

SHENZHEN NATURAL HISTORY MUSEUM

深圳自然博物馆

SHENZHEN
NATURAL HISTORY
MUSEUM

方案及建筑专业初步设计

Schematic Design and
Architectural Design Development

资格预审文件

Pre-Qualification Document

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

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Shenzhen Position Spatial Culture Development Co., Ltd.

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Instruction Table

投标人须知前附表

Instruction Table

No.	Subject	Rules
1	Project Name	Shenzhen Natural History Museum Schematic Design and Architectural Design Development
2	Tenderee	Engineering Design Management Center of Bureau of Public Works of Shenzhen Municipality
3	Project Overview	Shenzhen Natural History Museum is located at Yanzi Lake area Pingshan District, Shenzhen China. The Museum may cover an area of 42,000 square meter, with a gross floor area of 100,000 square meter. Total Investment is temporarily determined as 3.5 billion RMB (including architecture construction, exhibition construction, smart venue, professional equipment purchase fee, excluding specimen collection cost). This project will include programs such as collection care and conservation, exhibition, social education, public service, research, administration, etc. The final project scale and investment is subject to government approval.
4	Project Type	Large Public Cultural Facility
5	Capitol Source	100% Municipal Government Investment
6	Bidding Scope	Conceptual design, schematic design and architectural design development (including but not limited to the following: master planning, layout, architecture, structural engineering, interior design, electrical mechanical, indoor-outdoor pipeline integration, landscape design, intelligent venue and informatization, steel structure, curtain wall, signage system, life support, cinema, VR scenes, collection experiment, elevator, architectural acoustics, flood lighting, prefabricated building, air defense, door & window, green building certificate, sponge city design. Excluding exhibition design); BIM in schematic design and architectural design development phases; Cooperate with feasibility study report, budget preparation and project approval; Review drawings of exhibition design, interior design, curtain wall and landscape design that have an impact on the overall architectural effect; Be responsible for material and sample selection of materials that have a great impact on the project. The final work scope shall be subject to the tender documents and design contract.
7	Bidding Type	Procedure of invitation + open call (pre-qualification) is adopted for this project tender. There are 6 invitees, while open call (pre-qualification) will determine 9 shortlisted bidders.
8	Design Fee	<p>1. The total design fee is RMB 53.50 million, consisting of two parts listed below:</p> <p>1) Basic Design Fee: basic design fee = gross floor area × fixed unit price. The bidding price of basic design fee is maximum RMB 400/square meter. The unit price will not be adjusted at the time of settlement. The basic design fee is temporarily priced at RMB 40 million, calculated based on 100,000 square meters, and will be subject to the final approval of the project's overall budget estimate. The exhibition design fee is not included.</p> <p>2) The total honorarium for outstanding bidders and compensation for scheme optimization (hereinafter referred to as the honorarium) are tentatively determined at RMB 13.5 million (depending on the different combinations of the design teams that are invitees or shortlisted from open call pre-qualification, the honorarium is ranged from RMB 12.3 million to RMB 13.5 million, currently calculated with highest possibility). Honorarium will be paid by the winner after the contract between winner and tenderee is signed and first payment is processed.</p> <p>2. The total design fee includes all subject studies necessary for the design (including expert argumentation, design consulting, technical review, expert consultation fees, etc.), and the conference expenses related to the project (including expert review fees, consulting fees, travel expenses, conference fees, etc.).</p> <p>3. The total design fee includes the service fee for related administrative examination and approval of schematic design and architectural design development documents.</p> <p>4. The total design fee includes fees stipulated in other sections of the design contract.</p>

投标人须知前附表

序号	名称	规定
1	工程名称	深圳自然博物馆方案及建筑专业初步设计
2	招标人	深圳市建筑工务署工程设计管理中心
3	工程概况	深圳自然博物馆选址于深圳市坪山区燕子湖片区，土地用途为文体设施用地，规划建设用地面积约42000平方米，总建筑面积暂定为100000平方米，建安总投资估算暂定为35亿元（含建设工程、展陈工程、智慧场馆、专业设备购置费，不含标本征集费）。本项目将建设藏品保管和保护、展览、社会教育、公共服务、研究、行政办公等功能模块，最终规模及投资以政府相关批复为准。
4	项目类型	大型公共文化设施
5	资金来源	100%市政府投资
6	招标内容	方案设计、方案深化、建筑专业初步设计（包括但不限于如下专业内容：规划、总图、建筑专业、结构专业、室内专业、机电各专业、室内外机电管线综合、景观专业、智慧场馆及信息化、钢结构、幕墙、标识系统、维生系统、影院专项、VR虚拟场景、馆藏实验、电梯、建筑声学、泛光设计、装配式建筑、人防、门窗、绿色建筑认证、海绵城市设计等，不包含展陈设计）；方案阶段及建筑专业初步设计阶段BIM；配合可研报告、概算编制及项目报批报建等相关工作；对展陈设计、室内设计、幕墙、景观等对整体建筑效果有影响的相关专业图纸进行审核；负责对项目有较大效果影响的材料进行选材定样等配合工作。最终工作内容以招标文件和设计合同为准。
7	招标方式	本项目采用邀请+公开（资格预审）方式，6家邀请单位，通过公开报名及资格预审确定9家入围单位。
8	设计费	<p>1. 总设计费暂定为5350万元，包括以下两部分：</p> <p>1) 基本设计费：基本设计费=建筑面积×固定单价，基本设计费投标报价上限400元/平方米。结算时单价不作调整。建筑面积暂按100000m²计算，最终以项目总概算批复建筑面积为准，基本设计费暂定价为4000万元。不包含展陈设计费。</p> <p>2) 未中标优秀方案补偿费、方案优化补偿费合计（以下简称补偿费）暂定为1350万元（依据评审阶段落标单位来自邀请的单位或资格预审评审产生的单位不同组合情况，补偿费在1230万元至1350万元区间取值，暂取最高补偿费进行计算），以上补偿费在招标人与中标单位签订合同并支付第一笔费用后，由中标单位统一支付。</p> <p>2. 总设计费已含所有为设计所必需的专题研究（含专家论证、设计咨询、技术评审、各专业专家顾问费等），与项目相关的会议费用（含专家评审费、咨询费、差旅费、会务费等）。</p> <p>3. 总设计费已包含方案及建筑专业初步设计相关行政报审报批服务费</p> <p>4. 总设计费包含本项目设计合同其他章节中约定的费用。</p>

No.	Subject	Rules
9	Application Requirements	<p>1. Applicants must be domestic or overseas entities with legal business registration.</p> <p>2. Consortium are permitted. One consortium shall include no more than 3 members (including the leading member). The consortium members shall sign the Consortium Agreement legally and specify the leading member, as well as work distribution in each design stage and their share of rights and interests. Each member of the consortium shall not further apply alone or participate by joining another consortium.</p> <p>3. Individual or teams of individuals will not be accepted.</p>
10	Acquisition of Pre-Qualification Document	Download the Pre-Qualification Document from the Tender Announcement Section of Shenzhen Construction Project Transaction Service Website
11	Pre-Qualification Application Submission	<p>Submission Deadline: UCT+8 May 6th, 2020, 17:00 (see Shenzhen Construction Project Transaction Service Website-Tender Announcement)</p> <p>Submission (Mailing) Address: Survey & Design Window of Shenzhen Construction Project Transaction Service Centre, Floor 2, Design Building, No. 8 Zhenhua Road, Futian District, Shenzhen City, China 518031</p> <p>Contact: Ms Chen Phone Number: +86-19129915597</p> <p>Submission Method: package submitted on site or by mail delivery</p> <p>Notice: Considering the COVID-19 outbreak globally, resulting in risk of delay delivery, to ensure application document delivered on time, applicants can entrust a reliable person locally to prepare and submit sealed package of paperback documents and flash drives containing digital files of application for them. The entrusted person must bring along a print-out of the scan copy of signed Letter of Authorization (format in attachment 1), as well as the person's ID card when submitting on site. The scan copy of signed Letter of Authorization must be sent to the project email address by the applicant.</p> <p>Pre-qualification application documents submitted or mailed must arrive strictly before the deadline at the designated address, otherwise, package will not be accepted.</p>
12	Query Period & Method	<p>Query Deadline: UCT+8 April 10th, 2020, 17:00 (see Tender Announcement Section of Shenzhen Construction Project Transaction Service Centre).</p> <p>Query Submission Method: The query document should include a digital file in .doc format and a scanned copy affixed with official stamp, both should be sent via email to competition@archiposition.com (Query documents are only accepted through this email, all other channels are not effective and will not be answered).</p>
13	Clarification, Amendment and Answering Period	<p>Clarification, Amendment and Answering Period End: UCT+8 April 22nd, 2020, 17:00 (Check the Tender Announcement Section of Shenzhen Construction Project Transaction Service Centre).</p> <p>How to Get Amendment Documents: Please check and download the Clarification, Amendment and Answering files from this project's original Tender Announcement on Shenzhen Construction Project Transaction Service Website - Tender Announcement Section. (http://zjj.sz.gov.cn/jsjy/jyxx/zbgg/)</p>
14	Veto Clause	See Article 9.4 of Pre-qualification Instruction for details.

序号	名称	规定
9	资格预审报名条件	<p>1. 投标申请人须是中华人民共和国境内、外注册的企业或机构。</p> <p>2. 接受联合体报名，联合体成员（含牵头单位）共计不得超过3家；联合体合作方需签署合法有效的《联合体协议》，并明确牵头单位，各个设计阶段中各方的分工划分方式和设计费用的分摊比例、分配方式等；联合体成员不得再单独或以其他名义与其他设计单位组成联合体参与报名。</p> <p>3. 不接受个人或个人组合的报名。</p>
10	获取资格预审文件方式	资格预审文件自行在“深圳建设工程交易服务网-招标公告”下载。
11	资格预审申请文件递交截止时间及方式	<p>截止时间: 北京时间 2020 年 5 月 06 日 17 时 00 分 (详见深圳建设工程交易服务网-招标公告)</p> <p>现场递交或邮寄地点: 中国深圳市福田区振华路 8 号设计大厦二楼深圳建设工程交易服务中心勘察设计窗口</p> <p>联系人: 陈工 联系电话: 19129915597</p> <p>递交方式: 现场提交或邮寄方式 受疫情影响，本项目资格预审申请文件接受现场递交、邮寄方式递交。考虑到邮寄文件有延时送达风险，为保障投标申请单位按时送达文件，投标申请人可委托国内人员将资格预审申请文件盖章电子版制作成资格预审申请文件纸质文件、电子 U 盘按要求封装后现场提交，同时需提交授权委托书（委托书格式见附件）。此授权委托书原件扫描件需发至本项目指定邮箱，被委托人需携带本授权委托书电子邮件打印版、身份证原件提交资格预审申请文件。</p> <p>特别提醒: 资格预审申请文件须在截止时间前送达或邮寄至指定地点，逾期将不予受理。</p>
12	申请人对资格预审文件的质疑期限、方式	<p>投标申请人质疑截止时间: 北京时间 2020 年 4 月 10 日 17 时 00 分 (详见深圳建设工程交易服务网-招标公告)</p> <p>投标申请人提交疑问的方式: 投标申请人将质疑文件扫描件（加盖公章，接受电子签章）和电子版（.doc 格式）提交至电子邮箱 competition@archiposition.com（质疑文件以本邮箱收件为准，非本邮箱收件一律视为无效质疑，不予答复）</p> <p>邮件发送后请联系陈工，联系电话：19129915597</p>
13	招标人对资格预审文件的澄清或修改、答疑的期限、方式	<p>招标人澄清或修改、答疑截止时间: 2020 年 4 月 22 日 17 时 00 分 (详见深圳建设工程交易服务网-招标公告)</p> <p>投标申请人获取答疑或招标文件补充文件的方式： 投标申请人自行在“深圳建设工程交易服务网”上本项目资格预审公告原发布页面获取答疑及补遗等补充文件。 (http://zjj.sz.gov.cn/jsjy/jyxx/zbgg/)</p>
14	否决性条款	具体见本项目资格预审文件“资格预审须知”第 9.4 条。

