SHENZHEN NATURAL HISTORY



SHENZHEN NATURAL HISTORY MUSEUM

展陈设计招标

Tender for Exhibition Design

展陈设计任务书 Exhibition Design Brief

____招标人 Tenderee

深圳市建筑工务署工程设计管理中心 Engineering Design Management Center of Bureau of Public Works of Shenzhen Municipality

> 招标协助方 Co-organizer

深圳市有方空间文化发展有限公司 Shenzhen Position Spatial Culture Development Co., Ltd.

深圳自然博物馆项目展陈设计招标

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Exhibition Design Brief

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业主方对本次设计任务书拥有最终解释权。语言以中文为准。

The client reserves the right for the interpretation of this design brief. The Chinese version shall prevail.

一、项目概况 Project Overview

1.深圳自然博物馆项目简介 Project Introduction of Shenzhen Natural History

Museum

深圳自然博物馆为深圳市"新时代十大文化设施"之一,项目位于深圳市坪山区燕子岭片区, 用地面积 4.2 万平方米,建筑面积 10.53 万平方米,划分为陈列展览区,藏品保管保护区, 公共服务区,科普教育区,综合业务与学术研究区,以及地下车库和设备用房六大功能部分。 项目定位为"中国领先,世界一流"的大型综合类自然博物馆,以收藏、展览、研究和自然 科普教育为四大基本功能。

Shenzhen Natural History Museum is one of the "Ten Cultural Facilities of the New Era" in Shenzhen. It is located in Yanziling Area, Pingshan District, Shenzhen. Shenzhen Natural History Museum covers a site area of about 42000 square meters, with a gross floor area of about 105300 square meters. The project consists of six functional departments, including the exhibition area, collection storage and conservation area, public service area, science education area, administration and academic research area, as well as underground parking and equipment rooms. Shenzhen Natural History Museum is positioned as a large-scale comprehensive natural museum, aiming to be "the leading in China and the first-class in the world". It covers four basic functions including collection, exhibition, research and natural science education.

深圳自然博物馆使命定位为"国家区域自然博物馆,立足深圳和粤港澳、面向大华南、辐射 东南亚",致力于建设成为全国领先的自然历史遗存收藏中心、自然标本展览中心、自然科 学研究中心和科普教育中心,有助于填补区域内综合性自然博物馆空白,完善青少年自然科 学、生态环境教育,更好满足人民群众日益增长的公共文化服务需求,有利于进一步提升我 市城市文化软实力,加快建设区域文化中心城市。

The mission of Shenzhen Natural History Museum is to be a national and regional natural history museum, rooted in the regions of Shenzhen as well as Guangdong, Hong Kong and Macao. This museum will be boasting a connecting network covering all over South China and Southeast Asia, and committed to building a national leading natural history relics collection center, natural specimen exhibition center, natural science research center and science education center. The project will help fill the vacancy of a comprehensive natural history museum in this region, and improve the natural science and ecological environment education system for young people. It will help better meet people's growing demands for public cultural services, and convert Shenzhen into a regional cultural center by enhancing the cultural soft power of the city.

2.深圳自然博物馆项目展陈工程简介 Introduction of Exhibition Engineering of Shenzhen Natural History Museum

深圳自然博物馆项目可研批复总投资为 283207 万元,资金来源为市政府投资,展陈总建筑 面积约 43479.5 m²(其中陈列展览区 35183.99 m²、科普教育辅助展区 8295.51 m²)。陈列展 览区中,常设专题展厅建筑面积约为 11560.25 m²、临时展厅 2400.32 m²、公共空间辅助展区 (即展厅之外可用于展示的室内外区域) 5475.55 m²、展陈配套用房 16945.37 m²,具体投资 及规模以概算批复为准。深圳自然博物馆各层平面布置详附件 1.2 "各层组合及分区平面图 (含屋顶)",展陈面积分布情况详附件 1.7 "展陈面积示意"。

The total investment based on the approval of feasibility study of Shenzhen Natural History Museum project is RMB 2832.07 million. The project is funded by Shenzhen Municipal Government. The total floor area of the exhibition area is about 43479.5 square meters (including exhibition area of 35183.99 square meters and science education auxiliary exhibition area of 8295.51 square meters). In the exhibition area, the floor area of permanent exhibition hall is about 11560.25 square meters; the floor area of temporary exhibition hall is about 2400.32 square meters; the floor area of auxiliary exhibition area in public space (which refers to the indoor and outdoor areas that could be used for exhibition outside the halls) is about 5475.55 square meters; the floor area of exhibition supporting rooms is about 16945.37 square meters. The specific investment and areas are subject to the approval of cost estimation. Please refer to Attachment 1.2 *Floor plan of Zones of Each Floor (Including Rooftop)* and Attachment 1.7 *Floor Area of Exhibition Areas* for details.

根据经专家论证和市文化广电旅游体育局审议通过的基本展陈主题, 深圳自然博物馆常设展 厅按照"自然演化","生态环境及生物多样性","人与自然和谐","自然奥秘及智慧" 四大主题板块进行深化研究。

According to the basic exhibition themes reviewed by the experts and approved by the Culture, Radio, Television, Tourism and Sports Bureau of Shenzhen Municipality, the in-depth research for the permanent exhibition halls of Shenzhen Natural History Museum covers four thematic sections: "Natural Evolution", "Ecosystem and Biodiversity", "Harmony between Human and Nature", and "Natural Mysteries and Wisdom".

2022年12月, 深圳自然博物馆展陈设计(前期咨询)项目完成招标,中标单位为深圳市艺 博堂环境艺术工程设计有限公司和成都理工大学联合体,负责深圳自然博物馆展陈大纲和内 容文本编制等工作。依据初步展陈策划,深圳自然博物馆展示主题为"连接人与自然",将 从"自然演化"、"认识自我"、"资源环境"三个维度来构建其科学内容体系。全馆展陈 空间划分为陈列展览主展区(含常设专题展厅、临时展厅)、公共空间辅助展区、科普教育 辅助展区、室外展示及游乐区共计四个一级分区,其中陈列展览主展区由宇宙、地球、演化、 恐龙、人类、生物、生态和家园等常设专题展厅和两个临时展厅组成。

In December 2022, the tender for exhibition design (pre-consultation) of Shenzhen Natural History Museum was completed. The winner is the consortium of E.B.T. Exhibition Space Design and Chengdu University of Technology. The winner is responsible for completing the exhibition content outline and content texts of Shenzhen Natural History Museum. According to the preliminary exhibition planning, the exhibition theme of the Shenzhen Natural History Museum is

"Connecting People to Nature". The museum will construct its scientific content system from three dimensions: "Natural Evolution", "Self-knowledge" as well as "Resources and Environment". The exhibition space is divided into 4 primary areas: major exhibition area (including permanent exhibition halls and temporary exhibition halls), auxiliary exhibition area in public space, scientific education auxiliary exhibition area, as well as outdoor exhibition and recreation area. The major exhibition area consists of permanent exhibition halls with the following themes: universe, earth, evolution, dinosaurs, human beings, biology, ecology, homeland, etc. The major exhibition area also includes 2 temporary exhibition halls.



3.项目进度计划 Project Schedule

截至 2023 年 5 月,项目已完成建筑主体施工图设计,正开展智慧博物馆方案设计,以及展陈大纲编制工作,土石方、基坑支护和桩基工程施工正进行收尾与移交,施工总承包单位已进场施工。

As of May 2023, the construction documents of the main building have been completed. The schematic design of the smart museum and the compilation of the exhibition content outline are in progress. The construction of excavation and piling is completed and being handed over, and the construction contractor has already begun the construction work.

深圳自然博物馆项目计划 2023 年 5 月地基及基础工程完工, 2024 年 4 月建筑主体结构封顶, 2025 年 12 月建成并对公众开放。

The foundation engineering of Shenzhen Natural History Museum is scheduled to be completed in May 2023; the capping of main structures is scheduled in April 2024, and the museum is scheduled to open to the public in December 2025.

深圳自然博物馆展陈工程总体进度计划如下表:

The time frame of the exhibition engineering of Shenzhen Natural History Museum is as follows:

时间 Time	工作内容 Work Content					
2023 年 3 月 March 2023	展陈大纲方案定稿,供展陈设计招标,应相对稳定,避免颠覆性 修改。 The exhibition content outline is finalized for the tender for exhibition design. It should be relatively stable and no subversive modifications will be made.					
2023 年 5 月 May 2023	确认展陈设计任务书, 启动展陈设计招标。 Confirm the exhibition design brief and launch the tender for exhibition design.					
2023 年 8 月 August 2023	完成展陈设计合同签订。 Finish signing the exhibition design contract.					
2023 年 5 月-7 月 市文体局提供 85%标本和藏品清单和大纲。 May-July 2023 The Culture, Radio, Television, Tourism and Sports Burd Shenzhen Municipality provides 85% completed list and outl the specimens and collection.						
2023 年 7 月-9 月 July-September 2023	市文体局提供 100%标本和藏品清单和大纲。 The Culture, Radio, Television, Tourism and Sports Bureau of Shenzhen Municipality provides 100% completed list and outline for the specimens and collection.					
2023 年 11 月完成展陈初步设计及成果确认。November 2023Complete the exhibition design and confirm the deliverables.						
2023 年 12 月 December 2023	完成展陈初步设计概算编制,申报概算。 Complete the cost estimation for the exhibition design and submit for approval.					
2024 年 2 月 February 2024	取得概算批复。 Obtain approval of cost estimation.					
2024 年 4 月 April 2024	启动展陈深化设计及布展施工一体化招标。 Launch the tender for exhibition construction document design and exhibition construction.					
2024 年 6 月 June 2024	完成展陈深化设计及布展施工一体化招标(45 天)。 Complete the tender for exhibition construction document design and exhibition construction (45 days).					
2024 年 8 月 August 2024	完成展陈深化设计。					
August 2024 2025 年 7 月 July 2025	Complete the exhibition construction documents. 完成展陈工程(展品展项等)现场施工及制作。 Complete on-site construction and production of exhibition engineering (exhibits, etc.).					
2025 年 12 月 December 2025	完成标本安装及系统联调,展陈工程全面竣工。 Complete the installation of specimens and system adjustment. The exhibition engineering is due for completion.					

