候车厅天花构造 Ceiling structure in the waiting hall of Fuyang Station

吊顶分解大样 Decomposition of ceiling

铝板吊顶，内凹200mm，侧面与底面整体加工双色喷涂，侧面浅灰色，底面深灰色
Aluminum ceiling, with 200 mm concave. The side and the bottom are processed with two-color spraying, with light gray on sides and dark gray on the bottom

直径30mm拉锁
Zipper, with 30 mm diameter

圆筒灯具
Cylindrical lamps

菱形框铝板，挖洞
Rhombic frame aluminium plate, hole digging

铝板吊顶，内凹200mm
Aluminum-plate ceiling, with 200 mm concave

白色铝板，宽度300mm
White aluminum plate, with 300 mm in width

直径100×20mm矩形方通
100 x 20 mm diameter rectangular square tube

圆筒灯具
Cylindrical lamps

通过吊顶方案综合优化，降低了整体造价和施工难度，实现了单元化安装简便、快速高效，天花效果得到进一步提升。

Through the comprehensive optimization of ceiling plan, the overall cost and construction difficulty are reduced, achieving the simplification, high speed and efficiency of unit installation and further improving the ceiling effect.



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design





立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



遵义东站设计以“历史追忆、胜迹沿承”立意，着重提炼遵义会议会址的神韵，外立面吸收了会址三段式的立面风格，保留柱廊、拱券等特色元素。质朴的青砖墙面、简洁大气的歇山式屋顶，带给人浓重的历史气息和人文精神。

The design of Zunyi East Railway Station is based on the idea of "historical recollection and inheritance of scenic spots". It focuses on extracting the charm of Zunyi Conference Site. The exterior facade absorbs the three-stage facade style of the Conference Site and retains the characteristic elements such as colonnade and arch. Simple green-brick wall and concise and natural Xieshan-style roof allow people to taste a strong historical atmosphere and humanistic spirit.



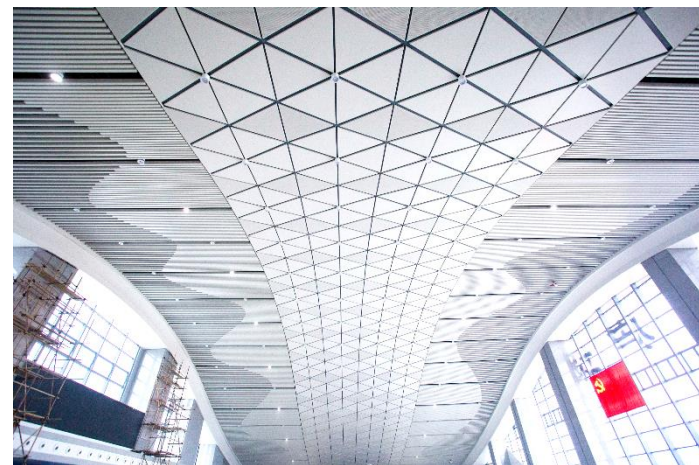
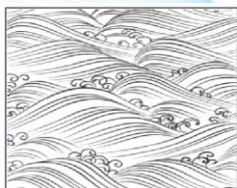
立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