No.	Subject	Rules
15	Honorarium	<p>Honorarium is set up for outstanding schemes that are shortlisted.</p> <p>(1) In the design competition stage, 12 design teams that have not entered the final evaluation process will be compensated. Each of the invitees will be compensated RMB 1,000,000, while the shortlisted teams from open call pre-qualification review will be compensated RMB 600,000 each.</p> <p>(2) Among the 3 finalists, the final winner will be awarded of design contract, the other two teams will be paid honorarium for their outstanding proposals, each RMB 1.5 million.</p> <p>(3) In the final evaluation stage, the tenderer reserves the right to request the three finalists to further optimize their proposal. If so, an extra fee of RMB 300,000 will be paid to each team for the work. If no need for further work before final evaluation, such fee will not apply.</p>
16	Design Schedule	<p>Design contract shall be signed within 30 days since the bid-winning notice is issued, while concept adjustment and scheme design shall be completed within 60 days since bid-winning notice. Once concept adjustment and scheme design are approved by the tenderer, architectural design development work and related reviews shall be completed within 90 days, during which overall coordination with other professional DD teams shall be undertaken.</p>
17	Language	<p>The legal official language for this tender pre-qualification is Chinese.</p> <p>All notices, correspondence, and deliverables related to this tender shall be in either Chinese or English; if the deliverables of any bidder are not in Chinese, the Chinese translation shall also be provided and shall prevail.</p> <p>If the notice, correspondence and documents of the bid applicant are not in Chinese, a Chinese translation shall be provided, and the Chinese translation version shall prevail.</p> <p>To ensure the accurate understanding of tender information, it is recommended that the applicant's team includes at least one member who is proficient in both Chinese and English.</p>
18	Misc.	<p>If the winning bidder does not have a class-A qualification/certificate in Chinese architecture design and construction industry (Construction Engineering), the bidder shall, after winning the bid, entrust a domestic firm with corresponding design qualification to ensure that the design meet requirements of relevant domestic building codes, regulations and fulfill administrative approvals. Before signing the winning design contract, the winning bidder shall provide information of intended sub-contractor to the tenderer for review, including its profile, experience and design teams. Once approved by tenderer, a subcontract can be processed.</p>

序号	名称	规定
15	未中标优秀方案补偿费	<p>本项目设置未中标优秀方案补偿费。</p> <p>1) 评标阶段, 未进入定标环节的 12 家单位进行未中标优秀方案补偿, 邀请的单位每家补偿 100 万元, 资格预审评审产生的单位每家补偿 60 万元。</p> <p>2) 对进入定标环节的 3 家单位中, 除中标单位外, 未中标的 2 家入围单位进行未中标优秀方案补偿, 未中标单位每家补偿 150 万元。</p> <p>3) 评审阶段, 招标人保留要求 3 家中标候选单位对投标方案进一步优化的权利, 如需进行优化, 招标人将给予每家单位 30 万元方案优化补偿费。如无需进行优化, 则不支付此项方案优化补偿费。</p>
16	设计周期要求	<p>中标通知书发出后 30 个日历日内完成合同签订、60 个日历日内完成方案深化及调整; 方案深化及调整取得发包人确认后 90 个日历日内完成建筑专业扩初设计、评审修改工作, 本阶段应统筹协调其他专业扩初设计单位。</p>
17	语言	<p>本工程资格预审的合法语言文字为中文。</p> <p>投标申请人的往来通知、函件和投标成果文件为非中文的, 应同时提供中文翻译文, 以中文翻译文为准。</p> <p>为确保对本次国际竞标背景和相关要求的准确理解, 申请人拟派项目人员中建议至少有一名通晓汉语及英语的人士。</p>
18	其他	<p>如中标人不具备设计建筑行业(建筑工程)甲级资质, 该单位应在其中标后自行委托一家国内具有建筑行业(建筑工程)甲级资质的单位, 配合报批报建等相关工作。中标人应在签订本项目合同前将拟委托单位业绩、设计团队人员及业绩情况等报招标人, 获得招标人认可后, 方可与对方签订委托协议, 确保方案和初步设计满足国内、深圳市有关规范、规定和行政审批部门的要求。</p>

Part I
Pre-qualification Instructions

第一部分
资格预审须知

I Organization

Tenderee

Engineering Design Management Center of Bureau of Public Works of Shenzhen Municipality

Co-organizer

Shenzhen Position Spatial Culture Development Co., Ltd.

Enquiry Email

competition@archiposition.com

Enquiry Hotline

Ms Chen: +86-19129915597 (Monday - Friday UCT+8 9:00—18:00)

Mr Li: +86-755-88134327 (Monday - Friday UCT+8 9:00—12:00, 14:00—18:00)

II Project Information

2.1 Project Positioning

Shenzhen Natural History Museum aims to be leading in China and first-class in the world, interpreting the laws of natural evolution, showing "geographies of Shenzhen and ecology in the global perspective". It is to become a natural history museum "to actively advocate science".

2.2 Location

Shenzhen Natural History Museum will be located around the Yanzi Lake Area, which is the geometric center of Pingshan District, on the southeast side of downtown of Pingshan. It is close to Pingshan Central Park, library, art museum and other public service facilities. The east side is right next to a 1-kilometer-wide urban ecological corridor. The west side is adjacent to the old city center with traditional trade service. The area, filled with unique natural elements such as Yanzi Hill, Pingshan River, wetlands and forests, is important space for upgrade and transformation of Pingshan Central District.

2.3 Project Scale

Shenzhen Natural History Museum is located at Pingshan District, Yanzi Lake area, Shenzhen China. The site is designate for large public cultural facilities. The Museum covers an area of 42,000 square meters, with a gross floor area of 100,000 square meters. Total Investment is limited to 3.5 billion RMB (excluding specimen collection cost), in which construction cost is around 2.1 billion RMB. The final project scale and investment is subject to government approval.

一、组织机构

招标人

深圳市建筑工务署工程设计管理中心

招标协助方

深圳市有方空间文化发展有限公司

咨询邮箱

competition@archiposition.com

咨询电话

陈小姐: +86-19129915597 (北京时间周一至周五 9:00—18:00)

李先生: +86-755-88134327 (北京时间周一至周五 9:00—12:00, 14:00—18:00)

二、项目概况

2.1 项目定位

深圳自然博物馆以“中国领先，世界一流”为定位，将用实物诠释自然演化规律，展示“地理空间上的深圳、全球视野中的生态”，做“有科学传播力”的自然博物馆。

2.2 项目区位

深圳自然博物馆用地选址于深圳市坪山区燕子湖片区，该片区位于坪山区几何中心，坪山中心城东南侧，临近坪山中心公园及坪山图书馆、美术馆等城市公共服务设施；东侧紧邻约1公里宽的大型城市生态廊道（田园水塘）；西侧临近集聚传统商贸服务的坪山老城区。片区是坪山中心区升级转型的重要拓展空间，内部汇聚了燕子岭、坪山河及湿地、林田等特色自然生态要素。

2.3 项目规模

深圳自然博物馆选址于深圳市坪山区燕子湖片区，土地用途为文体设施用地，规划建设用地面积约42000平方米，总建筑面积暂定为100000平方米，总投资控制在35亿（不含标本征集费）以内，建筑工程投资约21亿元，最终规模及投资以政府相关批复为准。

III Work Scope

Work scope for this project: conceptual design, schematic design and architectural design development (including but not limited to the following: master planning, layout, architecture, structural engineering, interior design, electrical mechanical, indoor-outdoor pipeline integration, landscape design, intelligent venue and informatization, steel structure, curtain wall, signage system, life support, cinema, VR scenes, collection experiment, elevator, architectural acoustics, flood lighting, prefabricated building, air defense, door & window, green building certificate, sponge city design. Excluding exhibition design); BIM in schematic design and architectural design development phases; Cooperate with feasibility study report, budget preparation and project approval; Review drawings of exhibition design, interior design, curtain wall and landscape design that have an impact on the overall architectural effect; Be responsible for material and sample selection of materials that have a great impact on the project. The final work scope shall be subject to the tender documents and design contract.

3.1 Work Content for Pre-qualification Stage

1. Design Brief

According to the understanding of the project positioning and construction contents, key issues of the project are sorted out and unique insights are proposed. Writing description should be standardized, accurate, and clear in meaning.

2. Design Drawings

(1) Concept or vision: It reflects the particularity of the project, fits the overall positioning of the project, and conforms to the urban construction goal of Shenzhen.

(2) Project condition analysis: Based on the planning condition; analyze the site condition in multi-scale and multi-dimension perspective; integrate with the requirements of the project; propose strategies for merging surrounding resources to avoid risks.

(3) Planning, architecture, core functional space, landscape conceptual design draft.

(4) Propose a full-region, full-professional, full-cycle work plan, including information on team composition and division of work, schedules, design timing

(5) Main economic and technical indicators

(6) Other drawings that describe planning and architecture design concepts.