二、建筑概貌和边界条件 Architectural Profile and Site Conditions

1. 总体概貌与设计理念 Overview and Design Concept

深圳自然博物馆建筑方案以"河流三角洲"为灵感,由五个锥形结构为主体,发展出高低起 伏、弯曲多变的建筑形态。

Inspired by the "river delta", the architectural scheme of Shenzhen Natural History Museum consists of five conical structures as the main body, developing into an architectural form with ups and downs and various curves.

建筑将圆锥体形的大厅和展厅包裹其中,令人联想到河流沿岸的岛屿和悬崖,而宽敞的走廊 与公共设施形成流畅的动线,将大厅和展厅有序连接起来。

The building wraps the lobby and conical exhibition halls, reminiscing the islands and cliffs along the river. The spacious corridors form a smooth circulation with the public facilities, connecting the lobby and the exhibition halls in an orderly manner.



为了创造沉浸式的展览体验,并提升参观者对空间的识别度,三个展览区域楼层 (B2、1F 和 2F) 将各有独特的视觉特征,并呼应深圳的自然历史及历史时间轴。

In order to create an immersive exhibition experience and enhance visitors' recognition of the space, the three exhibition floors (B2, 1F and 2F) will each have a unique visual identity, echoing the natural history and historical timeline of Shenzhen.

每一层的室内设计理念也将与参观者的实际旅程保持一致——从大厅开始,下至地下二层, 再上到地上一层,最后在博物馆的二层结束人们的旅程。各层的设计理念分别是:

The interior design concept of each floor will also be consistent with the actual journey of the visitor - starting from the lobby, going down to the second basement, then going up to the first floor, and finally ending the journey on the second floor of the museum. The design concepts of each floor are:

B2: 地表之下 Below the Earth's Surface

1F: 河流之畔 By the River

2F: 群山之巅 Up in the Mountains

通过三层分区来讲述自然历史的故事,通过材料、色彩、质感和灯光的运用来实现整体策略。

The story of natural history is told through the three-floor divisions, and the overall strategy is realized through the use of materials, colors, textures and lights.



外立面以直纹斜面石材作为主要材质,如同天然形成的"海蚀崖"肌理,体现出与自然融合的内涵和气质。室内功能空间对采光的需求,形成建筑外立面的虚实对比和灰空间,构成丰富的空间体验。

The main material of the façade is straight-grained inclined stone, which is like the texture of the naturally formed "sea cliff", reflecting the connotation and temperament of integration with nature. The need for lighting in the interior functional space results in the contrast between solid and void on the façade of the building, as well as forming the semi-outdoor spaces, bringing a rich spatial experience.



建筑屋顶向游客和市民开放,体现了山水环境、建筑与人之间有机融合的理念。屋顶花园为 室外展陈及各种活动提供了广阔的延伸空间。屋顶花园的游客可通过电梯直达入口大厅,也 可由二层通道进入室内。

The roof of the building is open to tourists and citizens, reflecting the concept of organic integration of the landscape, architecture and people. The roof garden provides a wide extended space for outdoor exhibitions and various activities. Visitors from the roof garden can head to the entrance hall directly through the elevator, or enter the indoor space through the second-floor passage.



2. 建筑公共交通流线与功能分区 Building Circulation and Function Zoning

南侧有入口广场,通向建筑中部的架空入口,并连接南北两侧城市公共空间。北侧的景观由东西两侧的水体和中间的下沉广场组成。水体景观提供步道让游客游走其中;下沉广场与地

下二层连接,进一步衔接室内外空间。

There is an entrance plaza on the south side, which leads to the overhead entrance in the middle of the building and connects to the urban public spaces on the north and south sides. The landscape design on the north is composed of water bodies on the east and west sides and a sunken square in the middle. There are trails for tourists to walk on the water; the sunken plaza is connected to the second basement floor, further connecting indoor and outdoor spaces.



小型社会车辆开口设于用地西北角和东南角,进入用地后经坡道进入地下车库,实现人车分流。地下车库位于负一层和负二层,社会车辆可从东南角驶入车库并从西北角驶离。卸货车辆由西北角车辆入口进入地块西侧卸货区。

Openings for small visiting vehicles are located in the northwest and southeast corners of the site. After entering the site, all vehicles enter the underground parking lot through the ramp to achieve separation of pedestrian and vehicles. The underground parking lot is located on the first basement floor and the second basement floor. Visiting vehicles can enter the parking lot from the southeast corner and leave from the northwest corner. Unloading vehicles may enter the unloading area on the west side of the site through the entrance at the northwest corner.



在西北侧和南侧各设一个消防车出入口,环形消防车道局部借用南侧文祥路、东侧规划路和 北侧红花路。消防登高面布置在西侧和南侧。

There is a fire truck entrance and exit on the northwest and south sides respectively, and the circular fire lane partially occupies Wenxiang Road on the south side, Guihua Road on the east side and Honghua Road on the north side. The fire climbing surfaces are arranged on the west and south sides.



建筑高度及层数随着建筑形态而变化, 地上最高5层、地下2层。展厅布置在地下二层和地

上一层、二层。各层通过坡道、电梯和扶梯串连,部分空间采用通高设计,提供立体、灵活 多变的展示空间。

The height and number of floors of the building vary with the shape of the building, with a maximum of 5 floors above ground and 2 floors underground. The exhibition halls are arranged on the second basement floor, the first and the second floors above ground. Each floor is connected through ramps, elevators and escalators, and part of the space is designed as double-height to provide a three-dimensional, flexible and changeable exhibition space.

从首层入口进入架空区域,西侧为博物馆主出入口大堂,并在首层设置了两个临时展厅。东 侧为科普教育区的球幕影院、巨幕影院、动感多维影院及自然剧场,其他科普教育区位于4 层,如有需要,4 层部分综合业务与学术研究区也可计入教育展示区考虑。

Entering the overhead area from the entrance on the first floor, on the west side is the main entrance lobby of the museum, and two temporary exhibition halls are set up on the first floor. On the east side are the dome theater, IMAX theater, dynamic multi-dimensional theater and nature theater in the science education area. Other science education areas are located on the 4th floor. If necessary, part of the comprehensive business and academic research area on the 4th floor can also be used as education area.



藏品技术保护区位于建筑西侧的 3 层,综合业务与学术研究区位于 4-5 层。员工出入口也位 于西侧。

The collection conservation area is located on the 3rd floor on the west side of the building, and the administration and academic research area is located on the 4th and 5th floor. Staff entrances and exits are also located on the west side.



藏品及货物运输口位于用地西侧,并通过 4m×4m×4m 的货梯通向位于负一层的库房和各展厅楼层。

The collection and cargo transportation entrance is located on the west side of the site, and leads to the warehouse on the first basement floor and each exhibition hall floor through a $4m \times 4m \times 4m$ cargo elevator.



深圳自然博物馆主要经济技术指标表

Main economic and technical indicators of Shenzhen Natural History Museum

建设用地面积 (1			42005. 42		总建	英面积	(m²)	107129. 69)	
容积率/规定容积率			1.88		计容积率建筑面积		(m [*])	78801. 56		
地上規定建筑面积 (11)			48241.	48241.14		不计容积率建筑面积		(m²)	26498.44	
地下规定建筑面	地下規定建筑面积 (㎡)			30560. 42		地上核减建筑面积		(mº)	0	
地上核增建筑面	(m²)	1829.68		地下核减建筑面积		(m')	0			
地下核增建筑面	地下核增建筑面积 (26498.44		建筑覆盖率 (一/二级)		(%)	60	
最大层数(地)	最大层数 (地上/下)			5层/2层		建筑基地面积		(m [*])	25203. 25	
建筑最高高度		(1)	36.0		机动车停车位(地上/下)		(辆)	20辆/430辆		
绿化覆盖率		(%)	30%		非机动车停车位(地上/下)		(辆)	80/0		
绿地面积/折算	绿地面积	(m ^s)	12125. 63							
其他										
+71	La				建筑功能			建筑面积	(m ^t)	
 474	本于坝建筑面积及分配						规定	核	滅	合计
	计容积率 建筑面积 80631.25m*	计规定	容积率	地上	博物馆及博 附属用房	物馆	48241. 14			48241. 14
总建筑面积		建筑面积 78801.56m [*]		地下	博物馆及博物馆 附属用房		30560. 42	30560. 42		
107129. 69m²		地上	地上校增建筑面积 1829.69m*		架空绿化	休闲	1829. 68			
	不计容积率	地下	也下核增建筑面积 26498.44㎡		设备用房 6946.93		6946. 93			
	26498, 44m ²	:			地下车,	库	19551. 51			
注: 1、总建筑面积=}	十容积率建筑面积+不	计容积率如	效面积				4、不计容积率建分	面积=地下核	增建筑面积	
2、计容积率建筑	面积=地上/下规定要	筑面积+地	上/下板减速	筑面积+地」	核增建筑面积		5、容积率=计容积	率建筑面积/	建设用地面积	
3、计规定容积率	3、计规定容积率康筑而积=助上/下规定康筑而积+助上/下核诚康筑而积					6、规定容积率=计	规定容积率到	筑面积/建设用	地面积	

3. 常设专题展厅参观流线及边界条件 Visiting Circulation in the Permanent Exhibition Halls

从入口大厅中庭区域拾级而下,可以进入地下2层的展厅开始参观,在依次走过地下的展厅 后,可以通过自动扶梯通往首层,并继续通向二层参观。

Going down from the atrium area of the entrance hall, visitors can enter the exhibition hall on the second basement floor to start visiting. After walking through the underground exhibition halls, visitors can take the escalator to the first floor and continue to the second floor for visiting.