立足“经济艺术” 融入创意设计

Based on "Economic and artistic" and integrate creative design



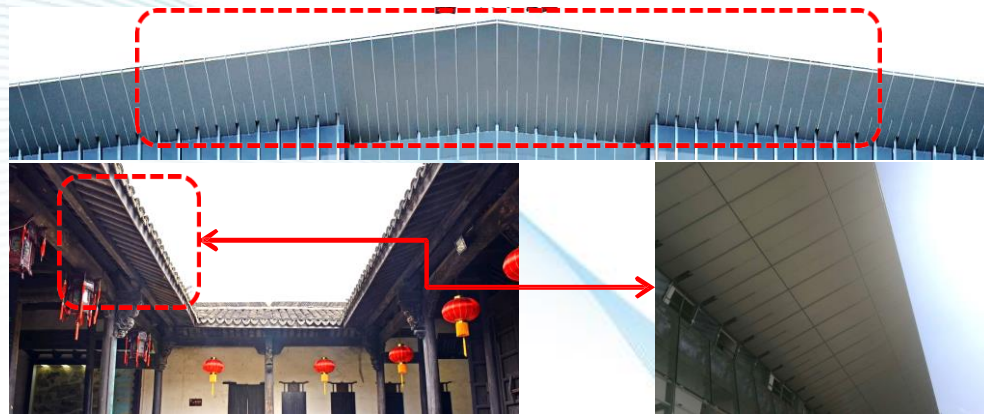
大奇名山、富春江水
Daqi Mountain, Fuchun River

山水桐庐
Landscape of Tonglu



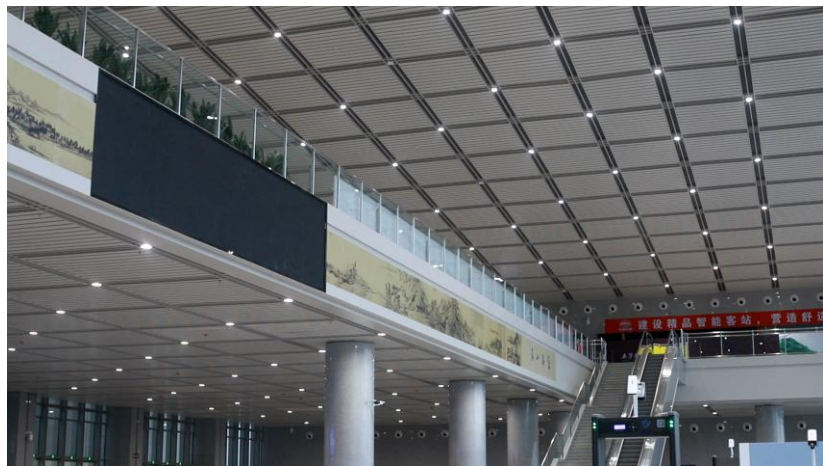
立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