3. All foreign documents must be submitted in both Chinese and English.

4. All documents above must be submitted with digital form.

3.2 Work Content for Design Competition Stage

1. Master planning and economical and technical indices;

2. Architectural, interior and landscape concept design, as well as analysis diagrams and design descriptions;

三、工作内容

本项目涉及的工作内容：方案设计、方案深化、建筑专业初步设计（包括但不限于如下专业内容：规划、总图、建筑专业、结构专业、室内专业、机电各专业、室内外机电管线综合、景观专业、智慧场馆及信息化、钢结构、幕墙、标识系统、维生系统、影院专项、VR虚拟场景、馆藏实验、电梯、建筑声学、泛光设计、装配式建筑、人防、门窗、绿色建筑认证、海绵城市设计等，不包含展陈设计）；方案阶段及建筑专业初步设计阶段BIM；配合可研报告、概算编制及项目报批报建等相关工作；对展陈设计、室内设计、幕墙、景观等对整体建筑效果有影响的相关专业图纸进行审核；负责对项目有较大效果影响的材料进行选材定样等配合工作。最终工作内容以招标文件和设计合同为准。

3.1 资格预审阶段工作内容

1. 设计说明书

根据项目设计任务书中定位、建设内容等信息的解读，完成经济技术指标分析，梳理项目方案设计的關鍵性议题，提出独特见解及构思。文字表达应规范、准确、含义清晰。

2. 设计图纸

- 1) 设计理念或愿景：体现项目特殊性、融合周边资源、契合地域特征，提出核心理念或愿景；
- 2) 项目条件剖析：依据上层规划条件，多尺度、多维度分析场地周边条件，结合项目建设需求，提出趋利避害的周边资源整合策略；
- 3) 规划、建筑、核心功能空间、景观概念设计草案；
- 4) 提出全区域、全专业、全周期工作方案，含团队组成及分工、进度计划、设计时序等信息；
- 5) 主要经济技术指标；
- 6) 表达规划建筑方案意图的其他图纸。

3. 所有境外文件均需提供中英文对照。

4. 以上成果均需提交电子文件。

3.2 投标阶段工作内容

1. 总体规划及经济技术指标；

2. 建筑、室内、景观概念方案设计及设计说明、分析图；

3. Plan, elevation and section drawings;
4. Bird-eye view and perspectives of major spaces;
5. Technical analysis of each specialty, in which the structural system and curtain wall system should be emphasized;
6. Construction cost estimate table;
7. Work plan of the whole project, all profession and the whole cycle, including team composition and division of labor, schedule planning, phasing plan and other information;
8. Other drawings that are necessary for the scheme;
9. Multi-media scheme presentation (no longer than 3 min).

Note: work content is subject to the next stage tender document and design contract. After Scheme Review and before Final Evaluation, the tenderee reserves the right to request for further development of finalists' submitted schemes.

3.3 Design Quality Assurance

1. Provide on-site inspection and technical guidance during the construction phase, and provide consulting reports;
2. Responsible for selecting outdoor and indoor materials that have great impacts on the project;
3. Review the whole process drawings of interior design, curtain wall design, and landscape design.

IV Design Basis

1. Shenzhen Natural History Museum Schematic Design and Architectural Design Development Pre-Qualification Document (hereafter "Pre-qualification Document");
2. Design Brief;
3. Relevant planning and basic materials provided by the tenderee;
4. Currently applicable laws, regulations, rules and normative documents of the People's Republic of China, Guangdong Province and Shenzhen Municipality.

3. 平、立、剖面设计图；
4. 鸟瞰图及主要节点空间透视；
5. 各专业专篇技术分析，其中需着重阐述结构体系、幕墙系统；
6. 投资估算表；
7. 提出全区域、全专业、全周期工作方案，含团队组成及分工、进度计划、设计时序等信息；
8. 其他投标人认为必要的其他表达图纸；
9. 方案展示多媒体文件（3分钟以内）。

注：最终以招标文件和设计合同为准，在评标后、定标前，招标人保留要求入围单位对投标方案进一步优化的权力。

3.3 设计品质保障措施

1. 在施工阶段对现场巡查和技术指导，提供咨询报告；
2. 负责对项目有较大效果影响的室外和室内材料进行选定；
3. 对室内设计专业、幕墙专业、景观专业等全过程图纸审核。

四、设计依据

1. 《深圳自然博物馆方案及建筑专业初步设计国际招标资格预审文件》（以下简称“资格预审文件”）；
2. 各阶段《设计任务书》（以下简称“设计任务书”）；
3. 招标人提供的有关规划与基础材料；
4. 中华人民共和国、广东省和深圳市现行的有关法律法规、规章和规范性文件的规定。

V Application Requirements and Certificates

1. Applicants must be domestic or overseas entities with legal business registration.
2. Consortium are permitted. One consortium shall include no more than 3 members (including the leading member). Each member of the consortium shall not further apply alone or participate by joining another consortium.
3. The consortium members shall sign the Consortium Agreement legally and specify the leading member, as well as work distribution in each design stage and their share of rights and interests.
4. Individual or teams of individuals will not be accepted.

VI Notes regarding Certificates

If the winning bidder does not have a class-A qualification/certificate in Chinese architecture design and construction industry (Construction Engineering), the bidder shall, after winning the bid, entrust a domestic firm with corresponding design qualification to ensure that the design meet requirements of relevant domestic building codes, regulations and fulfill administrative approvals. Before signing the winning design contract, the winning bidder shall provide information of intended sub-contractor to the tenderee for review, including its profile, experience and design teams. Once approved by tenderee, a subcontract can be processed.

五、资格预申报条件与资质要求

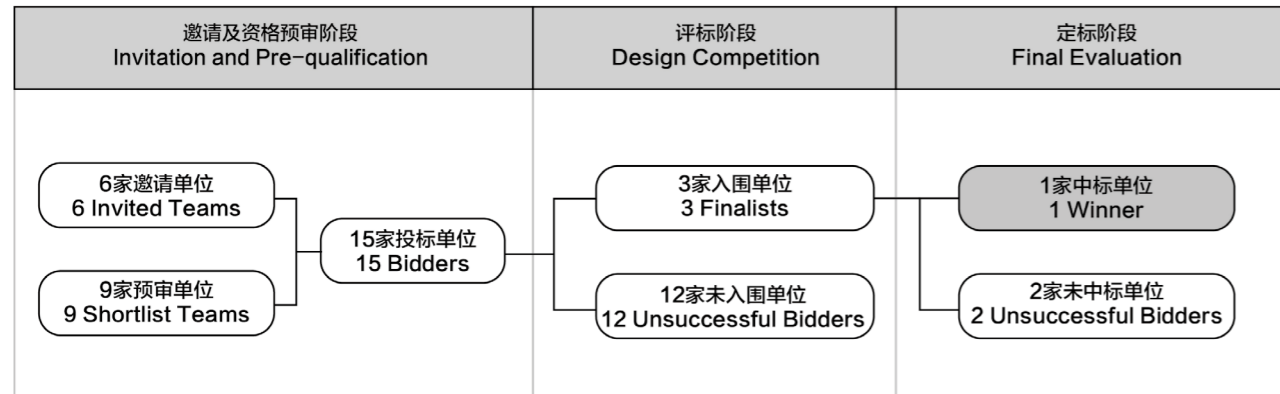
1. 投标申请人须是中华人民共和国境内、外注册的企业或机构。
2. 接受联合体报名，其中联合体成员（含牵头单位）共计不得超过三家，联合体成员不得再单独或以其他名义与其他设计单位组成联合体参与报名。
3. 联合体合作方需签署合法有效的《联合体协议》，并明确牵头单位，各个设计阶段中各方的分工划分方式和设计费用的分摊比例、分配方式等。
4. 不接受个人或个人组合的报名。

六、资质相关备注

如中标人不具备设计建筑行业（建筑工程）甲级资质，该单位应在其中标后自行委托一家国内具有相应设计资质的单位，配合报批报建等相关手续。中标人应在签订本项目合同前将拟委托单位业绩、设计团队人员和业绩情况、分工等报招标人，获得招标人认可后，方可与对方签订委托协议，确保方案和初步设计满足国内、深圳市有关规范、规定和行政审批部门的要求。

VII Tender Rules

Procedure of invitation + open call (pre-qualification) is adopted for this project tender. There are Invitation Stage, Open Call and Pre-qualification Stage, Design Competition Stage and Final Evaluation Stage.



7.1 Invitation Stage

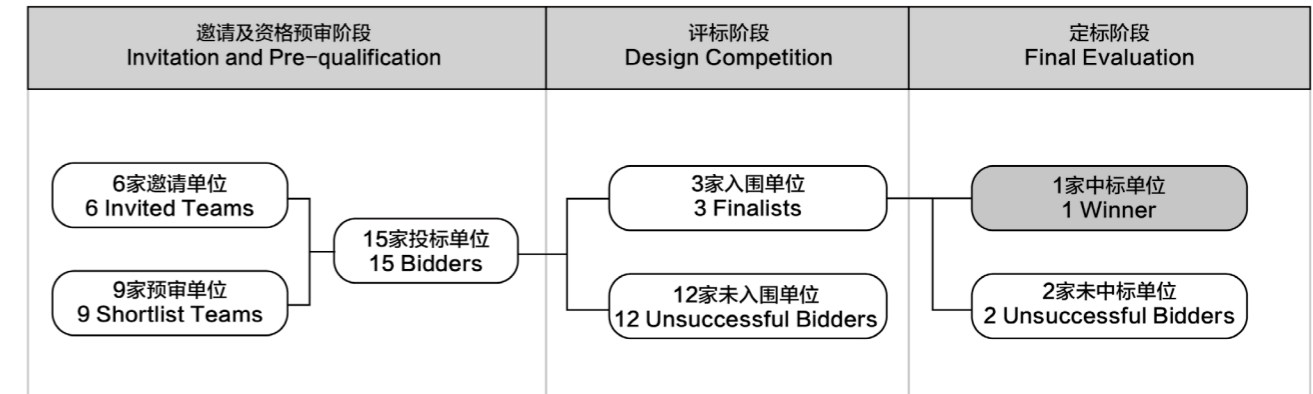
1. The tenderee established a professional review committee. By open ballot, the review committee recommended 6 invitees to enter the design competition stage.

2. Invitees: (in alphabetic order by Chinese company name)

- 1) Bjarke Ingels Group A/S (leading member),
CCDI
- 2) DOMINIQUE PERRAULT ARCHITECTE
- 3) Grimshaw Architects (leading member),
Urbanus,
CNADRI
- 4) CCTN Architectural Design Co. Ltd (leading member),
Shenzhen AUBE Architectural Engineering Design Co., Ltd
- 5) Artech Architects Designers Limited (leading member),
KRIS YAO | ARTECH
- 6) SOU FUJIMOTO ARCHITECTS (leading member),
HONG KONG HUA YI DESIGN CONSULTANTS (S.Z.) LTD.

七、招标程序

本项目采用邀请 + 公开（资格预审）方式，分为邀请阶段、公开报名及资格预审阶段、方案投标阶段及定标阶段。



7.1 邀请阶段

1. 招标人组建专家评审委员会，采用记名投票法推荐 6 家入围邀请单位，进入方案设计投标阶段。

2. 邀请名单如下（按设计机构中文名称首字母排序）：

- 1) Bjarke Ingels Group A/S (BIG 建筑事务所) (牵头单位)
悉地国际设计顾问（深圳）有限公司
- 2) DOMINIQUE PERRAULT ARCHITECTE (多米尼克·佩罗建筑师事务所)
- 3) Grimshaw Architects (格雷姆肖建筑设计事务所) (牵头单位)
深圳市都市实践设计有限公司
中国建筑东北设计研究院有限公司
- 4) 杭州中联筑境建筑设计有限公司 (牵头单位)
深圳市欧博工程设计顾问有限公司
- 5) 会元设计咨询（上海）有限公司 (牵头单位)
大元联合建筑师事务所
- 6) 株式会社藤本壮介建筑设计事务所 (牵头单位)
香港华艺设计顾问（深圳）有限公司

7.2 Open Call and Pre-Qualification Stage

1. All design teams can apply by submitting pre-qualification application documents (company profile, team strength and similar experience, and draft concept including project interpretation and preliminary ideas).
2. The tenderer establishes Pre-Qualification Review Committee by law. The committee will review all valid application documents (see article 9.1 for details), and vote by open ballot to recommend 9 shortlisted design teams without ranking and 2 alternative teams with ranking.
3. The shortlisted 9 bidders should submit "Bidding Participation Confirmation" in time. If one of the top 9 shortlisted bidders quits the bidding of the second stage, the alternative bidders shall be replaced in order.
4. If the bidder who submitted the "Bidding Participation Confirmation" withdraws due to non-force majeure, the tenderer shall have the right to refuse the bidder to participate in the tenderer's other project bid in the future.
5. The Pre-qualification Review Committee will carefully evaluate all applications in the aspects of draft concept and company profile (qualifications, design teams, relevant experience). Please refer to Part II for pre-qualification review guide.