为了营造更丰富的参观体验,除了筒内的常设展厅外,在展厅之间的公共空间也考虑设置展廊的功能。

In order to create a richer visiting experience, in addition to the permanent exhibition halls in the cone, the public space between the exhibition halls can also be considered use for exhibition.



4. 消防设计对展陈的影响及边界条件 Influence of Fire Protection Design on

Exhibition

深圳自然博物馆考虑建筑选址上的特殊性、布展上的复杂性、空间上的贯穿性等特点,在消 防设计上总体遵循"控制可燃物、加强防火分隔、强化排烟设计、科学布置展品"的原则。 通过减少火灾荷载,结合展陈需求,合理划分防火分区,同时在个别特大展厅设置防火隔离 带, 详附件 1.3 "消防设计边界条件"。

Shenzhen Natural History Museum takes the particularity of building site, the complexity of exhibition arrangement, and the penetration of space into consideration in terms of its fire protection design. The fire protection design generally follows the principles of "controlling combustibles, strengthening fire separation, strengthening smoke exhaust design, and scientifically arranging exhibits." By reducing the fire load and considering the needs of exhibitions, the fire protection zones are reasonably divided, and at the same time, fire isolation belts are set up in a few large exhibition halls. See Attachment 1.3 Boundary Conditions for Fire Protection Design for details.

5. 室内设计与展陈设计的边界条件 Boundary Conditions of Interior Design and **Exhibition Design**

室内整体设计风格以呼应自然为主。通过三层分区来讲述自然历史的故事,体现地表之下、 河流之畔和群山之巅三个不同的主题。地下二层走廊展区、地上一层公共服务区、地上一层 科普大堂、地上一层走廊展区、二层公共前厅、四层科普教育区均已做室内精装设计,展陈 设计仅需做活动策划等内容。展厅与展廊与公共空间的具体边界示意详见附件 1.4 "室内设 计与展陈的边界"。室内设计效果图详附件 1.5 "室内效果图及位置示意"。

The overall interior design style is echoing nature. The story of natural history is told through three zones on different floors, reflecting three different themes: Below the Earth's Surface, By the River and Up in the Mountains. The corridor exhibition area on the second basement floor, the public service area on the first floor, the science lobby on the first floor, the corridor exhibition area on the first floor, the public lobby on the second floor, the science education area on the fourth floor have all been designed with indoor decoration. Therefore, the exhibition design only needs to propose activity planning in those areas. The specific boundaries of exhibition halls, galleries and public spaces are shown in Attachment 1.4 *Boundaries Between Interior Design and Exhibition*. The interior design rendering details are shown in in Attachment 1.5 *Interior Renderings and Location Map*.

6. 绿色建筑建设标准对展陈设计的要求 Requirements of Green Building

Construction Standards for Exhibition Design

(1) 展陈设计应采用具有安全防护功能的玻璃、具备防夹功能的门窗,并耐久性好、易维护的室内装饰装修材料。

The exhibition design should utilize glass with safety protection, doors and windows with anti-pinch function, and indoor decoration materials with good durability and easy maintenance.

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玻璃的设置应符合《建筑安全玻璃管理规定》,建筑用安全玻璃均应选用具有3C标志产品。
 d. 五金配件:执手、锁、铰链、铆钉等配件均应采用优质产品。
 e. 门窗、幕墙反复启闭性能达到相应产品标准要求的2倍,门的反复启闭次数不低于20万次,窗的反复启闭次数不低于2万次;其检测方法需要满
  足现行行业标准《建筑门窗反复启闭性能检测方法》JG/T192。
 f. 甲、乙级防火疏散门的通行净宽应≥900mm。
7. 其它
 a. 未注明处,外门外窗均居中安装,内门内窗均居中安装。
 b. 全玻璃门及隔断应设防撞提示标志;
 c. 所有门窗均应采用可调力度的闭门器或具有缓冲功能的延时闭门器等措施;
 d. 设有门禁系统的外门,应保证火灾时不需使用钥匙等任何工具即能从内部易于打开,并应在显著位置设置标识和使用提示;
 e. 门窗表中的尺寸为门窗洞口尺寸,不包括施工误差,门窗加工尺寸应参照门窗立面图和装修面厚度由承包商予以调整,并经实地测量核对数量
  后再加丁制作。
 f.所有木门制作时木材均需进行干燥处理,含水率限值为15.1%。木门油漆均先刷底子油一道,满刮腻子一道,砂纸打平后再刷调和漆二道,颜色
  由装修设计确定。
 g.本设计仅提供门窗的立面图、设计要求及标准节点,详细构造、型材、规格、强度、抗风、防水、保温、密实等性能均详幕墙图纸,施工前由专
  业厂家进行深化,深化图纸经我院审核且符合原设计要求后,再提供实物样品,经建设、设计、监理等有关各方同意后才能定货和加工,加工前
  应进行实测,所有门窗数量及尺寸应经现场实际核实无误后再下料加工。
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(2) 建筑室内外活动场所采用防滑地面,防滑等级达到现行行业标准《建筑地面工程防滑 技术规程》JGJ/T331 规定的 Ad、Aw 级。(如图示) The indoor and outdoor activity spaces of the building shall use slip resistance floor materials, and the slip resistance level shall meet the Ad and Aw levels stipulated in the current industry standard *Technical Specification for Slip Resistance of Building Floor* JGJ/T331 (as shown in the picture)

防滑等级	防滑安全程度	防滑值BPN
Aw	ē	BPN≥80
B _W	中高	60≤BPN < 80
Cw	中	45≤BPN < 60
D _W	低	BPN < 45

表3.0.3-1 室外及室内潮湿地面湿态防滑值

表3.0.3-2 室内干态地面静摩擦系数

防滑等级	防滑安全程度	静摩擦系数COF			
Ad	南	COF≥0.70			
Bd	中高	0.60≤COF < 0.70			
Cd	中	0.50≤COF < 0.60			
Dd	低	COF < 0.50			

b. 板材整体安装完成,选用环氧树脂补缝, 再用专用密封胶带密封连接, 再分遍满刮腻子, 打磨平整, 滚刷无机涂料, 如面层为其他材料, 可取消涂料层。

1.3 楼地面: 各类地面装修厚度按建筑标高与结构标高之差计,除其饰面层外,未尽处按以下标准遴选。

a. 填充层,均采用C20细石混凝土垫层。

b. 设备用房内的混凝土楼地面的面层应设伸缩缝,缩缝双向每6^{~1}0m设平头缝,伸缝间距为20^{~3}0m,缝宽10^{~2}0mm,缝内填聚苯板, 缝表面填密封胶。(伸缩缝的具体位置应由施工方和设计方商定后方可施工)。

c. 封堵,凡有各类套管、烟道、风道穿越楼板处均应在其安装后进行封堵,耐火极限≥1.5小时。套管与穿管之间用沥青麻丝填实,管口嵌填密封材料。

d.防滑,建筑出入口及平台、公共走席、电梯门厅、厨房、浴室、卫生间等设置防滑措施,防滑等级不低于现行行业标准《建筑地面工程防滑技术规 程》JGJ/T 331规定的BW级;建筑室内外活动场所采用防滑地面,防滑等级达到现行行业标准《建筑地面工程防滑技术规程》JGJ/T 331规定的Ad、 AW级;建筑坡道、楼梯踏步防滑等级按水平地面等级提高一级,并采用防滑条等防滑构造技术措施。

1.4 佈面: 佈面用材的材质、规格、标准按相关装修图纸,并满足相关国家材料标准,未尽处按以下标准遴选。

a. 室内腻子应选用饰面配套耐水腻子,自行调制产品应符合《建筑室内用腻子》(JG/T298-2010)相关要求。

b. 外墙腻子应具有抗裂、防霉性能,采用外墙腻子。

c. 乳胶漆应选用白色合成树脂乳液型内墙涂料,面漆应选用光泽度为丝光型的优等品,具有防霉性能。

d. 设备用房地砖选用300X300地砖(单色、无釉、防滑,由建设方协同建筑师定样、定色)。

e. 楼梯间踏步段地砖采用专用带防滑条地砖,规格按踏步尺寸,平台段选其配套地砖,摩擦系数≥0.6。楼梯间选用600X600地砖(单色、无釉、防滑,由建设方协同建筑师定样、定色)。

f. 网络地板按600X600架空型全钢网络地板(线槽采用PVC材料;复合面层采用600X600方块地砖)设计预留。

(3) 展陈涉及的展厅、展廊等公共活动空间均属于建筑室内活动场所,若增加楼梯、坡道

等,地面也应按照上述要求执行。

Public activity spaces such as exhibition halls and galleries are all indoor activity spaces of the building. If stairs, ramps, etc. are added, the corresponding floor surface should also follow the above requirements.