屋顶设计取意古镇屋顶造型

The roof design takes the concept of the style of roofs in the ancient town



铝板喷绘融入《富春山居图》

Dwelling in the Fuchun Mountains is integrated into aluminum plate spraying



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



孙权故里实景

The real scene of
Sun Quan's home



富阳站进站口石刻

Stone carvings at the
entrance of Fuyang Station



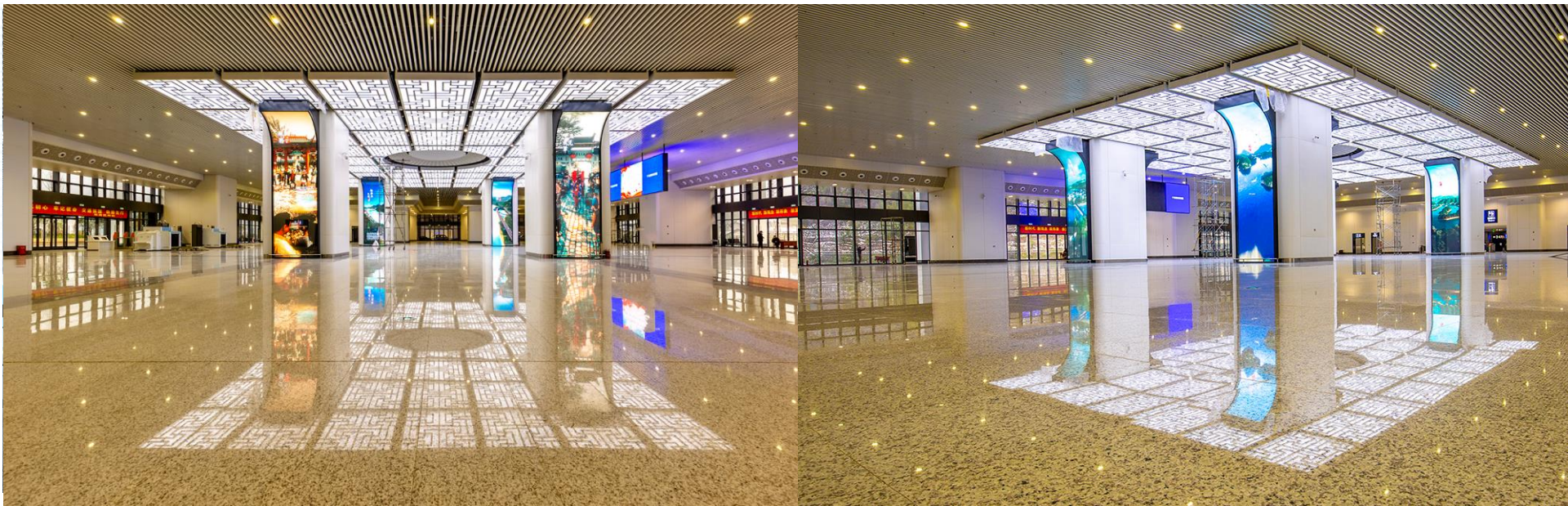
新富春山居图

New Dwelling in the
Fuchun Mountains



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



千岛湖站立足“文化契合”，与站场配套、经济开发、文化风俗等要素相融合，打造创新升级的千岛湖站房精品工程。

Qiandaohu Station is based on the "cultural fit" and integrates with the station yard supporting, economic development, cultural customs and other elements to create innovative and upgraded Qiandaohu Station building quality project.



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



从徽派建筑及徽派砖雕文化元素中提取萬字纹、回形纹，融入到站房设计中。

"Wan-shaped" pattern and "Hui-shaped" pattern are extracted from Anhui style architecture and Anhui style brick carving culture elements and integrated into the station building design.



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



杭派民居

Hangzhou Style Residence



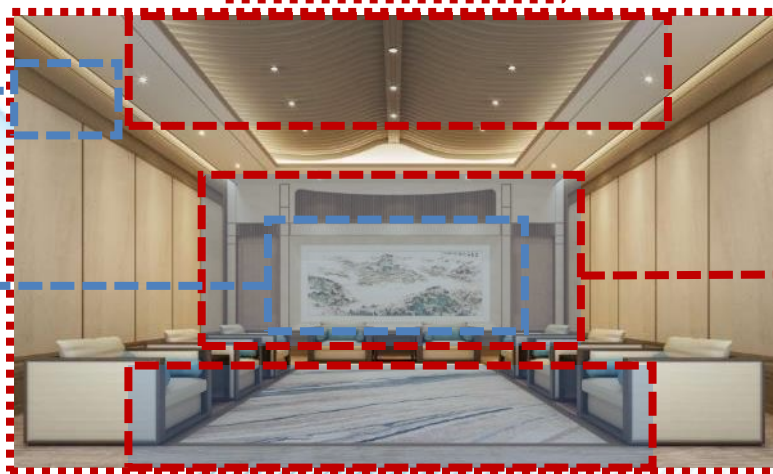
铜板水纹

Copper plate water pattern



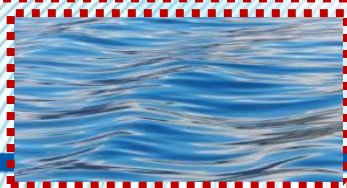
富春山水

Fuchun Landscape



龙门古镇

Longmen Ancient Town



富春江水

Fuchun River



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



外立面仿石铝板、玻璃幕墙安装精细，站房东西两颗迎客松造型线条流畅美观，中间崖刻“黄山北站”与松枝映衬，在落客平台桥祥云衬托下，形成一幅云海奇观。

The exterior facade is made of stone-like aluminium plate. The glass curtain walls are granularly installed. The two welcome pine models in the east and west of the station building have smooth and beautiful lines. The middle is carved with "Huangshan North Station" and set off by the pine branches, which forms a cloud sea wonder with the accompany of the cloud-shaped drop-off platform bridge.



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



外幕墙“迎客松”造型

Exterior Curtain Wall "Welcome Pine" Modeling



室内“浮云”曲面铝板造型

Interior "Floating Cloud" Curved Aluminum Plate Modeling



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design



黄山北站砖雕实景图

Brick Carving Scene of Huangshan North Railway Station



立足“经济艺术”融入创意设计

Based on "Economic and artistic" and integrate creative design





3.4 智能便捷 Intelligence and convenience

客站建设推广智能化、信息化应用。推行智能建造，探索数字化模拟拼装技术和机器人制造技术等的研究开发应用；推行智能建筑，开展客站结构安全监测、智能综合视频、智能设备监控、节能管理、智能调度、智能应急指挥、智能运营维护等智能运营装备的研究运用；推行智能服务，开展电子票务、智能导航、刷脸核验进站等创新型技术研究和应用。

The construction of passenger stations promotes the application of intellectualization and informatization. Promote intelligent construction, explore digital simulation assembly technology, robotic manufacturing technology and other research and development applications. Promote intelligent buildings, carry out passenger station structural safety monitoring, intelligent integrated video, intelligent equipment monitoring, energy-saving management, intelligent scheduling, intelligent emergency command, intelligent operation and maintenance and other intelligent operation equipment research and application. Promote intelligent services, implement electronic ticketing, intelligent navigation, face scanning verification and other research and application of innovative technologies.