7.3 Design Competition Stage

1. The pre-qualified and shortlisted bidders enter the second stage of scheme design competition after public announcement with no objection.
2. The 15 bidders shall submit deliverables in accordance with the requirements of the design brief, open bid. Only ONE scheme of bidding documents is allowed from each bidder. Presentation methods will be further notified later.
3. The tenderer will set up a scheme review committee according to relevant laws. The scheme review committee vote by open ballot to determine the top three finalists without ranking.

7.4 Final Evaluation Stage

1. Method of Final Evaluation: determined by vote
2. According to the provisions of (Shenzhen Gov. Document No. [2015]73), a final evaluation committee shall be established by the tenderer to determine the winner from the 3 finalists recommended by the scheme review committee.

7.2 公开报名及资格预审阶段

1. 接受全球设计单位报名，需提交资格预审报名文件（公司实力、设计团队实力与相关经验，以及体现项目解读和初步设计构思的概念草案）。
2. 由招标人依法组建资格预审评审委员会，对投标申请人所提交的有效资格预审申请文件（详见 9.1 资格预审申请文件的组成）进行评审，采用记名投票法，确定无排序 9 家入围单位及 2 家有排序的备选单位。
3. 通过资格预审的 9 家入围投标单位应按时提交《投标确认函》。如前 9 家入围的投标单位中有退出下一阶段方案投标的，则备选投标申请人依序替补。
4. 若递交《投标确认函》的投标人因不可抗力因素中途退出或最终放弃投标，招标人有权在今后拒绝该投标人参加招标人其他任何建设项目的投标。
5. 资格预审评审委员会将对投标单位提交的申请文件从概念草案与企业资信（公司实力、拟投入设计团队、相关业绩）等方面进行综合评审。资格预审评审指引见本资格预审文件第二部分。

7.3 方案投标阶段

1. 资格预审入围的设计单位经公示无异议后进入第二阶段方案设计投标。
2. 15 家正式投标人提交符合设计任务书要求的成果文件，采用明标方式。每家投标人只允许提交一个投标方案，述标方式另行通知。
3. 招标人依法组建评标委员会，对投标方案进行评审。评标委员会采用记名投票法，选出无排序的前三名中标候选人进入定标阶段。

7.4 定标阶段

1. 定标方式：直接票决法
2. 根据（深府〔2015〕73 号文）规定，由招标人依法依规组建定标委员会，并从方案评审委员会推荐的 3 名中标候选人中确定 1 名中标人。

VIII Schedule

Stage	Time	Matter
Open Call and Pre-qualification		Open Call and Pre-qualification Announcement
	April 10th, 2020, before 17:00	Query Deadline
	April 22nd, 2020, before 17:00	Clarification, Amendment and Answering Period Deadline
	2020.5.6 (17:00 前) May 6th, 2020, before 17:00	Due Date of Pre-qualification Application Submission
	May 7th – May 15th, 2020 (tentative)	Pre-qualification Review Meeting and Result Announcing
	2020.5.15 - 19 May 15th – 19th, 2020	Bidders to submit the Bidding Participation Confirmation with official stamp and scanned copy
Design Competition	May 26th, 2020 (tentative)	Bidding Tender Document release
	June 3rd, 2020 (tentative)	Site survey and Q&A session (to be announced)
	June 10th, 2020 (tentative)	Query Deadline
	June 15th, 2020	Clarification Period Deadline (via Email)
	July 16th, 2020, before 15:00 (tentative)	Design Competition Deliverables Submission Deadline
	July 17th – July 19th, 2020 (tentative)	Scheme review meeting that requires bid presentation (Presentation forms will be noticed via email to bidders)
Final Evaluation	August 2020 (tentative)	Final Evaluation
		Announcing the Bid Awarding Results

All the time mentioned is Beijing time UCT+8. The Tenderer reserves the right to adjust the schedule.

八、招标日程

阶段	时间	事项
公开报名及资格预审		发布资格预审公告及接受报名
	2020.4.10 (17:00 前)	质疑截止
	2020.4.22 (17:00 前)	答疑及补遗发布
	2020.5.6 (17:00 前)	资格预审申请资料提交截止
	2020.5.7—5.15 (暂定)	资格预审评审及结果公示
	2020.5.15—19	投标人递交《投标确认函》盖章原件 (接受电子签章)
设计投标阶段	2020.5.26 (暂定)	发布正式招标文件设计任务书
	2020.6.3 (暂定)	踏勘答疑会 (组织形式另行通知)
	2020.6.10 (暂定)	质疑截止
	2020.6.15 (暂定)	书面答疑 (电子邮件形式)
	2020.7.16 15:00 前 (暂定)	投标人递交成果文件
	2020.7.17—7.19 (暂定)	方案评审会, 需明标述标及答辩 (述标方式将另行以电子邮件通知投标方)
定标阶段	2020.8 (暂定)	定标
		中标结果公示

注: 所有时间均以北京时间为准, 招标人保留调整日程安排的权利。

IX Pre-qualification Application Documents

For future procedures and the Tenderer's review and reasonable judgement, all submitted information of the bidding applicants must be accurate, detailed, as well as intuitively proving that they meet the above requirements with the ability and resources to perform effectively. Bidders must prepare the pre-qualification application documents according to the following requirements, and compile the corresponding page numbers in the table of content. If certification materials are provided as photocopies, the bidder should affix the official seal to the photocopies to confirm their authenticity. Any applicant who provides false certification materials will be disqualified from entering the pre-qualification.

9.1 Composition of Pre-qualification Application

Pre-qualification application consists of company profile and credit files, and the draft concept. Please prepare the documents in the order listed below and make a catalogue. See Attachment I for formats for application documents.

1. Application Letter for Pre-Qualification: original copy, official stamp or signed, all members of consortium should apply their official stamps or sign.
2. Consortium Agreement: required for consortium, original copy, official stamp or signed by all members of consortium), identifying the leading member.
3. Certificate of Legal Representative: original copy, official stamp or signed, attached with personal ID certificate of Legal Representative (photocopy with official stamp); each member in consortium should provide separately.
4. Letter of Authorization by Legal Representative (if applicable): original copy, official stamp or signed, attached with ID of authorized person (photocopy with official stamp); if apply as consortium, it can be provided only by the leading member when needed.
5. Applicant's Company Profile: attached with valid business license or registered certificate (photocopy with official stamp), design qualifications (if applicable, photocopy with official stamp), awards (if applicable, photocopy with official stamp); if apply as consortium, each member should fill in the form separately and provide corresponding photocopies with official stamp.
6. Applicant's Design Experience: provide featured museum or exhibition hall projects with name, brief introduction, built photos (if applicable) and other supporting documents. Only the listed first 3 projects will be referenced.
7. Tentative Project Leader and Chief Designer(s): Applicants (including consortium) must appoint only 1 project leader and no more than 3 chief designers, who are promised to perform duties for this project in later stages. The project leader can also be a chief designer at the same time. Such major members should not be exchanged during competition and after. If change of key members are truly necessary, please confirm with the tenderer and gain approval in written consent. Please specify the team member's company if apply as consortium.
8. Draft Concept: provide preliminary design ideas for this project. Foreign firms should prepare the document in both Chinese and English. Official stamp should be applied to the cover or title page.

九、资格预审申请文件

为便于投标申请人通过资格预审，并在此之后参加本工程方案设计投标，投标申请人的全部资料必须真实准确、详细和直观，以便招标人做出有依据的判断，证明其满足上述要求能有效地履行设计义务。

投标申请人必须按以下要求编制资格预审申请文件，同时在编制目录时对应页码。所提供的各类证明材料如为复印件，投标申请人应在复印件上加盖公章确认其真实性。任何提供虚假证明资料的投标申请人，均将被取消进入投标资格预审的资格。

9.1 资格预审申请文件的组成

资格预审申请文件包含企业资信文件及概念草案两部分，请投标人按照以下顺序编制资格预审申请文件，并制作目录。资格预审申请文件格式详见附件一。

1. 深圳自然博物馆建设项目方案及建筑专业初步设计资格预审申请书：原件，加盖公章或签字，联合体投标的需加盖联合体所有成员公章或签字。
2. 联合体投标协议：联合体投标的必须提供原件，加盖联合体所有成员公章，并明确牵头设计的主体投标申请人。
3. 法定代表人身份证明文件：原件，加盖公章或签字，附法定代表人身份证明（复印件，加盖公章，联合体各方需单独填写）。
4. 法定代表人授权委托书（如有）：原件，加盖公章或签字，附委托人身份证明（复印件，加盖公章），联合体投标的可由牵头单位提供。
5. 投标申请人基本情况表：另附有效的营业执照（或商业登记证明）（复印件，加盖公章）、企业资质证明文件（如有，复印件，加盖公章）、获奖文件（如有，复印件，加盖公章）；联合体投标的，联合体各方均需单独填写并提供相关复印件，加盖所对应的公司公章。
6. 投标申请人类似项目业绩：提交博物馆或展览类代表性作品简介、建成照片（如有）及相关证明文件，投标单位提供业绩数量超过3项的，只取前3项。
7. 拟派本项目负责人及主创设计师情况及业绩：投标申请人（含联合体）须指定拟派项目负责人1人、主创设计师不超过3人，均为拟参与本项目最终人员，项目负责人可兼任主创设计师。后续项目投标及实施过程中不可更换主创人员；如确需更换人员，需书面与招标人详细确认更换情况并取得招标人书面同意。如联合体报名，需标明人员所属的联合体成员单位。
8. 概念草案：提供项目设计构思草案，境外文件应提供中英文对照。封面或扉页需加盖公章。

9.2 Preparation and Submission of Application

1. Submission Language: all documents should be in both Chinese and English. In case of any discrepancy, the Chinese version shall prevail.

2. Pre-qualification Submission Methods

1) Printed documents and flash drives should be submitted (on site or by mail) to the designated address before submission deadline. Application is only effective upon receiving complete package. If submitting by mail, please make sure it arrives on time.

2) In the meanwhile, please submit your registration information before UCT+8 17:00 on May 6th, 2020, online via link: <https://youfang.jinshuju.com/f/2Af5dZ>. And keep consistency of your information.

3. Document Binding and Packaging Requirements

1) Printed Documents: all printed documents should provide with 1 original copy and 6 duplicated copies. The original copy must comply with all requirements of signature and official stamps, fresh stamp or digital stamp both accepted. Duplicated copies are not required with stamps, can just be photocopies of the original files. Please keep consistency of contents, in case of any discrepancy, the original copy shall prevail.