(4) 应采取措施优化展厅的室内声环境。噪声级达到现行国家标准《民用建筑隔声设计规范》 GB50118 中的低限标准限值和高要求标准限值的平均值。

Measures should be taken to optimize the indoor acoustic environment of the exhibition halls. The noise level shall reach the average value of the lowest standard limit and the highest standard limit in the current national standard *Code for Design of Sound Insulation of Civil Buildings* GB50118.

(5) 建筑结构应与建筑设备管线分离。后期增设的管线应避免为了安装而出现凿开混凝土 或砂浆面层的情况。

The building structure shall be separated from the building service piping. Pipelines added in the later period should avoid the situation of cutting the concrete or mortar surface for installation.

(6) 土建已设置 PM10、PM2.5、CO2浓度的空气质量监测系统,且具有存储至少一年的监测数据和实时显示等功能。其显示屏幕位于展厅内部墙面。空气质量监测系统显示屏幕位置 详见附件 1.8 "绿建对展陈的影响"(资格预审阶段暂不提供)。

Air quality monitoring systems for PM10, PM2.5, and CO₂ concentrations have been set up in the building, and they have the functions of storing monitoring data for at least one year and real-time display. The display screens are located on the inner wall of the exhibition halls. The position of the display screens of the air quality monitoring systems is detailed in Attachment 1.8 *The Impact of Green Building on Exhibition* (not available for pre-qualification phase).

展厅净高分布详见附件 1.6 "展厅净高示意图"。

展厅结构荷载情况详见附件 1.9"结构荷载设计情况"。(资格预审阶段暂不提供)

无障碍设计要求详见附件 1.10 "无障碍专篇"。(资格预审阶段暂不提供)

Refer to Attachment 1.6 *Net Height of the Exhibition Halls* for the net height distribution of the exhibition halls.

Refer to Attachment 1.9 *Design of Structural Load* for the structural load of the exhibition halls. (Not available for pre-qualification phase)

Refer to Attachment 1.10 *Chapter on Accessibility Design* for the assessility design requirements. (Not available for pre-qualification phase)

三、展陈设计工作范围和任务 Work Scope and Tasks of Exhibition Design

1.设计要求 Design Requirements

1.1 工作范围及内容 Scope and Content of Work

展陈设计的工作范围包括所有常设专题展厅、临时展厅、科普教育辅助展区、公共空间辅助 展区 (即展厅之外可用于展示的室内外区域) 等室内外可用于布展区域的初步设计及相关服 务。

The work scope covers exhibition design development and related services for all indoor and outdoor areas that can be used for exhibition, including the permanent exhibition halls, temporary exhibition halls, science education auxiliary exhibition areas and auxiliary exhibition area in public space (i.e. indoor and outdoor areas outside the exhibition halls that can be used for exhibition).

展陈设计的工作内容主要包括但不限于完成:展览整体规划、环境设计、展品展项设计、展 陈数字化内容规划、概算编制及配合申报等,即各展区总体设计风格、展示构成、展示技术、 展示形式、展项的表达方式、专业展柜设计、专业展示灯光设计、导览导视设计、环境氛围 的渲染、观众服务以及展区的参观流线等。

The main content of the exhibition design development (design with detailing level that meets the need for cost estimation) includes but is not limited to: overall planning, environmental design, exhibits design, planning of digital content, cost estimation and cooperating in cost approval of each tender lot, i.e. the overall design style, exhibition composition, exhibition techniques, display forms, expression of the exhibits, professional exhibition showcase design, professional exhibition lighting design, signage system design, environment and atmosphere, circulations of visitors and services, etc.

最终成果应满足后续展示深化设计和布展的需求,中标单位须完成相应展陈工程初步设计概 算编制,配合项目概算报审工作。概算编制须满足《深圳市政府投资项目前期工作技术文件 编制指南》(试行)(深发改(2020)651)、相关文件规定及主管部门审核等相关要求。 根据项目需要组织专家评审、论证、汇报会等;成果文件需经本项目主管部门审核,并根据 审核意见进行修改完善,直至审批通过。

The final design deliverables should meet the needs of the follow-up exhibition shop drawing design and construction. The winner should complete the cost estimation for the design development of exhibition engineering, and assist with the cost estimation approval procedure. The cost estimation should fulfill the relevant requirements in the *Guidance for the Compilation of Technical Documents for Preliminary Work of Projects Funded by Shenzhen Municipal Government* (Trial) (Development and Reform Commission of Shenzhen Municipality (2020) 651) and other relevant regulations, as well as meeting the audit requirements of the competent authorities. According to the needs of the project, the winner shall organize expert review,

demonstration, reporting meetings, etc.; the winner shall make modifications and improvements on the design work according to the review comments from the competent authorities, until the design work is approved.

中标单位应结合建筑、强电、弱电智能化、消防、智慧博物馆等工程在不同进展进行相应的 技术对接、配合,完成深圳自然博物馆展陈设计;应配合运营团队及业主特聘专家,在初步 设计完成后提供实施技术交底,协助编制后续 EPC 招标任务书、后续深化设计、制作和施 工工作的开展,直至项目竣工验收的技术指导。

The winner should complete the exhibition design of Shenzhen Natural History Museum through technical coordination with the following professional teams during different phases: architecture, electrical engineering, ELV system, fire protection, smart museum, etc.; the winner is also responsible for the following work: cooperate with the operation team and experts hired by the client, brief the technical hand-over documents after the completion of design development, assist with writing the design brief for the follow-up tender for EPC, cooperate with follow-up shop drawing design and construction work, and provide technical guidance until the project completion.

1.2 目标定位 Objectives and Positioning

深圳自然博物馆使命定位为"国家区域自然博物馆,立足深圳和粤港澳、面向大华南、辐射 东南亚",项目定位为"中国领先,世界一流"的大型综合类自然博物馆。展陈内容定位为 国际视野、中国案例、湾区特质。

The mission of Shenzhen Natural History Museum is to be a national and regional natural history museum, rooted in the regions of Shenzhen as well as Guangdong, Hong Kong and Macao. This museum will boost a connecting network covering all over South China and Southeast Asia. Shenzhen Natural History Museum is positioned as a large comprehensive natural history museum, aiming to be "the leading in China and the first-class in the world". The exhibition contents aim to present an international vision, the Chinese cases and the Greater Bay Area characteristics.

1.3 空间布局 Spatial Layout

(1) 应符合公共博物馆关于运行管理、维修维护、灾难疏导等各方面的功能要求。

The design should meet the functional requirements of public museums in terms of operation management, maintenance, and disaster evacuation.

(2) 应良好处理和平衡内容逻辑和空间逻辑的关系,满足展示内容方案所提出的空间(面积、高度)需求,深入研究"陈列"与"互动"、"个体互动"与"群体互动"、"流处理"与"批处理"的关系,设置合理的空间密度和参观流线,确保参观的舒适性和安全性。同时,也应充分考虑今后展陈局部调整或更新改造的相关需求。

Balance the relationship between content logic and spatial logic, in order to meet the spatial

requirement (area, height) proposed in the exhibition content texts. Conduct in-depth research on the relationship between "display" and "interaction", "individual interaction" and "group interaction", "stream processing" and "batch processing". Set up a reasonable spatial density and visiting circulation to ensure the comfort and safety of museum visit. At the same time, put consideration on the needs of adjustment or renovation of exhibition areas in the future.

(3) 应充分发挥建筑空间的特色,常设专题展厅、公共空间辅助展区应与整体建筑空间在 功能、形式和效果上达到全面、有机的结合,并与建筑内部其他公共空间相呼应,(注:如 有必要,可利用局部的常设专题展厅公共空间辅助展区布置常设展陈),在不同楼层之间构 成恢宏大气、交融互通的空间关系;并充分考虑建筑体内、外部各个角度的景观效果,使博 物馆的内部空间和外部环境和谐共融、相得益彰。

The characteristics of the architectural space should be fully utilized. The auxiliary exhibition area in public space beside permanent exhibition halls should achieve a comprehensive and organic combination with the overall architectural space in terms of function, form and effect, and echo with other public spaces inside the building (note: permanent exhibits can be arranged in the auxiliary exhibition area in public space if necessary). Achieve a magnificent and harmonious spatial relationship between different floors. Fully consider the landscape effects of various viewpoints inside and outside the building, so that the indoor and outdoor spaces of the museum may harmoniously blend with each other.

(4) 应满足相关消防规范要求。在规划常设专题展厅时,应充分注意与消防分区的配合, 建议同一楼层的展区布局尽量与消防分区匹配。

Meet the requirements of relevant fire protection codes. When planning the permanent exhibition halls, pay attention to the coordination with the fire protection zone. It is suggested that the layout of the exhibition area on the same floor should match the fire protection zone as much as possible.

(5) 应合理解决"教育活动区"与公共空间之间的交通关系,确保该区域有相对独立、灵活便利的出入通道,符合消防疏散的要求,且不对附近的常设专题展厅参观构成影响。

Reasonably resolve the circulation between "educational activity area" and the public space, in order to ensure that this area has relatively independent, flexible and convenient access passages, meets the requirements of fire evacuation, and does not affect the visit of the nearby permanent exhibition halls.

1.4 设计风格 Design Style

(1) 整体设计风格上建议遵循简约、纯粹, 经典与时尚的平衡, 在体现自然博物馆固有特征的同时, 合理嵌入时代特征。

The overall design style is recommended to find the balance among simplicity, purity, classic beauty and fashion, reflecting the inherent characteristics of natural history museums while reasonably embedding contemporary features.

(2) 环境氛围整体上应具有统一的风格定位,不同展示区域的设计风格可根据主题内容和

形式特点的不同而有所区分。

The environmental atmosphere as a whole should have a unified style. The design style of different exhibition areas can be distinguished according to the different themes, forms, and characteristics.