立足“智能便捷”，推行智慧建造

Focusing on "Intelligence and Convenience" and Promoting Intelligence Construction



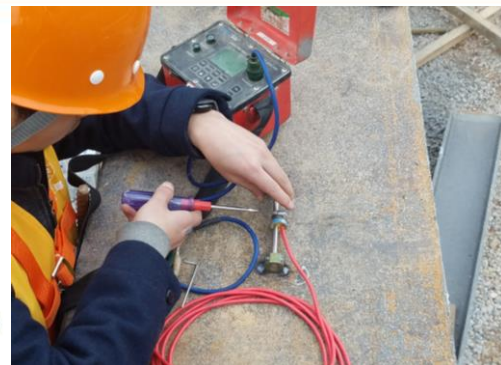
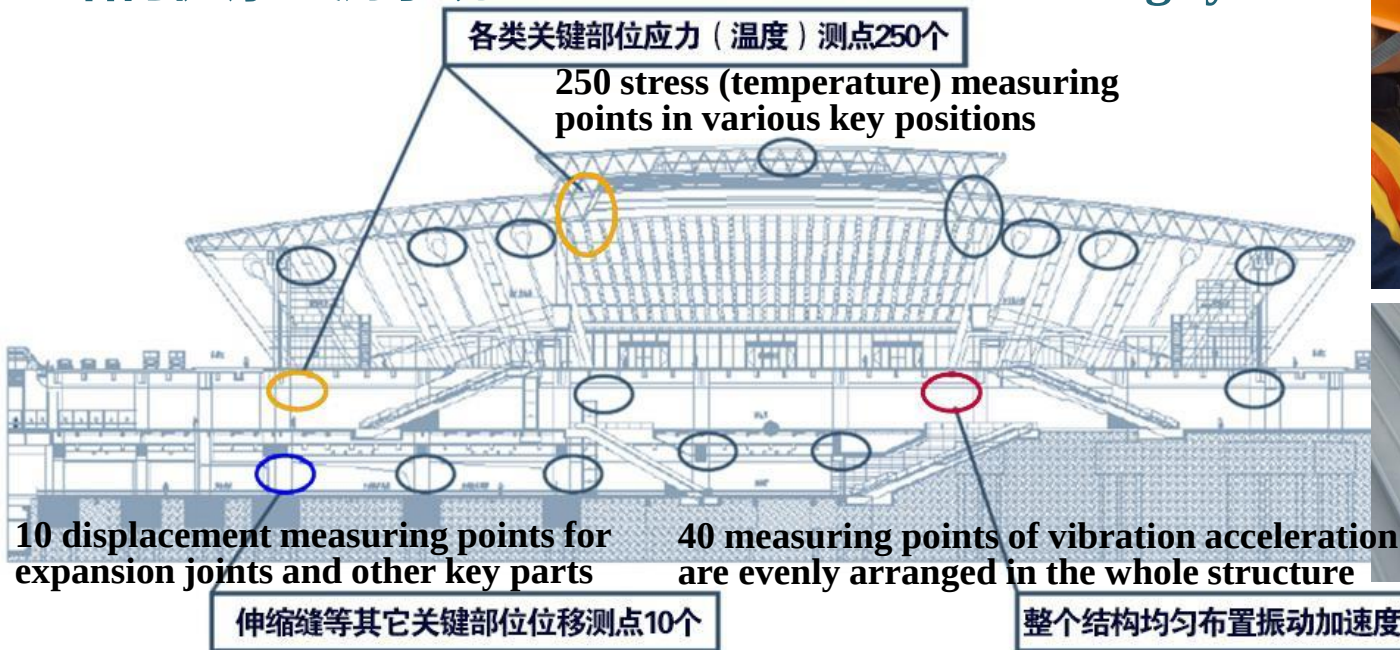
BIM精准建模
BIM Accurate Modeling