All documents except for the Draft Concept should be in A4 size (210mm×297mm), layout in portrait, bind and list a catalogue. You can put your own cover and title pages, indicating “Shenzhen Natural History Museum Schematic Design and Architectural Design Development” and applicant’s company name on cover. The last page should be signature and official stamp (see attachment 1). The total pages should not exceed 50 pieces of paper (printed double sided, page number up to 100, excluding cover, title and catalogue pages, recommending adhesive binding with soft cover).

Draft Concept should be in A3 size (297mm×420mm), layout in horizontal, not exceeding 30 pages (excluding covers), printed single sided, recommending adhesive binding with soft cover. Foreign firms should provide Chinese translation in the document.

2) Electronic Documents: all the documents above should be copied to USB flash drive (files in PDF or DOC format). Two sets of USB drives should be submitted, each including one file of Draft Concept and another file or folder of all other documents. Digital files should be signed/ stamped version, scanned files accepted.

3) Package: All materials are sealed and packaged in one big sealed bag, in which the USB flash drives are put in a small sealed envelope. Please indicate “Shenzhen Natural History Museum Schematic Design and Architectural Design Development” and “Name of the Applicant” clearly on the sealed bag. The seal place shall be stamped with the bidder’s official stamp (or cover by a paper affixed with official stamp). For consortium bidders, leading member and joining member’s names should be indicated on the package. The seal place shall be stamped with the leading member’s official stamp.

4) Notes on Official Stamps: for consortium, the Application Letter for Pre-Qualification and Consortium Agreement should be signed and stamped by all members, while the remaining documents (including the Draft Concept) can be signed and stamped only by the leading member. Digital stamp and fresh stamp are both accepted.

9.2 资格预审申请文件的编制及提交

1. 提交语言

所有文件以中英文对照形式提交，若中英文表达出现不一致的情况，以中文为准。

2. 资格预审申请提交方式

1) 纸质文件及U盘提交（现场或邮寄）在报名截止前送达指定地点，资格预审申请以收到现场或邮寄提交的完整报名材料为准。若采用邮寄方式，需确保在截止时间前寄达指定地址。

2) 同时，请点击链接<https://youfang.jinshuju.com/f/2Af5dZ> 填写报名信息，于北京（时间2020年5月6日17:00前提交，报名信息请保持与纸质提交文件内容一致。

3. 文件编制规格及装订要求

1) 纸质文件：所有纸质文件提供1套正本及6套副本，正本文件需满足资格预审申请文件的盖章要求，接受电子章及鲜章。副本不要求公章及签名原件，可为正本的复印件。请确保副本与正本内容完全一致，如出现不一致时，以正本为准。

资格预审申请文件除概念草案之外均要求 A4 规格（210mm×297mm），竖版，装订成册，并列目录。可自行编制封面封底及扉页。封面需标注“深圳自然博物馆方案及建筑专业初步设计”、投标申请人名称；最后一页为签字盖章页（格式详见附件一）。整体不超过50张纸内容（双面打印，页码只到100，页数限制不含封面封底扉页和目录，简装，推荐胶装，软皮封面）。

概念草案为A3规格（297mm×420mm），横板，不超过30页（不含封面封底），单面打印，单独装订，简装，推荐胶装，软皮封面。境外文件应提供中英文对照。

2) 电子文件：以上文件的电子文档（PDF及DOC文档）拷贝到U盘，与文本一并提交，需提交两份内容一致的U盘；电子材料分为两个部分，概念草案为单独一个文件，其余内容为一个文件或文件夹。电子材料需签名及盖章，接受电子章及鲜章扫描件。

3) 包装要求：只需要一个最外包装，U盘包装在一个小密封袋中，内部正本、副本不需分别封装，避免多层过度包装。最外包装需密封，密封袋上需标注“深圳自然博物馆方案及建筑专业初步设计”、“投标申请人名称”。密封袋的封口处均应加盖投标人公章。联合体投标的，密封袋上需写明所有联合体成员单位名称，可由联合体牵头单位在密封口处盖公章（或张贴盖公章的封条）。

4) 盖章要求备注：联合体投标的，资格预审申请文件中“资格预审申请书”和“联合体协议书”需联合体所有成员签字盖章，其余文件（包括概念草案）均可由联合体牵头单位盖章。所有要求盖章处均接受电子章及鲜章。

9.3 Special Requirements

1. The bidding applicant shall guarantee the authenticity of the provided pre-qualification application documents. If false documents are provided, the tenderee has the right to cancel the bidder's qualification at any time; the winning bidder will be disqualified from winning the bid. Administrative departments will involve for investigation. Once verified, it will be handled in strict accordance with laws and regulations, and the tenderee has the right to refuse the bidder from participating in any future bidding of the Tenderee.

2. After the Pre-qualification review, shortlisted bidders' pre-qualification application documents (parts of company profile and similar experiences) provided by 9 shortlisted bidders and 2 alternative bidders with ranking will be publicized on Shenzhen Construction Project Transaction Service Centre website. Bidders must provide all supporting materials as required and be responsible for its authenticity.

9.4 Veto Clause

1. If the pre-qualification application documents are in one of the following circumstances, the Tenderee will not accept the application:

1) The time and address of delivery of the documents are not in compliance with the requirements in this pre-qualification document.

2. If the pre-qualification application documents are in one of the following circumstances, the bidder will be determined as unqualified:

1) Applicants do not meet the pre-qualification application requirements;

2) Applicant applies as a consortium, but Consortium Agreement is not provided;

3) Different Applicants whose legal representatives are one same person, or persons having a direct shareholding relationship with each other;

4) Members of consortium participate as individual bidder, or join another consortium.

5) More than 2 / 3 of the review committee agree that the design works have been published for other projects or are identical with other buildings.

6) More than 2 / 3 of the members of the review committee evaluate that the information provided by the applicant is not true.

9.3 特别要求

1. 投标申请人应当对其提供的资格预审申请文件的真实性负责，招标人在发出中标通知书前任何时间发现投标申请人提供虚假文件或涉嫌造假的，均有权拒绝投标申请人的投标或取消其中标资格。如已取得投标资格的，将取消其投标资格；如中标后发现中标人提供虚假文件或涉嫌造假，该中标人将被取消中标资格。招标人将提请建设行政主管部门或有关行政管理部门查处。一旦查实将严格按照法律法规作出处理，并有权拒绝其在招标人负责建设的项目中投标。

2. 资格预审评审结束后，招标人将对资格预审入围9家单位及2家有排序备选单位投标申请人提供的资格预审申请文件（业绩部分）在深圳建设工程交易服务网进行公示，请投标申请人务必按照要求如实填报、提供相应的证明材料，并对其真实性负责。

9.4 否决性条款

1. 资格预审申请文件有下列情形之一的，招标人将不予受理

1) 文件送达时间及地点不符合本资格预审文件规定的；

2. 资格预审申请文件有下列情形之一的，资格预审符合性审查不合格

1) 投标申请人不符合资格预审报名条件要求的；

2) 组成联合体投标，未提交联合体协议书的；

3) 相互间有直接控股关系或法定代表人为同一人的两个或两个以上的法人提交资格预审文件的；

4) 参加联合体的各成员以自己的名义单独投标，同时参加两个或两个以上的联合体投标。

5) 评审委员会2/3 以上成员认为设计作品发表过或与其他建筑在造型上雷同的。

6) 评审委员会2/3 以上成员认为投标申请人提供的资料存在虚假情况的。

X Honorarium for Shortlisted Bidders

10.1 Honorarium

1. In the design competition stage, 12 design teams that have not entered the final evaluation process will be compensated. Each of the invitees will be compensated RMB 1,000,000, while the shortlisted teams from open call pre-qualification review will be compensated RMB 600,000 each.
2. Among the 3 finalists, the final winner will be awarded of design contract, the other two teams will be paid honorarium for their outstanding proposals, each RMB 1.5 million.
3. The tenderee reserves the right to request the three finalists to further optimize their proposal. If so, an extra compensation fee of RMB 300,000 will be paid to each team for the work. If no need for further work before final evaluation, such fee will not apply.
4. The honorarium and scheme optimization compensation fee (if required) are fixed fees and will not be adjusted during settlement.

10.2 Payment of Honorarium

1. Honorarium will be paid by the winner to shortlisted and qualified teams that are not winning, after the tenderee signs design contract with winner and processes the first payment (including all honorarium).
2. The above fees are to be paid in RMB, tax inclusive. All companies shall pay the tax according to law on its own.
3. Design team or the leading member (participating as consortium) shall provide necessary payment materials such as the domestic legal VAT invoice as required, and cooperate with the completion of procedures of fee settlement as required.
4. if a foreign design team is unable to use its own account to collect RMB, it may authorize another legal entity in China to collect the payment and issue invoices. See the payment terms in the contract for details.

10.3 Miscellaneous

Bidders shall bear all expenses for participating in this tender (including the travel and accommodation expenses). If the scheme review committee agree that the deliverables submitted by any bidder fail to reach the depth and requirements of the tender document, the Tenderee will not pay the compensation or honorarium to unqualified bidders at all.

十、未中标优秀方案补偿费

10.1 未中标优秀方案补偿方式

1. 评标阶段，未进入定标环节的 12 家单位进行未中标优秀方案补偿，邀请单位每家补偿 100 万元，资格预审评审产生的单位每家补偿 60 万元。
2. 对进入定标环节的 3 家单位中除中标单位外，未中标的 2 家入围单位进行未中标优秀方案补偿，未中标单位每家补偿 150 万元。
3. 招标人保留要求 3 家中标候选单位对投标方案进一步优化的权利，如需进行优化，招标人将给予每家单位 30 万元方案优化补偿费。如无需进行优化，则不支付此项方案优化补偿费。
4. 未中标优秀方案补偿费、方案优化补偿费（如需支付）为固定费用，结算时不作调整。

10.2 未中标优秀方案补偿费用的支付

1. 设计补偿费在招标人与中标单位签订合同并支付第一笔费用（含未中标设计补偿费）后，由中标单位支付未中标设计补偿费给未中标单位。
2. 以上补偿费均以人民币支付，为含税金额，各单位自行依法办理涉税手续和缴纳税款。
3. 设计机构或设计机构牵头机构（以联合体名义参加竞赛的）均应按照要求提供国内合法增值税发票等付款资料，并按照规定配合完成费用结算各项手续。
4. 境外设计机构若无法使用本机构帐户收取人民币的，可授权境内合法独立法人代收款项及开具发票，详见合同中支付条款。

10.3 其他

投标申请人参加本次投标的所有费用（含差旅住宿费）均自行承担。设计单位提交的成果文件若被评审委员会一致认定为未达到本次招标文件深度及要求的，招标单位将不予支付未中标优秀方案补偿费。

XI Intelligent Property Rights

11.1 The tenderer owns the following and intellectual property rights to the following (including copyrights, patents, trademarks, etc.) to the design documents, drawings, BIM models and related results; technical specifications, design and scientific research results prepared or commissioned for the project; and those documents and articles that reflect the requests of the tenderer or other materials of a similar nature provided by the tenderer. The designer may copy and use such documents and articles only for the implementation of this contract. Without the written consent of the tenderer, the designer shall not copy or use the above mentioned documents and articles or provide them to any third party for any purpose other than for the implementation of this contract.