(3) 可根据展示主题的需要,反映人与自然的和谐关系;也可引入中国传统文化符号和本 土地域特色作为设计元素,如书法、绘画、雕刻、音乐等。

Reflect the harmonious relationship between human and nature based on the needs of exhibition themes; Traditional Chinese cultural symbols and local regional features can also be absorbed as design elements, such as calligraphy, painting, sculpture, music, etc.

(4) 倡导使用本土取材的自然、生态、环保装饰材料,在空间布局和设备选用方面充分体 现节能理念。

It is recommended to use natural, ecological and environmentally friendly decorative materials from the local, and fully embody the concept of energy saving in terms of spatial layout design and equipment selection.

1.5 展示手段 Exhibition Techniques

(1) 基于主题内容的差异,合理选择经典和现代、静态和动态等不同的展示手段。强化标本与其他展示媒介的有机结合,合理把握各种展示手段的比例和平衡关系。

Based on different themes, reasonably select different exhibition techniques, such as classic and modern, static and dynamic. Strengthen the organic combination of specimen display and other exhibition media, and reasonably decide the proportion and balance of various different exhibition means.

(2) 合理应用现代展示技术手段,增加展示的互动性和趣味性,由此形成展示特色和亮点, 如:利用多种互动手段,增加观众的参与度,培养青少年批判性的科学精神,激发其创造力; 通过网络和远程技术突破物理空间的界限,实现馆内外的信息互动,拓展观众的视界;利用 数字媒体技术,增加现实感和临场感,使观众在不同的宏观、微观尺度,感受自然的恢宏与 瑰丽等。

Reasonable apply modern exhibition technologies to increase the interactivity and fun of the exhibition, therefore forming distinctive exhibition characteristics and highlights, for example: use a variety of interactive means to increase audience participation, cultivate teenagers' critical scientific thinking and stimulate their creativity; Break through the boundaries of physical space through internet and remote technology, realize the information interaction between inside and outside of the museum, and expand the audience's vision and imagination; use digital media technology to increase the sense of reality and presence, so that the audience can feel the grandeur and magnificence of nature at different macro and micro dimensions.

1.6 管理服务 Management Services

(1) 深入思考如何利用互联网、物联网和移动通信网等数字技术拓展博物馆的虚拟空间和知识容量,实现实体展示和数字博物馆的有机融合;建立"无线信息互动平台",在观众与博物馆之间实现全方位、全程性的信息互联,为公众提供便捷、个性化的导览和展示教育服务。

Think deeply about how to use digital technologies such as internet, Internet of Things (IoT) and mobile communication network to expand the virtual space and knowledge capacity of the museum, and realize the organic integration of physical exhibition and digital museum. Establish a "wireless information interactive platform" to realize all-round and whole-process information interconnection between the audience and the museum, and provide convenient and personalized navigation and exhibition education services for the public.

(2) 在每个楼层的常设专题展厅及公共空间辅助展区中,应充分考虑公众配套服务设施的 布置,如休憩、纪念品销售、团队集散等。

In the permanent exhibition halls and auxiliary exhibition areas in public space on each floor, carefully consider the layout of public supporting service facilities, such as rest space, souvenir sales, group gatherings, etc.

(3) 在常设专题展厅中,应合理预留人员配套服务设施空间,包括人员休息和物品临时仓储空间等。

In the permanent exhibition halls, reasonably reserve space for supporting service facilities, including rest space for staffs and temporary storage spaces.

(4) 充分利用自动信息导览系统和人工讲解相结合等手段,最大程度减少人工讲解和人工 管理。

Make full use of the combination of automatic information guide system and docents, and reduce the use of docents and personnel management.

(5) 应合理考虑大型展品(标本)的运输通道。

Reasonably consider the transportation passage of large-scale exhibits (specimens).

2.工作内容、深度和成果形式要求 Requirements of Work Content, Depth and Form of Deliverables

2.1 展示内容的优化 Optimization of Exhibition Content

(1) 展示框架的优化;

Optimization of exhibition framework;

(2) 展示内容的优化。

Optimization of exhibition content;

成果形式: Form of deliverables

文字、图表等。Texts, charts, etc.

2.2 常设专题展厅和教育活动区空间规划 Space Planning of Permanent Exhibition Halls

and Educational Activity Areas

(1) 博物馆整体空间参观流线;

The visiting circulation of the overall space of the museum;

(2) 常设专题展厅布局和参观流线规划;

Layout and visiting circulation planning of permanent exhibition halls;

(3) 各展区展品展项 (含标本模型) 布局定位和参观流线设计;

Layout of exhibits (including specimen models) and visiting circulation design in each exhibition area;

(4) 教育活动区规划布局;

Layout planning of educational activity areas;

(5) 公众及管理人员配套服务设施布局规划。

Layout planning of supporting service facilities for the public audience and administrative staffs.

成果形式: Form of deliverables:

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(1) 博物馆整体空间参观流线图
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Diagram of visiting circulation of the overall museum space;

(2) 常设专题展厅总平面图 1: 200;

Site plan of the permanent exhibition halls at 1:200;

(3) 常设专题展厅总人流分析图 1: 200;

Diagram of overall visiting flows of the permanent exhibition halls at 1:200;

(4) 教育活动区规划布局图 1: 200;

Layout plan of educational activity area at 1:200;

(5) 公众及管理人员配套服务设施布局分析图 1: 200;

Layout diagram of supporting service facilities for public audience and administrative staff at 1: 200;

(6) 各展区平面图、主要立面图和剖面图 1: 100;

Plan, main elevations and sections of each exhibition area at 1:100;

(7) 各展区展品展项布局定位图 (标注尺寸) 1: 50;

Layout of the exhibits in each exhibition area at 1:50 (mark dimensions);

(8) 各展区内部参观流线分析图 1: 100.

Visiting circulation diagram in each exhibition area at 1:100.

2.3 展示氛围和装饰风格 Exhibition Atmosphere and Decoration Style

(1) 展区装饰氛围设计定位;

Positioning of decorative atmosphere in the exhibition area;

(2) 展示色调色系的选择;

Color system of exhibition;

(3) 装饰材料的选择和建议。

Selection and suggestion of decorative materials.

成果形式: Form of deliverables:

(1) 各展区装饰平面图、立面图、天花图、地板图 (标注尺寸和材料);

Interior exhibition design plan, elevation, ceiling plan, and floor detail plan of each exhibition area (marked with dimensions and materials);

(2) 各展区全景彩色鸟瞰图;

Panoramic aerial view of each exhibition area in color.

(3) 各展区主要景观视角及核心展项彩色效果表现图;

Renderings of main viewing perspectives and core exhibits of each exhibition area in color;

(4) 色彩体系的分析和样式;

Analysis and pattern of color system;

(5) 各展区主要装饰材料建议清单及样板。

Suggested list and sample of main decoration materials in each exhibition area.

2.4 展项设计 Exhibit Design

对每个展区的各展项(群)进行初步设计。

Complete design development for each exhibit (exhibit group) in each exhibition area.

成果形式: Form of deliverables:

(1) 互动媒体及视频类展项

Interactive Media and Videos

创意概要、界面风格、互动方式、特殊多媒体技术原理、软件设计脚本、主要设备规格等。 Summary of concepts, interface style, forms of interaction, special multimedia technology principle, software design script, main equipment specifications, etc.

(2) 陈列类展项

Exhibits for Display

展柜(台)外观造型三视图(含尺寸材料标注)1:25、效果表现图、标本模型定位图1:25、装饰材料样板。

Three view drawings of appearance of showcases or stands (marked with dimensions and materials) at 1:25, renderings, layout of specimen models at 1: 25, samples of decoration materials.

(3) 机械互动类展项

Exhibits with Mechanical Interaction

外观造型三视图 (含尺寸材料标注) 1:25、互动方式、技术方案概要、效果表现图、装饰 材料样板。

Three view drawing of appearance (marked with dimensions and materials) at 1:25, methods of interaction, technical scheme summary, renderings, samples of decoration materials.

(4) 大型剧场、实验室类展项

Large-scale Theater and Laboratory

平、立面图 1: 50 (含尺寸标注)、效果表现图、装饰材料样板景箱及场景类展项;

Plan and elevation at 1:50 (marked with dimensions), renderings, sample dioramas with decoration materials for display scenes.

平、立面图 1:50 (含尺寸标注)、效果表现图、标本模型道具定位图 1:50。

Plan and elevation at 1:50 (marked with dimensions), renderings, layout of specimen models and props at 1: 50.

2.5 图文设计(含电子图文) Graphic Design (Including Electronic Graphics)

(1) 图文规划和分类;

Graphic planning and classification;

(2) 平面版式设计、媒体界面设计和图案风格设计;

Graphic layout design, media interface design and graphic style design;

(3) 中、英文文字使用规范(字体、字号、色彩、排版等);

Chinese and English text usage specifications (font, font size, color, layout, etc.);

(4) 图文版的显示、定位、照明、材料和安装方式等。

Presentation, layout, lighting, materials, installation methods, etc. of graphic boards. 成果形式: Form of deliverables:

(1) 图文分类原则(文字描述)和分类清单;

Principles of graphic classification (description text) and categories;

(2) 平面版式设计、媒体界面设计和图案风格设计图;

Drawings of graphic layout design, media interface design and graphic style design;

(3) 中、英文文字使用规范;

Chinese and English text usage specifications;

(4) 每一类图文版的三视图(标注尺寸材料)。

Three view drawings of each type of graphic board (marked with dimensions and materials).