效果图、模型图、实景图“三图一致”
The three graphs of Effect Graph, Model Graph and Reality Graph shall be consistent



结构健康监测系统 Structural health monitoring system

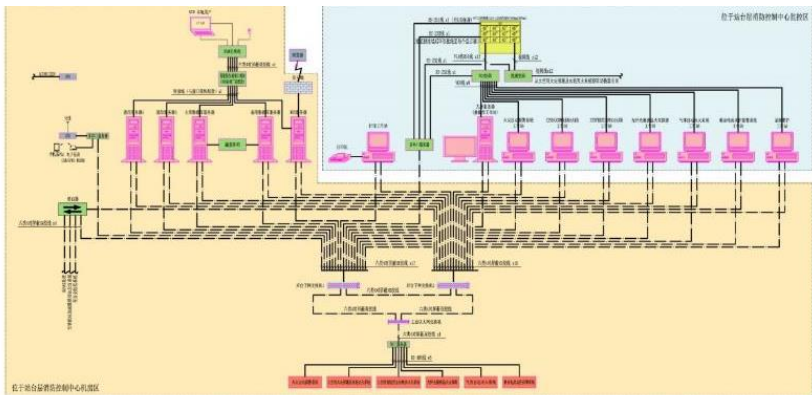


昆明南站建设了系统、完整、全方位的结构健康监测系统，构建可视化、信息化、智能化综合交通枢纽风险预警平台，为车站安全提供有力的技术支撑和平台保障。编制了《铁路客站健康监测技术标准》。

Kunming South Railway Station has constructed a systematic, complete and all-round structural health monitoring system and a visual, informative and intelligent risk early warning platform for comprehensive transportation hub, which provides strong technical support and platform guarantee for station safety. The Technical Standard for Health Monitoring of Railway Passenger Stations has been compiled.

火灾自动报警及消防联动控制系统

Fire automatic alarm and fire linkage control system



FAS集成管理系统包括常规火灾自动报警系统、大空间火灾探测及水炮灭火系统等六个子系统组成。利用集成软件，通过接口协议转换、信息交换，实现各子系统之间的信息共享和集中的设备监控、报警管理和联动控制功能，并实现管理界面的统一。

FAS integrated management system consists of six subsystems: conventional automatic fire alarm system, large space fire detection, water cannon fire extinguishing system, etc. It uses integrated software to achieve information sharing among subsystems, centralized equipment monitoring, alarm management and linkage control functions through interface protocol conversion and information exchange, and achieves the unification of management interface.

大空间火灾探测系统以图像型火灾探测报警系统为核心，实现分布控制—集中管理模式，解决了高大空间内火灾早期预报的难题。

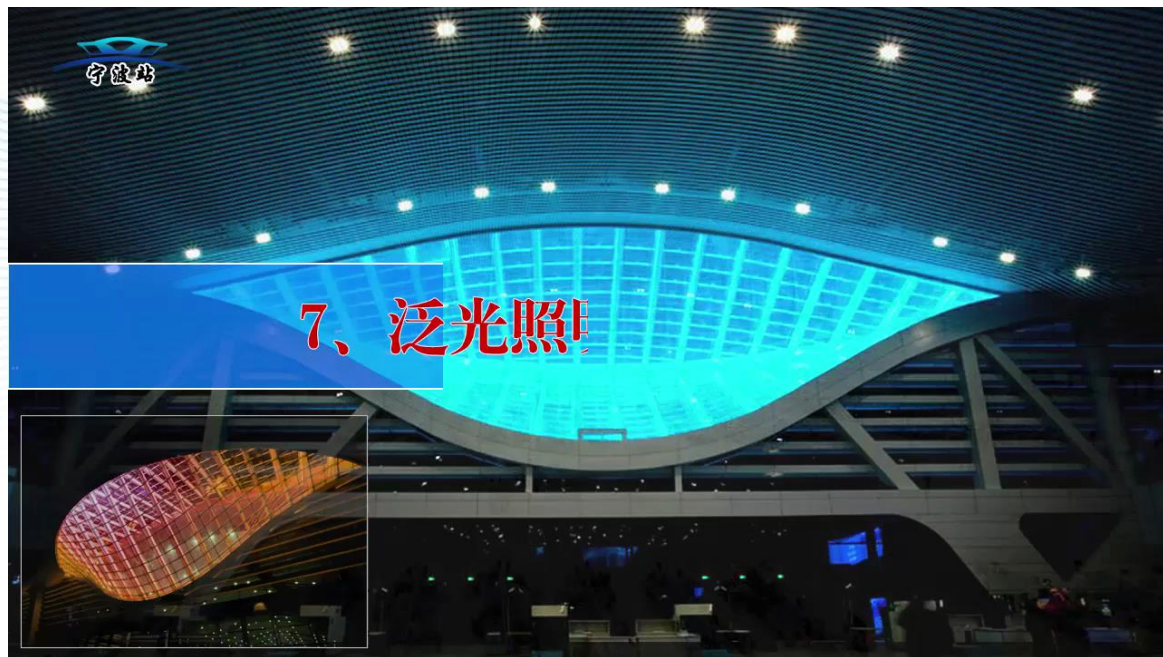
The large-space fire detection system takes image fire detection and alarm system as its core, achieves the distributed control-centralized management mode, and solves the problem of early fire prediction in large space.