11.2 The intellectual property rights (including copyrights, patents, trademarks, etc.) of the winning design or the referencing design selected by the tenderer, including but not limited to the engineering design services, materials, and documents specified in this contract (or bidding document) and the outstanding designs (hereinafter referred to as "design work"), are as follows:

1. The tenderer has the exclusive right to make use of and reproduce the winning design work and the referencing design work selected by the tenderer. The bidding applicant retains the right of authorship (the right to indicate the identity of the author and the attribution of the work) and the right to maintain the integrity of the design work (the right to protect the work from distortion and tampering), but the design modifications specified in this contract (or bidding document) are not restricted by any "right to maintain integrity". Without the written consent of the tenderer, the designer shall not register a copyright for the design work.

2. The tenderer has the right to apply for patents for the design work, but the bidding applicant retains the right of authorship. Without the written consent of the tenderer, the designer shall not apply for a patent for the design work (including design patents, utility patents, or invention patents).

3. The tenderer has the right to register trademarks for the design work. Without the written consent of the tenderer, the designer shall not apply to register a trademark for the design work or representative or relevant content or elements of the design work (including trademarks of text, graphics, and combinations thereof).

4. Other intellectual property rights (if any) related to the design work are to be handled in reference to the above agreement.

11.3 The tenderer has the exclusive right to use the design work. The designer shall: not copy or reproduce the design work for the use of any third party; obtain the prior written consent of the tenderer before publishing or promoting an external image of the design, related text, images, audio-visuals, etc.; not violate the confidentiality agreement of this contract (or the bidding document); not use the design package for activities that violate national laws, the public order, or customary usage. If the designer wishes to use the design package or its BIM technical information to participate in activities or to apply for an award, the prior written consent of the tenderer should be obtained.

十一、知识产权及相关法律

11.1 招标人提供给投标申请人的设计文件、图纸、BIM模型及相关成果、招标人为实施工程自行编制或委托编制的技术规格书、设计与科研成果以及反映招标人要求的或其他类似性质的文件、物品的所有权和知识产权（包括著作权、专利权、商标权等）属于招标人，投标申请人可以为实现合同目的而复制、使用此类文件、物品，但不得用于与合同无关的其他事项。未经招标人书面同意，投标申请人不得为了合同以外的目的而复制、使用上述文件、物品或将之提供给任何第三方。

11.2 对招标人确定中标或虽未中标但决定选用参考的设计人的设计成果，包括但不限于本合同（或招标文件）约定的工程设计服务、资料与文件成果以及未中标优秀方案（下称“设计成果”）的知识产权（包括著作权、专利权、商标权等），其中：

1. 设计成果著作权中的使用权、复制权的财产性权利一经中标或选用将属于招标人，投标申请人享有该设计成果著作权中人身性权利的署名权（即表明作者身份、在作品上署名的权利）和保护作品完整权（即保护作品不受歪曲、篡改的权利），但合同（或招标文件）约定的设计修改不受此处“保护作品完整权”的限制。未经发包人书面同意，设计人不得自行或单独对该设计成果进行著作权登记。

2. 设计成果的专利申请权属于招标人，投标申请人享有其署名权。未经招标人书面同意，投标申请人不得就该设计成果申请专利（包括外观、实用新型或发明专利）。

3. 设计成果的商标注册申请权属于招标人，未经招标人书面同意，投标申请人不得对该设计成果或对该设计成果具有代表性、关联性的内容或元素申请商标注册（包括文字、图形及其组合的商标）。

4. 以上所列之外的设计成果其他知识产权（如果有），参照上述约定处理。

11.3 招标人对设计成果享有独家使用权，投标申请人不得将设计成果复制或再现方式提供给任何第三方使用。投标申请人对设计成果的外在形象的宣传推广应事先征得发包人书面同意，所涉文字、图片、音像等内容，不得违反合同（或招标文件）关于保密的约定，亦不得用于违反国家法律或公序良俗的活动；如投标申请人以设计成果或其BIM技术资料参加交流活动或申报奖项，应事先征得招标人书面同意。

11.4 The design work must not infringe the intellectual property rights or other legitimate rights of any third party, and the designer assumes full legal responsibility for any such infringement. The designer must obtain legal and valid authorization from third parties for any intellectual property rights or other legal rights implicated by the design work, and any authorization fee is to be borne by the designer and has been included in the design compensation specified in the contract (or bidding document). There must not be any defects in the rights to the designer's design work and there must not be any obstacles to the exercise of these rights. If any liability or loss is caused to the tenderee (including but not limited to joint liability, compensation for infringement, or payment of royalties, etc.), the designer must compensate the tenderee.

11.5 The designer owns the intellectual property rights of a bid that did not win or that was not selected by the tenderee. When the bidding has been completed, without violating the confidentiality agreement of this contract or bidding documents, the tenderee has the right, free of charge, to publish or announce the results of the tender evaluation, and to introduce, display, and evaluate the design work that won, failed, was selected, or was not selected through the media, professional magazines, books, or other forms.

XII Confidentiality Principles

12.1 From public release of tender announcement, until the awarding of the contract, any information relating to the examination, clarification, evaluation, and comparison of the Tender Document, as well as recommendation of finalists and shortlists, and any other situation relating to the review shall be kept in strict confidentiality; any relevant information and data shall not be disclosed to those irrelevant of the above work, or to any bidding applicants.

12.2 The Tenderee and review committees shall perform corresponding confidentiality requirements after receiving the deliverables submitted by bidders. Before end of the review activity, any person or organization shall not disclose, make public, or show the deliverables in any way without permission of the Tenderee or relevant government departments; otherwise, they will be investigated for legal liabilities.

12.3 In the evaluation and comparison process of bidding applicants and during authorization process of the contract, any attempt by any party to exert influence on the tendering review committee will result in cancellation of the evaluation of the party's bidding documents.

11.4 设计成果不得侵犯任何第三方知识产权或其他合法权益，投标申请人对此承担全部法律责任；投标申请人对设计成果中所涉及的任何来自第三方的知识产权或其他合法权益均需得到合法有效授权，所涉授权费用（如果有）由投标申请人承担且已包含在合同（或招标文件）规定的设计费用或补偿费用中。投标申请人的设计成果不得存在任何权利缺陷或权利行使障碍，如因此给招标人造成任何责任或损失（包括但不限于被追索连带责任、侵权赔偿或支付许可费等），均需由投标申请人承担或赔偿。

11.5 投标申请人参加投标未中标的投标方案或者参加竞赛未被选用的参赛方案的知识产权属于投标申请人所有。招标人在设计招标结束后，在不违反合同或招标文件关于保密约定的情况下，对于中标或未中标的投标方案或者已选用或未选用的参赛方案，均有权无偿发布或公布招标评审结果，以及通过传媒、专业杂志、书刊或其它形式介绍、展示及评价投标成果。

十二、保密原则

12.1 公开发布信息后，直到授予中标单位合同为止，凡属于对招标文件的审查、澄清、评价和比较的有关资料以及中标候选人的推荐情况、与评审有关的其他任何情况均应严格保密；任何有关的信息和资料均不得向投标申请人或上述工作无关的人员泄露。

12.2 招标人及评审专家在收到投标申请人提交的成果文件后，应做好相应的保密工作。评审活动结束前，任何人员或单位未经招标人或政府有关部门许可，都不得以任何方式披露、公开或展示成果文件，否则将追究其相关法律责任。

12.3 在成果文件的评审和比较、中标候选单位推荐以及授权合同的过程中，投标单位如试图向招标单位和评审小组施加影响的行为，都将会导致取消其成果文件的评定。

XIII Dispute Resolution

In case of any dispute arising from the performance of the bidding contract, both parties shall settle the dispute through friendly consultation. If no agreement can be reached through consultation, a lawsuit shall be filed to the court in the place where the tenderer is located.

XIV Supervision on Unfair Competition and Discipline

14.1 Bidders are prohibited from offering bribes to relevant personnel who participate in scheme review, to cause them to divulge any information relevant to the scheme review.

14.2 During the bidding process, bidders are prohibited from collusion, alliance or any other behaviors that harm the fairness of the tender, or affecting other bidders' participation in fair bidding in any way.

14.3 Any bidder found to have any unfair competition behavior mentioned above will be disqualified for bidding or winning.

XV Language and Units

15.1 Language

All notices, correspondence, and deliverables relating to this tender shall be subject to Chinese version; if the documents, emails or deliverables of any bidder are not in Chinese, the Chinese translation shall also be provided and shall prevail.

15.2 Units of Measurement

The units of measurement used in the deliverables shall be the legal units of measurement of the People's Republic of China, unless otherwise provided in relevant standards of China and the technical requirements in the Tender Document.

十三、争议解决

本招标合同履行中若发生争议，双方应友好协商解决；协商不成时，向招标单位所在地人民法院提起诉讼。

十四、不正当竞争与纪律监督

14.1 严禁投标申请人向参与方案评审的有关人员行贿，使其泄露一切与方案评审工作相关的信息。

14.2 投标申请人在投标过程中严禁互相串通、结盟，损害招标的公正性，或以任何方式影响其他投标申请人参与正当投标。

14.3 如发现投标申请人有上述不正当竞争行为，取消其投标资格、或中标资格。

十五、语言及计量单位

15.1 语言

与此次投标活动有关的所有往来通知、函件和投标成果文件以中文文本为准。投标申请人的往来通知、函件和投标成果文件为非中文的，应同时提供中文翻译文，以中文翻译文为准。

15.2 计量单位

除国家相关标准及招标文件中的技术要求另有规定外，投标成果文件使用的度量单位，均采用中华人民共和国法定计量单位。

XVI Miscellaneous

16.1 The tenderer and co-organizer reserve the right to modify the tender schedule.

16.2 After the winning bidder is determined, the tenderer will not give any explanation to unsuccessful bidders regarding the review process and the reason of failure, and the deliverables will not be returned. Unsuccessful bidders shall not ask the review committee or other relevant personnel about the review process and documents.

16.3 At any time prior to the issuance of the notice of winning, the tenderer has the right to continue or suspend competition process at any time and shall have the right to announce the cancellation of the tender, and have no obligation to explain to the bidders nor to compensate for possible costs incurred.

16.4 No matter the bidder wins the bid or not, the bidder shall not claim for compensation against the tenderer of intellectual property rights such as patent right, trademark right or industrial design right.

16.5 The contents of the Pre-Qualification Document, clarification (Q&A) and amendment (supplement) documents shall be subject to the written contents. In case of any conflict between the Pre-Qualification Document, clarification (Q&A), and amendment (supplement) documents, the latest released one shall prevail.

16.6 Bidders shall ensure that the project leader and chief designer are always involved in the project; foreign design teams shall ensure the participation of persons overseas, and provide necessary signature and official stamps.

16.7 Bidders shall bring interpreters when attending site survey, Q&A session, and scheme review meeting, if needed.

16.8 The winning bidder shall reasonably arrange the team according to the project schedule, fulfill the needs of meetings and on-site service at each phase, and ensure that the chief members participate in important meetings.