2.6 公众教育服务及管理模式规划 Public Education Service and Planning of Management Mode

(1) 教育目标深化分解和实现路径;

In-depth analysis and implementation plan of education goals;

(2) 教育活动组织管理模式分析建议;

Analysis and suggestions on the organization and management mode of educational activities;

(3) 关于如何利用"无线信息互动平台"提供展陈教育服务的建议;

Suggestions on how to use the "wireless information interactive platform" to provide exhibition education services;

(4) 科学活动教室标准配置建议。

Suggestions on standard configuration of science activity classrooms.

成果形式: Form of deliverables:

文字、图纸、图表等。Texts, drawings, charts, etc.

2.7 灯效、音效设计 Lighting Effect and Sound Effect Design

(1) 灯效初步设计;

Design development of lighting effect;

(2) 音效初步设计。

Design development of sound effect.

成果形式: Form of deliverables:

(1) 灯光系统的设计方案 (包括系统图、灯位图、灯具选型、光源选型等);

Design scheme of lighting system (including system diagram, layout plan of lights, selection of lighting equipment, light source selection, etc.);

(2) AV 系统的设计方案(包括系统图、终端设备位置图、AV 设备选型等)。

Design scheme of AV system (including system diagram, terminal equipment location, AV equipment selection, etc.).

2.8 根据建筑条件进行水电风初步设计 Design Development of Water, Electricity, and

Ventilation Systems according to Architectural Conditions

(1) 根据建筑提供的条件和展示的需要,对可布展区域进行水、电、风初步设计,尤其是 涉及到恒温恒湿、活体养殖等对水、电、风等特殊要求;

According to the architectural conditions and the needs of the exhibition, complete the design development of water, electricity, and ventilation systems for the exhibition areas, especially the parts related to thermostat and humidistat, as well as living culture zone, where there are special requirements on water, electricity, and ventilation systems;

(2) 提出对建筑和配套系统的其他需求,如特殊的承重、温湿度、消防等。

Propose other requirements for architecture and supporting systems, such as special load-bearing, temperature and humidity, fire protection, etc.

成果形式: Form of deliverables:

文字、图纸。Text, drawings.

2.9 公共空间辅助展区设计 Design of Auxiliary Exhibition Area in Public Space

(1) 公共空间辅助展区布局、氛围、景观初步设计;

Design development of the layout, atmosphere, and scenes of the auxiliary exhibition area in public space.

(2) 展品展项,装置设计。

Design of exhibits and installations.

2.10 展陈工程投资概算 Cost Estimation of Exhibition Engineering

中标单位须完成本项目展陈工程初步设计概算编制,配合项目概算报审工作。概算编制须满 足《深圳市政府投资项目前期工作技术文件编制指南》(试行)(深发改(2020)651)、 相关文件规定及主管部门审核等相关要求。根据项目需要组织专家评审、论证、汇报会等; 成果文件需经本项目主管部门审核,并根据审核意见进行修改完善,直至审批通过。

The winner should complete the cost estimation for the design development of exhibition engineering, and assist with the cost estimation approval procedure. The cost estimation should fulfill the relevant requirements of Guidance for the Compilation of *Technical Documents for Preliminary Work of Projects Funded by Shenzhen Municipal Government* (Trial) (Development and Reform Commission of Shenzhen Municipality (2020) 651), and other relevant regulations, as well as meeting the audit requirements of the competent authorities. According to the needs of the project, the winner shall organize expert review, demonstration, reporting meetings, etc.; the winner shall make modifications and improvements on the design deliverables according to the review comments from the competent authorities, until the design work is approved.

2.11 其他应在展陈设计阶段完成的工作 Other Work That Should be Completed in the

Exhibition Design Phase

根据本项目在不同阶段的展陈设计需要,完成相应的工作。

Complete the corresponding work according to the exhibition design needs of this project at different phases.

2.12 初步设计深度要求 Depth Requirements of Design Development

(1)基础装饰装修工程设计(含天地墙、水电暖等):图纸目录、设计说明、材料表、做 法表;平面布置图、综合天花图、地面铺装图、立面索引图、各向立面图;室内效果图;重 要部位或特殊做法部位的详图节点(如天棚、地面、墙面);系统图、设备平面布置图(能 体现主要设备材料工程量);水暖电等设备末端形式、位置等。

Basic interior decoration design (including ceiling, floor, walls, water, electricity, heating, etc.): drawing catalog, design description, material table, finish schedule; floor plan, ceiling plan, floor paving drawing, elevation index, elevation of each direction; renderings of interior; detailed drawings of important nodes and parts with special treatments (such as ceiling, floor, wall); system diagram and floor plan that reflects the engineering workload of major equipment and materials; the form and location of the equipment terminals for water, heating, electricity and other systems.

(2) 展示内容空间布局设计、观众参观动线设计、展品展项设计、艺术辅助展品设计、图 文版面设计、多媒体规划与设计、观众互动体验装置设计与研发、展示家具和道具设计、展 示灯光设计

Spatial layout design of exhibition content, visiting circulation design, exhibit design, auxiliary art

exhibit design, graphic layout design, multimedia planning and design, design and research of audience interactive experience devices, exhibition furniture and prop design, exhibition lighting design.

(3)包括但不限于:展览总平面图和各分平面图,观众流线图,各展厅全景透视图,展示 空间环境氛围效果图,典型展品组合效果图(包括序厅和各个部分、单元重点和亮点效果图), 展示家具和道具的造型图(包括展柜、壁龛、展台、展墙设计图),展项的平面、立面和剖 面图,图文版面的设计图,展示灯光设计效果图,多媒体和互动展示装置设计图(包括主要 材料设备规格数量清单及样板、内容设计脚本、硬件选型、系统图及平面布置图)。

Including but not limited to: masterplan and plan of each floor, drawings of visiting circulation, panoramic perspective view of each exhibition hall, renderings of exhibition spatial environment and atmosphere; renderings of typical exhibit combination (including renderings of preface hall, highlights and key points of each part and unit); modeling drawings of exhibition furniture and props (including design drawings of showcase, niches, stands, and exhibition walls); plan, elevation and section drawings of exhibits; graphic and text layout design drawings, renderings of exhibition lighting design, design drawings of multimedia and interactive display devices (including samples and lists of specifications and quantities of major materials and equipment, content design scripts, hardware selection, system diagrams and layout plans).

(4) 材料设备清单应包含以下内容:

The list of materials and equipment should include the following:

 基础装饰装修材料设备:装样板、主要节点图纸、大样、装修清单表(含材料种类、 规格型号、参数、参考品牌、功能)等。

Basic building decoration materials and equipment: sample boards, drawing of main nodes, large samples, finish schedule of each interior room (including material types, specifications, parameters, reference brands, functions), etc.

2) 展柜:尺寸、参考品牌(进口、国产)、工厂定制、现场制作、计量单位、数量,柜体的材质、厚度,玻璃的品牌、类型、厚度、开启方式及配件,灯具的品牌、规格型号,锁具的品牌、型号,背板及底板的材质、厚度、密封系统,恒温、恒湿等配套系统等。

Showcase: size, reference brand (imported, domestic), factory customization, on-site production, measurement unit, quantity; material and thickness of showcase; brand, type, thickness, opening method and accessories of glass; brand and specification of lights; brand and specification of lock; material, thickness, and sealing system of back plate and bottom plate; thermostat, humidistat, and other supporting system, etc.

3)专业照明系统:品牌、材质、光源(类型、功率、显色性及色温)、规格尺寸、重要 参数(配光、调光情况)以及其他配置情况(可加配件、壳体及表面处理情况,可调方向, 是否有防眩光设计,适配的轨道,是否自带锁定结构,以及强制性认证等),同时需附实 物图片。

Professional lighting system: brand, material, light source (type, power, color rendering and color temperature), specifications, important parameters (light distribution, dimming) and other

configurations (additional accessories, housing and surface treatment situation, adjustable direction, whether there is anti-glare design, suitable track, whether there is a locking structure, and mandatory certification, etc.); photos of the products are required.

4)多媒体及观众体验装置:含多媒体、观众体验装置,主要包含硬件(如银幕系统、音响系统、灯光系统、座椅系统、播放服务器等)、操作软件(如投影系统、播放系统相关软件如操作系统软件、播放系统软件等、灯光效果软件)、系统集成和内容(拍摄、动画、剪辑等)等指标,包括品牌、型号、规格、尺寸、单位、技术标准、硬件配置、软件功能描述、内容等。

Multimedia and audience experience devices: including hardware (such as screen system, sound system, lighting system, seat system, playback server, etc.); operating software (such as projection system, playback system, operating system, and lighting effect system software); index of system integration and content (shooting, animation, editing, etc.), which includes brand, model, specification, size, unit, technical standard, hardware configuration, software function description, content, etc.

4.1 硬件: 品牌、型号、规格、尺寸、单位、技术标准、配置参数。

Hardware: brand, model, specification, size, unit, technical standard, configuration parameters.

4.2 软件: 品牌、型号、技术规格、软件功能描述等。

Software: brand, model, technical specification, software function description, etc.

4.3 内容: 片源(数量、类型、片长、格式、影片放映许可期限、采购方式是定制拍摄或 租用已有片源)。

Content: film source (quantity, type, film length, format, film screening license period, purchase method: customized shooting or renting existing film source).

5) 辅助艺术品: 展示类型、展示形式、工艺描述、材质、设备、尺寸、型号、技术难度、 作者艺术等级(在国内外影响力)、叠加工艺手段等。

Auxiliary artwork: exhibition type, exhibition form, fabrication description, material, equipment, size, model, technical difficulty, author's artistic background (worldwide influence), superimposed fabrication methods, etc.