照明系统 Lighting system

电 Electricity



客站运用智能照明控制系统，可根据不同运营需求灵活方便地实现对公共空间照明的模式控制，由设备监控系统按时间、场景或其他预定程序自动开闭，以达到集中控制、方便节能、提高工效、降低运行成本的目的，同时广泛采用LED等节能灯具。

The station uses intelligent lighting control system, which can flexibly and conveniently achieve the mode control of public space lighting according to different operation requirements. The equipment monitoring system can automatically turn on and off according to time, scene or other scheduled procedures, so as to achieve the purpose of centralized control, convenient energy saving, improving work efficiency and reducing operation cost. At the same time, energy-saving lamps such as LED are widely used.



地源热泵系统 System of ground-source heat pump



地源热泵机房

Engine room of ground-source heat pump



集分水器井室

Well room of water collector and distributor



全自动遮阳帘 Full automatic shade curtain



合肥南站天窗根据光照强度能自动开闭
The skylight of Hefei South Railway
Station can be opened and closed
automatically according to the intensity of
illumination



屋面光伏板与阳光板一体化施工 Integrated construction of roof photovoltaic panels and sunshine panels

中空夹胶玻璃光伏板

Hollow laminated glass photovoltaic panels

40mm厚多层阳光板

40mm thick multilayer solar panel

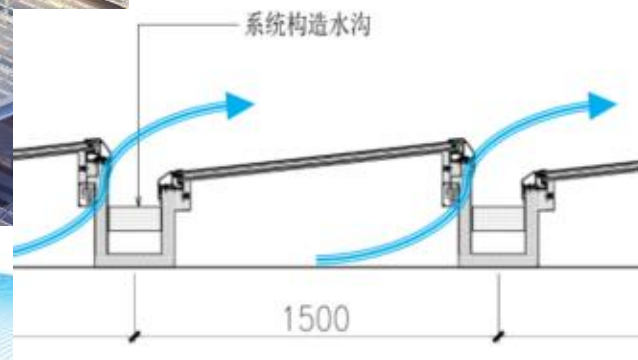


中空夹胶彩釉玻璃

Hollow laminated colored glazing glass

不锈钢水槽

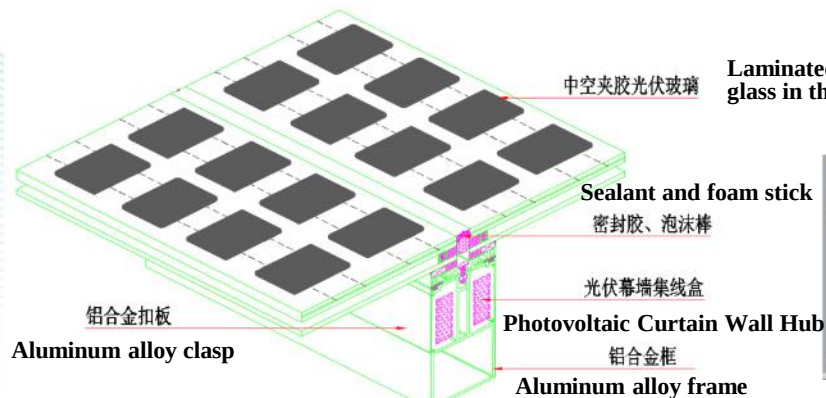
Stainless steel sink



新型中空阳光板屋面构造体系、中空光伏板构造体系
New hollow solar panel roof structure system and hollow photovoltaic panel structure system