16.9 Bidders that participate in this tender will be deemed as acknowledging all content of this Pre-Qualification Document.

十六、其他

16.1 招标人、服务方保留更改活动日程安排的权力。

16.2 中标单位确定后，招标人不对未胜出单位就评审过程以及未能胜出原因作出任何解释，同时亦不退还竞赛投标成果文件。未获胜单位不得向评审委员会成员或其他有关人员索问评审过程的情况和材料。

16.3 招标人在发出中标通知书前的任何时候有权继续或停止任何竞赛，及有权作出宣布取消招标行为，招标人没有义务向投标单位做出解释，没有义务对投标单位可能产生的费用予以补偿。

16.4 无论投标单位是否中标，投标单位均不得以专利权、商标权或工业设计权等知识产权为由向招标人提出任何索赔或补偿的要求。

16.5 资格预审文件及答疑补遗、修改（补充）函件内容均以书面明确的内容为准。当资格预审文件、答疑补遗、修改（补充）函件内容相互矛盾时，以最后发出的为准。

16.6 投标单位必须确保其项目负责人和主创设计师始终参与本设计工作；境外设计机构应确保有境外机构的人员参与、签名和加盖境外机构印章。

16.7 投标单位参加现场踏勘活动、答疑和专家评审会时需自带翻译。

16.8 中标单位须根据项目进度合理安排配合人次，满足项目各阶段会议及现场服务的需求，并确保主创团队人员参与重要会议。

16.9 参加本次招标活动的设计机构均视为承认本资格预审文件所有内容。

XVII Special Notes

According to administrative requirements of the follow-up procedures of the Shenzhen Construction Project Transaction Service System, it is suggested that the bidding applicants (including all members of the consortium) complete the online enterprise information registration in advance. After Pre-qualification, the shortlisted and alternative teams must register in time, unconditionally. Please note that the name of the company must be the same as the name on its business license, including detail as text cases, space, etc.

Shenzhen Construction Project Transaction Service Center

Online Registration Link: <https://www.szjsjy.com.cn:8001/jy-toubiao/>

Registration Support: +86-755-83785155; +86-755-83787822



图 1 投标注册网页

Figure 1 Online Registration Page

十七、特别提示

根据深圳建设工程交易服务系统后续程序的管理要求，建议投标申请人（包括联合体牵头单位、联合体成员单位）提前办理网上企业信息登记。未办理提前登记的，资格预审结束后，入围单位及备选单位需及时办理企业信息登记，上述单位须无条件配合。录入公司名称时请注意需与营业执照名称保持完全一致，包括大小写、空格等。

深圳建设工程交易服务中心

网上办理地址: <https://www.szjsjy.com.cn:8001/jy-toubiao/>

咨询电话: +86-755-83785155; +86-755-83787822



图 2 投标注册网页

Figure 2 Online Registration Page

Part II
Pre-Qualification Review Guide

第二部分
资格预审评审指引

Pre-Qualification Review Reference Table

Category	Review Guides	
Company Ability	Company Profile	Company qualifications (certificates, awards), company scale (information about number of staffs in all professions and different location offices), brief introduction of relevant experiences.
	Design Experience of Large Public Building	<p>The applicant shall have design experience of public buildings such as museums or exhibition halls (excluding offices), and provide the project name, scale (GFA), completed photos (if applicable), client's information and design contract copy, to show contract title, project scale and signature page. Other certification materials or supplementary notes can be provided (if any applicable):</p> <p>1) International Professional Awards (architecture, landscape, interior design) (no more than 3);</p> <p>2) Green Building Certification;</p> <p>3) Consortium provide description about past collaborations between members.</p> <p>Note: 1) the total number of projects shall not exceed 3. If the projects provided by the bidder exceeds 3, only the first 3 items shall be considered.</p> <p>2) All foreign application documents should be in both Chinese and English.</p>
Design Team Abilities	Project Leader (1 person)	<p>1. Legal practice qualification (such as certificate of registered license) issued by architecture and construction related association or institution in his/her practice nation or region;</p> <p>2. International awards or honors, no more than 3 items (if applicable);</p> <p>3. Once served as project leader on similar type of architectural design project, provide project name, scale, photos, client's information, and other certificates or descriptions of the projects (if any applicable):</p> <p>1) International Professional Awards;</p> <p>2) Green Building Certification;</p> <p>Note: 1) the total number of projects shall not exceed 3. If the projects provided by the bidder exceeds 3, only the first 3 items shall be considered.</p> <p>2) All foreign application documents should be in both Chinese and English.</p>
	Chief Designers (no more than 3 persons)	<p>1. Legal practice qualification (such as certificate of registered license) issued by architecture and construction related association or institution in his/her practice nation or region;</p> <p>2. International awards or honors, no more than 3 items for each chief designer (if applicable);</p> <p>3. Once served as chief designer on similar type of architectural design project, provide project name, scale, photos, client's information, and other certificates or descriptions of the projects (if any applicable):</p> <p>1) International Professional Awards;</p> <p>2) Green Building Certification;</p> <p>Note: 1) The similar project number of each chief designer shall not exceed 3. If the projects provided exceeds 3, only the first 3 items shall be considered.</p> <p>2) All foreign application documents should be in both Chinese and English.</p>

资格预审评审参考表

类别	评审要点	
公司实力	投标人资历	<p>投标申请人简介：企业相关资质（含证明文件、奖项经历），公司规模（总公司及相关投标分公司各专业人数等等信息），相关项目经验简述。</p>
	相关大型公共建筑设计经验	<p>投标申请人需具备博物馆或展览类公共建筑（不包括办公楼）设计经验，提供项目名称、规模（建筑面积）、建成照片（如有）、甲方信息及合同复印件，合同复印件需体现合同名称、规模、合同签章页。业绩其他证明或说明（如有）：</p> <p>1) 项目获国际专业奖项（建筑、景观、室内）不超过 3 个；</p> <p>2) 项目获得绿色建筑认证；</p> <p>3) 联合体单位提供过往合作业绩及简要情况说明（如有）</p> <p>注：1) 业绩总数不超过 3 个，投标单位提供业绩数量超过 3 项的，只取前 3 项。</p> <p>2) 所有境外文件均需提供中英文对照。</p>
设计团队实力	项目负责人（1名）	<p>1. 所在国家或地区建筑相关行业协会或机构颁发的合法执业资格证明文件（如注册建筑师证）；</p> <p>2. 个人所获行业国际奖项或荣誉不超过 3 个（如有）；</p> <p>3. 担任过同类型建筑设计项目负责人，提供项目名称、规模、建成照片、甲方信息。业绩其他证明或说明（如有）：</p> <p>1) 项目获国际专业奖项；</p> <p>2) 项目获得绿色建筑认证；</p> <p>注：1) 业绩不超过 3 个。提供业绩数量超过 3 项的，只取前 3 项。</p> <p>2) 所有境外文件均需提供中英文对照。</p>
	主创设计师（不超过 3 名）	<p>1. 所在国家或地区建筑相关行业协会或机构颁发的合法执业资格证明文件（如注册建筑师证）；</p> <p>2. 个人所获行业国际奖项或荣誉，每位主创设计师不超过 3 个（如有）；</p> <p>3. 担任过同类型项目主创设计师，提供项目名称、规模、建成照片、甲方信息。业绩其他证明或说明（如有）：</p> <p>1) 项目获国际专业奖项，每位主创设计师不超过 3 个；</p> <p>2) 项目获得绿色建筑认证；</p> <p>注：1) 每位主创设计师业绩不超过 3 个。每位主创设计师提供业绩超过 3 项的，只取前 3 项。</p> <p>2) 所有境外文件均需提供中英文对照。</p>

Category	Review Guides
Draft Concept	<p>1. Design Brief</p> <p>According to the understanding of the project positioning and construction contents, key issues of the project are sorted out and unique insights are proposed. Writing description should be standardized, accurate, and clear in meaning.</p> <p>2.Design Drawings</p> <p>(1) Concept or vision: It reflects the particularity of the project, fits the overall positioning of the project, and conforms to the urban construction goal of Shenzhen.</p> <p>(2) Project condition analysis: Based on the planning condition; analyze the site condition in multi-scale and multi-dimension perspective; integrate with the requirements of the project; propose strategies for merging surrounding resources to avoid risks.</p> <p>(3) Planning, architecture, core functional space, landscape conceptual design draft.</p> <p>(4) Propose a full-region, full-professional, full-cycle work plan, including information on team composition and division of work, schedules, design timing</p> <p>(5) Main economic and technical indicators</p> <p>(6) Other drawings that describe planning and architecture design concepts.</p> <p>3. All foreign documents must be submitted in both Chinese and English.</p> <p>4. All documents above must be submitted with digital form.</p>

Note:

1.The pre-qualification committee will comprehensively review the bidder' s performances and credits (performance of the company, strengths of the design team) and the project proposal (draft concept). While completing the company profile and credit document, the bidders shall pay great attention to the draft concept.

2.Project leader and chief designers must be promised to perform duties for this project in later stages.

类别	评审要点
概念设计成果	<p>1. 设计说明书 根据项目设计任务书中定位、建设内容等信息的解读，完成经济技术指标分析，梳理项目方案设计的关键性议题，提出独特见解及构思。文字表达应规范、准确、含义清晰。</p> <p>2. 设计图纸 1) 设计理念或愿景：体现项目特殊性、融合周边资源、契合地域特征，提出核心理念或愿景； 2) 项目条件剖析：依据上层规划条件，多尺度、多维度分析场地周边条件，结合项目建设需求，提出趋利避害的周边资源整合策略； 3) 规划、建筑、核心功能空间、景观概念设计草案； 4) 提出全区域、全专业、全周期工作方案，含团队组成及分工、进度计划、设计时序等信息； 5) 主要经济技术指标； 6) 表达规划建筑方案意图的其他图纸。</p> <p>3. 所有境外文件均需提供中英文对照。</p> <p>4. 以上成果均需提交电子文件。</p>

说明:

1. 资格预审委员会将对企业资质（公司实力、设计团队实力）、项目建议书（概念草案）进行综合评审，投标报名单位在做好资信文件的同时，需高度重视概念草案的构思。

2. 以上项目负责人、主创设计师均为拟参与本项目最终人员。

Part III
Schematic Design and Architectural
Design Development Design Brief

第三部分
方案及建筑初步设计任务书

Chapter 1
Concept Design Phase
Design Brief

第一章节
概念草案阶段设计任务书

I Project Overview

1.1 Background

Shenzhen Municipal CPC Committee and Shenzhen Government attach great importance to cultural construction in recent years, making efforts to develop cultural and sports facilities matching the city's development level of economy, science and technology. Shenzhen Natural History Museum, as one of "the ten cultural facilities of the new era", will be the first large-scale comprehensive natural museum in Guangdong-Hong Kong-Macao Greater Bay and southern China, filling the blank in such museum type upon its completion.

1.2 Project Positioning

Shenzhen Natural History Museum aims to be leading in China and first-class in the world, interpreting the laws of natural evolution, showing "geographies of Shenzhen and ecology in the global perspective". It is to become a natural history museum "to actively advocate science".