(5) 成果深度应达到业主及相关审批部门的要求。

The depth of design deliverables should meet the requirements of the client and relevant departments in charge of project approval.

3. 设计周期 Design Schedule

3.1 总体工期要求 Overall Work Schedule Requirements

合同签订后90个日历天内设计完成并出具设计成果。

The design deliverables should be completed within 90 calendar days after signing the contract.

3.2 进度节点 Time Frame

由投标人在投标文件中提供进度节点。中标后进度节点与业主协商调整确认。

The time frame should be provided by the bidder in the bidding document. After winning the bid, the time frame shall be adjusted and confirmed through consultation with the client.

四、各阶段工作成果及汇报要求 Deliverables and Reporting

Requirements at Each Phase

1. 展陈设计阶段 Exhibition Design Phase

1.1 展陈设计启动阶段 Exhibit Design Launching Phase

通过和博物馆方的沟通对项目进行全面、深入的理解,形成概念规划方案。

Have a comprehensive and in-depth understanding of the project through communication with the museum, and complete the conceptual planning scheme.

(1) 工作方式: Working method:

设计团队到深圳与深圳自然博物馆进行深入沟通。

The design team attends the on-site meeting in Shenzhen to have an in-depth communication with Shenzhen Natural History Museum.

(2) 提交成果: Deliverables:

提交电子和书面的项目理解报告;

Submit electronic and paper reports of project understanding;

提交电子和书面的概念规划方案。

Submit electronic and paper booklet of conceptual planning scheme.

1.2 展陈设计 30% 阶段 Exhibition Design 30% Phase

(1) 提交成果: Deliverables:

包括本任务书第三章中 "2.工作内容、深度和成果形式要求"所提的 2.1、2.2、2.3、2.4、2.7、 2.8、2.9 的主要部分。

Include the main parts of 2.1, 2.2, 2.3, 2.4, 2.7, 2.8 and 2.9 mentioned in "2. Requirement of Work Content, Depth and Form of Deliverables" in Chapter 3 of this *Design Brief*.

(2) 汇报方式: Reporting method:

提交书面和电子的 30%阶段设计成果;

Submit electronic and paper booklet of 30% phase design deliverables;

设计团队主要成员到深圳自然博物馆进行汇报沟通。

The main members of the design team attend on-site meeting with Shenzhen Natural History Museum to report and communicate.

1.3 展陈设计 50%阶段 Exhibition Design 50% Phase

(1) 提交成果 Deliverables:

包括本任务书第三章中 "2.工作内容、深度和成果形式要求"所提的 2.1、2.2、2.3、2.4、2.7、 2.8、2.9 的主要部分。

Including the main parts of 2.1, 2.2, 2.3, 2.4, 2.7, 2.8 and 2.9 mentioned in "2. Requirement of Work Content, Depth and Form of Deliverables" in Chapter 3 of this *Design Brief*.

(2) 汇报方式 Reporting method

提交书面和电子的 50%阶段设计成果;

Submit electronic and paper booklet of 50% phase design deliverables;

设计团队主要成员到深圳自然博物馆进行汇报沟通。

The main members of the design team attend on-site meeting with Shenzhen Natural History Museum to report and communicate.

1.4 展陈设计 80%阶段 Exhibition Design 80% Phase

(1) 提交成果: Deliverables:

包括本任务书第三章中 "2.工作内容、深度和成果形式要求"所提的 2.1、2.2、2.3、2.4、2.7、 2.8、2.9 的完整部分和 2.5、2.6、2.10、2.11 的主要部分。

Including complete contents of 2.1, 2.2, 2.3, 2.4, 2.7, 2.8, 2.9, as well as the main parts of 2.5, 2.6, 2.10, 2.11 mentioned in "2. Requirement of Work Content, Depth and Form of Deliverables" in Chapter 3 of this *Design Brief*.

(2) 汇报方式: Reporting method:

提交书面和电子的80%阶段设计成果;

Submit electronic and paper booklet of 80% phase design deliverables;

设计团队主要成员到深圳自然博物馆进行汇报沟通。

The main members of the design team attend on-site meeting with Shenzhen Natural History Museum to report and communicate.

1.5 展陈设计 100%阶段 Exhibition Design 100% Phase

(1) 提交成果: Deliverables:

包括本任务书第三章中"2.工作内容、深度和成果形式要求"所提的 2.1~2.11 的所有部分。

Including all contents of 2.1 to 2.11 mentioned in "2. Requirement of Work Content, Depth and Form of Deliverables" in Chapter 3 of this *Design Brief*.

(2) 汇报方式 Reporting method:

提交书面和电子的最终设计成果;

Submit electronic and paper booklet of final design deliverables;

设计团队负责人及主要成员到深圳自然博物馆进行汇报沟通;

The main members of the design team attend on-site meeting with Shenzhen Natural History Museum to report and communicate;

召开展陈设计成果汇报会,并通过专家组评审。

Hold a report meeting on the exhibition design deliverables and pass the evaluation of the expert committee.

重要说明: Important Note:

(1) 展陈设计应满足工程总体进度的需要;

The exhibition design should meet the needs of the overall progress of the project.

(2)设计团队应充分与建筑设计方进行沟通,确保方案设计满足建筑大系统的条件要求(如 空间流线、空调、消防、楼板承重、给排水等);

The exhibition design team should fully communicate with the architectural design team to ensure that the exhibition design scheme meets the requirements of the overall building system (such as circulation, air conditioning, fire protection, floor load-bearing, water supply and drainage, etc.).

(3)设计团队应聘请有关的科学顾问和专业设计顾问(尤其是灯光设计顾问),并与业主 方的设计团队进行充分沟通,确保所有的设计成果满足科学性要求和展示效果要求,并具有 合理的可操作性;

The design team should hire relevant scientific consultants and professional design consultants (especially lighting design consultants), and fully communicate with the other design teams hired by the client to ensure that all the design deliverables meet the scientific requirements and exhibition effect requirements, and are reasonably practical;

(4)每个阶段的设计成果需在业主要求的时间节点2天前送达指定地点,供业主审核,所 有过程及最终方案的文稿和图纸资料请提供中文版本。

The design deliverables of each phase should be delivered to the designated place two days before the due date required by the client for review. Please provide Chinese version of all the texts and drawings.

2. 效果监理服务阶段 Effect Supervision Service Phase

2.1 施工深化设计阶段 Shop Drawing Design Phase

(1)派出参与并熟悉本项目、具备丰富实践经验的设计人员(常驻不少于2名)到现场履 行展陈效果监理工程师的职责;展陈效果监理工程师应具有如下资格:有良好的博物馆学和 展览工程的研究造诣;有丰富的博物馆展览策划、设计及工程管理实践经验;了解和熟悉现 代博物馆展览的理念、技术和方法;掌握和熟悉博物馆展览工程费用构成及其市场价格;最 好有博物馆学的正高级职称,在业内享有较高的知名度。展陈效果监理工程师对展览内容与 形式的学术性、科学性、艺术性进行把关,对展品展项的传播效果和艺术效果把关,对艺术 表现与展览主题和内容吻合度、展品展项的艺术表现效果和工艺技术质量、展项和布展造价 合理性进行把关。

Send designers (at least 2 on site) who are familiar with this project and have rich practical experience to the site to perform duties of exhibition effect supervision. The exhibition effect supervising engineer should have the following qualifications: good research attainments in museum science and exhibition engineering; rich practical experience in museum exhibition planning, design and project management; understand and familiar with the concepts, techniques and methods of modern museum exhibitions; master and familiar with the composition of museum exhibition engineering cost and its market price; the person is best to have a senior professional title in museum science and a high reputation in the industry. The exhibition design, as well as the communication effect and artistic effect of the exhibits. The exhibition effect supervising engineer is also responsible for the consistency between artistic expression and exhibition theme and content, the artistic expression effect and technological quality of exhibits, and the rationality of exhibits and exhibition cost.

(2) 展陈效果监理工程师需根据工程进度,对各类深化设计文件、材料样板进行审核,依 照方案初步设计阶段所确定的基本原则和框架,参照国家、广东省颁布的各项相关法律、法规、规章、规范等提出具体的审核意见、建议,并在必要时进行相关的指导,使其达到相应 的设计要求和标准;

The exhibition effect supervising engineer should review all kinds of shop drawings and material samples according to the progress of the project. The supervising engineer should provide specific review comments and suggestions according to the basic principles and framework determined in the design development phase, as well as the relevant laws, regulations, rules and specifications issued by State and Guangdong Province, and provide relevant guidance when necessary in order to meet the corresponding design requirements and standards.

(3) 展陈效果监理工程师须对可能发生的各种设计变更进行处理和应对,在设计团队的支持下,高效、经济地维护业主的合法利益,确保最终的设计成果符合预定目标;

The exhibition effect supervising engineer should deal design variations; with the support of the design team, the supervising engineer should safeguard the legitimate interests of the client efficiently and economically, and ensure that the final design deliverables meet the predetermined objectives;

(4) 其他业主方要求在施工深化设计阶段应履行的工作职责。

Other job responsibilities required by the client in the shop drawing design phase.