屋面光伏板与阳光板一体化施工

Integrated construction of roof photovoltaic panels and sunshine panels



光伏板屋面构造

Structure of photovoltaic panel roof

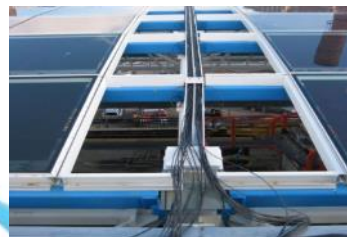
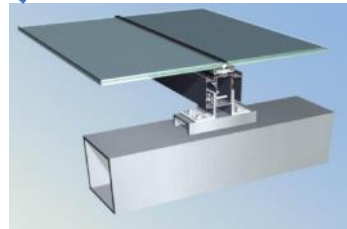
屋面次檩安装
Roof sub-purlin
installation

支座、龙骨安装
Installation of
support and keel

电气系统布线
Electrical system
wiring

中空夹胶玻璃（光伏组件）安装
Installation of hollow laminated glass
(photovoltaic module)

嵌缝、注胶
Seaming and
glue injection





昆明南站综合控制室

Comprehensive Control Room of Kunming South Railway Station



绿色能效管理系统 Green Energy Efficiency Management System



BAS系统 BAS System



门禁系统 Access Control System



考勤系统
Attendance System



能耗监控系统
Energy Consumption Monitoring System



智能照明系统
Intelligent Lighting System



FAS系统
FAS System



预付费系统
Pre-payment System





卫生间智能引导系统 Intelligent Guidance System for Toilet



智能建造--铁建云智能管理系统 Intelligent Construction -- Cloud Intelligent Management System of Railway Construction

项目资料

Project information



视频监控

Video monitoring



安全场景

Security scenario



铁建云智能管理系统 Cloud Intelligent Management System of Railway Construction



质量场景

Quality scenario



进度管理

Progress management



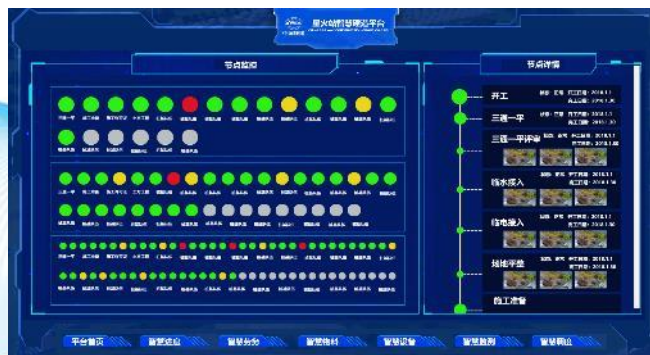
计划进度

Plan schedule



Intelligent Construction -- One Platform: BIM+GIS Platform

智慧建造平台，采用物联网、云计算、BIM等信息化前沿技术，把智能、高效、绿色、精益的理念植于设计和实践之中，促进铁路客站建设再上新台阶。 Intelligent construction platform uses the Internet of Things, cloud computing, BIM and other information technology frontier technology and integrates the concept of intelligence, efficiency, green, and conciseness in the design and practice to promote the construction of railway passenger stations to a new level.





结语 Closing Remarks

交通强国、铁路先行，中国高铁客站正在发生着深刻的变革，我们积极探索引领新时代铁路客站的建设方向，以理念创新为先导，技术创新为突破，打造体现城市交通功能特质，展示地域文化窗口的新时代精品智能客站，与城市和谐共生。

China's high-speed railway passenger stations are undergoing profound changes. We are actively exploring the direction of construction of railway passenger stations in the new era. We are taking concept innovation as the guide and technological innovation as a breakthrough, to create new era high-quality intelligent passenger stations reflecting the functional characteristics of urban traffic and displaying the window of regional culture, and to coexist in harmony with the city.