2.2 现场施工阶段至竣工验收 Construction Phase and Completion Acceptance

(1) 派出参与并熟悉本项目、具备丰富实践经验的设计人员(不少于2名)到现场履行展 陈效果监理工程师的职责;展陈效果监理工程师应具有如下资格:有良好的博物馆学和展览 工程的研究造诣;有丰富的博物馆展览策划、设计及工程管理实践经验;了解和熟悉现代博 物馆展览的理念、技术和方法;掌握和熟悉博物馆展览工程费用构成及其市场价格;最好有 博物馆学的正高级职称,在业内享有较高的知名度。展陈效果监理工程师对展览内容与形式 的学术性、科学性、艺术性进行把关,对展品展项的传播效果和艺术效果把关,对艺术表现 与展览主题和内容吻合度、展品展项的艺术表现效果和工艺技术质量、展项和布展造价合理 性进行把关。

Send designers (at least 2 on site) who are familiar with this project and have rich practical experience to the site to perform duties of exhibition effect supervision. The exhibition effect supervising engineer should have the following qualifications: good research attainments in museum science and exhibition engineering; rich practical experience in museum exhibition planning, design and project management; understand and familiar with the concepts, techniques and methods of modern museum exhibitions; master and familiar with the composition of museum exhibition engineering cost and its market price; the person is best to have a senior professional title in museum science and a high reputation in the industry. The exhibition design, as well as the communication effect and artistic effect of the exhibits. The exhibition effect supervising engineer is also responsible for the consistency between artistic expression and exhibition theme and content, the artistic expression effect and technological quality of exhibits, and the rationality of exhibits and exhibition cost.

(2) 展陈效果监理工程师需根据工程进度,对不同阶段的现场施工情况和实施成果进行审核,依照前阶段所确定的设计方案,参照中国和广东省颁布的各项相关法律、法规、规章、规范等提出具体的审核意见、建议,并在必要时进行相关的指导,使其达到相应的设计要求和标准,确保最终完成的展示效果;

According to the progress of the project, the exhibition effect supervising engineer should check the construction situation and implementation on site in different phases, provide specific review comments and suggestions according to the design scheme determined in the previous phase, as well as the relevant laws, regulations, rules and specifications issued by State and Guangdong Province, and give relevant guidance when necessary, so as to meet the corresponding design requirements and standards and ensure the final exhibition effect;

(3) 展陈效果监理工程师须对可能发生的各种设计变更进行处理和应对,在设计团队的支持下,高效、经济地维护业主的合法利益,确保最终的展陈成果符合预定目标;

The exhibition effect supervision engineer should deal with design variations. With the support of the design team, the supervising engineer should safeguard the legitimate interests of the client efficiently and economically, and ensure that the final exhibition work meet the predetermined

objectives;

(4) 其他业主方要求在施工阶段应履行的工作职责。

Other job responsibilities required by the client in the construction phase.

2.3 人员派驻要求 Staffing Requirements

在效果监理阶段,效果监理工程师到现场验收展陈效果的次数原则上不少于 10 次,为保证 工程质量和进度,实际人员到位次数以业主方要求为准。

In the phase of effect supervision, the effect supervising engineer should go to the site to check the exhibition effect for at least 10 times in principle. In order to ensure the quality and progress of the project, the number of actual personnel in place shall be subject to the requirements of the client.

五、设计成果的审核及验收 Review and Acceptance of Design Work

1. 总体要求 Overall Requirements

设计单位提供的设计成果的审核、验收按审核、验收方法的具体规定分阶段按程序进行。

The examination and acceptance of the design work provided by the design team shall be carried out by corresponding procedures and in phases according to the specific provisions of the review and acceptance methods.

2. 审核、验收标准 Review and Acceptance Standards

(1) 达到招标文件规定的展区设计要求和预期目标。

Meet the exhibition design requirements and expected objectives stipulated in the tender documents.

(2) 符合招标文件的有关规定(工作范围、工作深度和成果形式、数量和时间等要求)。

Meet the relevant provisions of the tender documents (requirements of work scope, depth, and the form, quantity and finish time of the deliverables).

(3) 符合"时间节点表"的有关要求。

Meet the relevant requirements of the "time frame table".

(4) 符合展陈设计的专业技术要求。

Meet the professional and technical requirements of exhibition design.

(5) 符合现场概况和建筑边界条件载明的条件(包括但不限于建筑空间、平面条件、水、 电、空调等条件)。

Meet the conditions specified in the site overview and architectural conditions (including but not limited to architectural space, plan layout conditions, water, electricity, air conditioning and other conditions).

(6) 符合中国和广东省现行的相关法规、规范和标准。

Comply with the relevant laws, provisions and standards of China and Guangdong Province.

(7) 设计成果应符合业主提出的下一阶段的工作要求或符合工程的设计要求和相关规范。

The design work should meet the requirements for the next phase of work proposed by the client or meet the design requirements and relevant provisions of the project.

(8) 设计成果应经济可行并可在业主的预算范围内进行修改或调整。

The design work shall be economically feasible and shall be able to make modification or adjustment within the client's budget.

3. 审核、验收阶段 Audit and Acceptance Phase

3.1 阶段成果(设计深度分别达到 30%、50%、80%分三次进行) Design Work of Each Phase

(Divided into 30%, 50%, 80%)

(1) 设计者在设计完成 30%、50%、80%后的适当时间(具体时间由业主的实际时间进度的规定及参考设计者的意见确定),向业主递交相应的设计成果。

The designer shall submit the corresponding design deliverables to the client at an appropriate time after the completion of 30%, 50% and 80% of the design (the specific time shall be determined by the client's actual schedule and the designer's opinions).

(2) 业主自收到设计者提供的阶段成果之日起三十个工作日内对该成果进行审核,并向设 计者提出有关的调整、优化意见。

The client shall, within 30 working days after receiving the deliverables submitted by the designer, review the work and propose relevant adjustment and optimization suggestions to the designer.

3.2 最终成果 Final Deliverables

(1) 设计者应按本项目的时间进度要求完成所有设计工作, 向业主提交最终成果, 并组织 专题报告会, 向业主介绍设计成果。

The designer should complete all the design work according to the time frame of the project, submit the final deliverables to the client, and organize a report meeting to report the final design to the client.

(2) 业主(组织专家)审核,并自收到设计者提供的最终成果之日起二十个工作日内对该 成果进行审核,对符合本合同设计要求之设计成果,由业主予以书面确认并通知设计者成果 审核通过;对不符合本合同设计要求之设计成果,由业主予以书面提出修改要求并通知设计 者,并向设计者提出可能有的调整、优化意见。

The client shall review the design work (inviting experts) within 20 working days after receiving the final design deliverables submitted by the designer. For the design work that meet the design requirements of this contract, the client shall confirm in writing and notify the designer of approval; for the design work that does not meet the design requirements of this contract, the client shall provide the modification request in writing and notify the designer, as well as provide possible adjustment and optimization suggestions to the designer.

(3) 当设计者的设计不能达到合同规定的接受标准时,设计者将免费进行修改至符合合同规定并获得业主认可为止。

When the designer's design fails to meet the approval standard stipulated in the contract, the designer shall modify it free of charge until it meets the requirements in the contract and receives approval from the client.

4. 未达标补偿办法 Compensation for Failure to Meet Standards

(1) 如设计者在规定的时间内未能按合同的规定递交设计成果,应在业主规定的时间(补救时间内)内进行优化、调整或补充至达到合同要求为止。

If the designer fails to submit the design work in accordance with the contract within the specified time frame, it shall optimize, adjust or supplement the design work within the time frame specified by the client (within the remedial period) until the design work meets the requirements listed in the contract.

(2) 如果设计者在业主给定的补救期间,不能满足合同要求或者预期目标,业主将有权按 照要求赔偿的比例扣减设计者的设计费用。

If the designer fails to meet the requirements listed in the contract or the expected objectives within the remedial period given by the client, the client has the right to deduct the designer's design fee in accordance with the proportion of the compensation claimed.

(3)如果在业主的书面意见中,对递交的成果提出合理的修改意见,设计者应在保证工程 进度的前提下对递交成果作出相应的修改或向业主提出可以被接受的理由。在业主要求的合 理修改意见被设计者接受之前,业主将推迟相应的设计费用或符合合同规定的服务延期补偿 费用的支付,直到设计者完成修改或其向业主提出的理由被接受。

If the client proposes reasonable modification comments on the submission, the designer shall, on the premise of ensuring the progress of the project, make the corresponding modification to the submitted work or provide the client with reasons for acceptance. Before the reasonable modifications requested by the client are accepted by the designer, the client will postpone the payment of the corresponding design fee or the compensation for the delayed service conforming to the provisions of the contract, until the designer completes the modification or the reasons presented to the client are accepted.

六、附件 Attachment

附件 1: 深圳自然博物馆项目建筑边界条件

Attachment 1: Architectural Conditions of Shenzhen Natural History Museum

1.1 建筑概貌

Architectural Profile

1.2 各层组合及分区平面图 (含屋顶)

Floor Plan of Zones of Each Floor (Including Rooftop)

1.3 深圳自然博物馆消防设计边界条件

Boundary Conditions for Fire Protection Design of Shenzhen Natural History Museum

1.4 室内设计与展陈的边界

Boundaries Between Interior Design and Exhibition

1.5 室内效果图及位置示意

Interior Renderings and Location Map.

1.6 展厅净高示意图

Net Height of the Exhibition Hall

1.7 展陈面积示意

Floor Area of Exhibition Areas

附件 2: 深圳自然博物馆项目总体规划纲要

Attachment 2: Master Plan for Shenzhen Natural History Museum

附件 3: 深圳自然博物馆项目展陈大纲

Attachment 3: Exhibition Outline of Shenzhen Natural History Museum

附件 4: 深圳自然博物馆项目内容文本 (恐龙厅和生物厅)

Attachment 4: Content Text of Shenzhen Natural History Museum (Dinosaurs Hall and Biology Hall)