1.3 Target Audience

1. Children

Shenzhen Natural History Museum will create a theme park of nature for children, teaching through lively activities and inspiring children's love to the natural environment, plants and animals.

2. Teenagers

As "second class" for young students, Shenzhen Natural History Museum plays a unique role in quality-oriented education. Exhibition contents will highlight education, creativity and practice, building an interactive learning platform, enhancing communication between students of relative majors and amateurs, developing concepts of loving, protecting and respecting the nature.

3. Researchers

Shenzhen Natural History Museum provides an advanced research platform for researchers—a real research environment and communication space for information exchange.

4. Citizens

Shenzhen Natural History Museum provides high-quality public cultural facilities for citizens and excellent scenic spots for tourists, showing the superior natural and cultural history of Shenzhen.

一、项目概况

1.1 项目背景

近年来深圳市委、市政府高度重视文化建设，努力打造与城市经济科技发展水平相匹配的文体设施体系，深圳自然博物馆作为深圳市“新时代十大文化设施”之一，建成后将成为粤港澳大湾区乃至华南地区首座大型综合类自然博物馆，填补粤港澳地区在综合类自然博物馆方面的空白。

1.2 项目定位

深圳自然博物馆以“中国领先，世界一流”为定位，将用实物诠释自然演化规律，展示“地理空间上的深圳、全球视野中的生态”，做“有科学传播力”的自然博物馆。

1.3 目标受众

1. 儿童

深圳自然博物馆将为儿童打造以自然为主题的乐园，寓教于乐。激发儿童对自然环境的向往，对动植物的热爱。

2. 青少年

深圳自然博物馆作为青少年学生的“第二课堂”在素质教育中具有独特的作用，在展览内容构建上突出教育性、创造性和实践性，并打造互动交流学习的平台，使自然类专业的学生或感兴趣的青少年能够彼此交流，培养热爱自然、保护自然、尊重自然的理念。

3. 科研人员

深圳自然博物馆为相关科研人员提供先进的科研平台，提供真实的研究环境和提供讯息交互的交流空间。

4. 普通市民

深圳自然博物馆为普通市民提供优质的精品公共文化设施，为旅游参观者提供优质景点，展现深圳市优越的自然文化历史。

1.4 Location

Shenzhen Natural History Museum will be located around the Yanzi Lake Area, which is the geometric center of Pingshan District, on the southeast side of downtown of Pingshan, and adjacent to the import and export processing zone on the north. It is close to Pingshan Central Park, library, art museum and other public service facilities. The east side is next to a 1-kilometer-wide urban ecological corridor. The west side is adjacent to the old city center with traditional trade service. The area is near urban main roads such as Pingshan Avenue, Longping Street. There are unique natural elements such as Yanzi Hill, Pingshan River, wetlands and forests. The high-quality land resource and featured elements with great strategic value makes it important space for upgrade and transformation of Pingshan Central District.

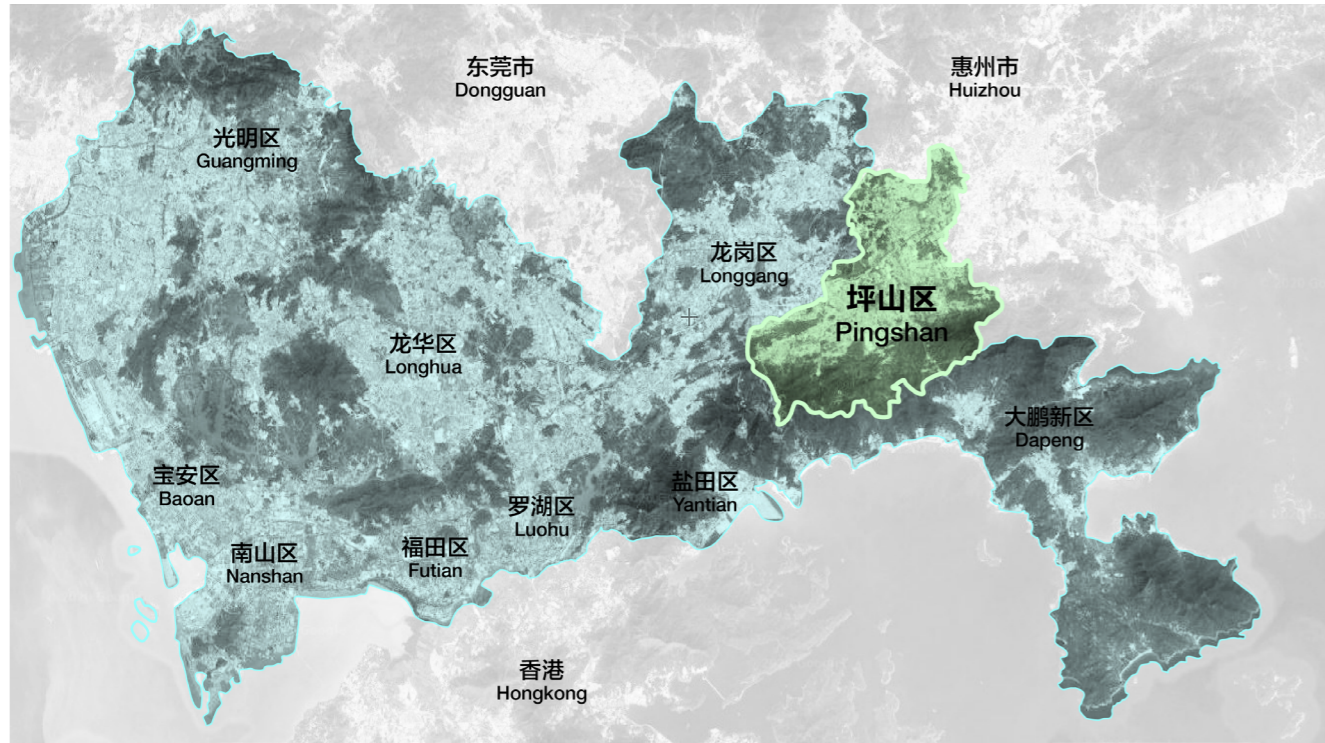


图 1 坪山区位图
Figure 1 Pingshan District Location

1.4 项目区位

深圳自然博物馆选址于深圳市坪山区燕子湖片区，燕子湖片区位于坪山区几何中心位置，坪山中心城东南侧，北侧紧邻进出口加工区，临近坪山中心公园及周边图书馆、美术馆等城市公共服务设施；东侧紧邻约 1 千米宽的大型城市生态廊道（田园水塘）；西侧临近集聚传统商贸服务的坪山老城区。片区临近坪山大道、龙坪路等城市主干道，交通便捷发达。区内独一无二地汇聚了燕子岭、坪山河以及湿地、林田等特色自然生态要素。极具战略价值的优质土地资源与特色要素，使其成为坪山中心区升级转型的重要拓展空间。

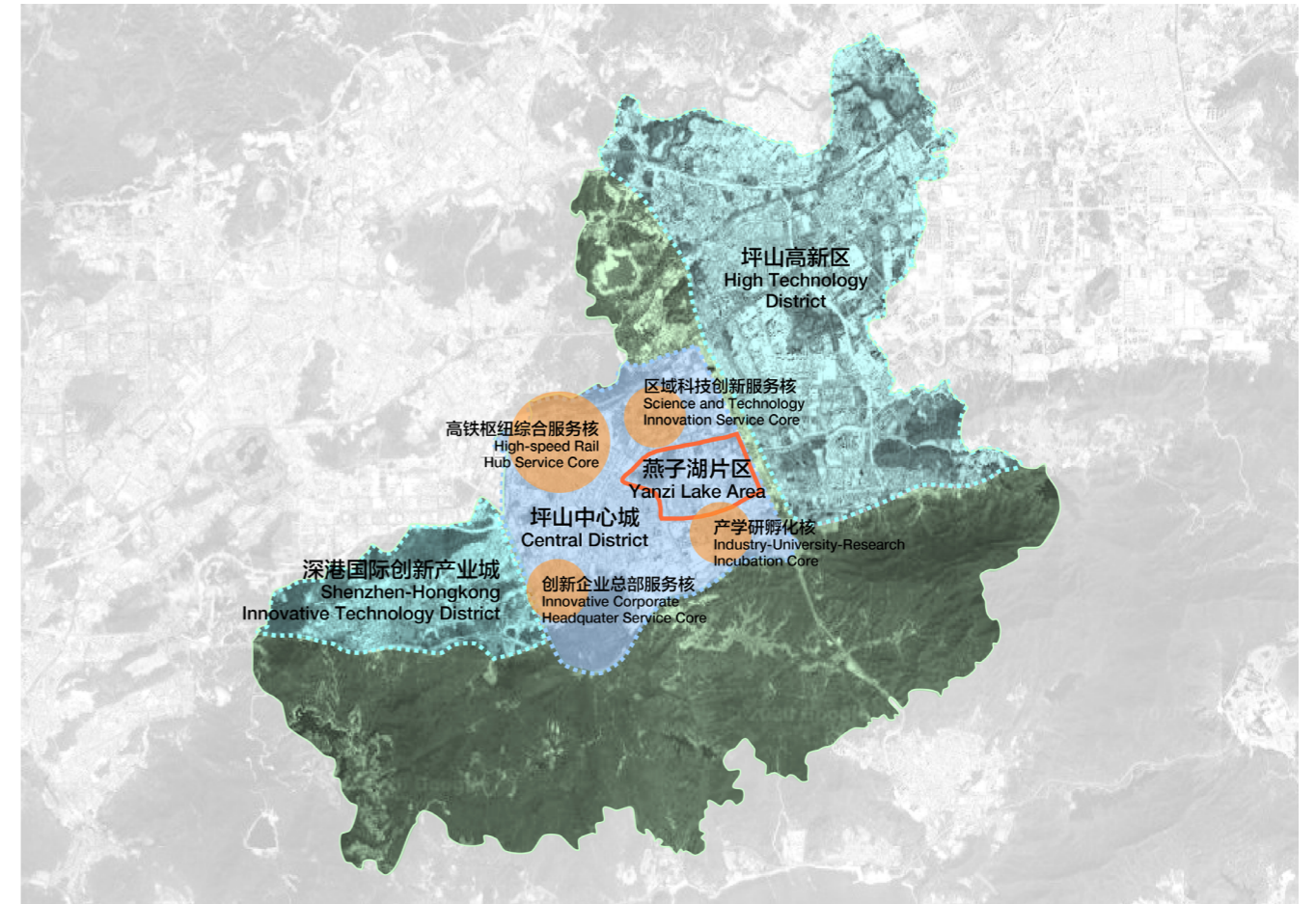


图 2 项目选址所在地燕子湖片区位置图
Figure 2 Yanzi Lake Area in Pingshan

1.5 Site Information

The north of the site is Pingshan River and Yanzi Hill, which reaches a height of 100 meters. The south side is the Longxiang School and residential areas. The adjacent buildings' heights are between 18 meters and 36 meters. To the east side at about 300 meters from the site is Yanzi Lake International Convention Center with a building height of about 24 meters.

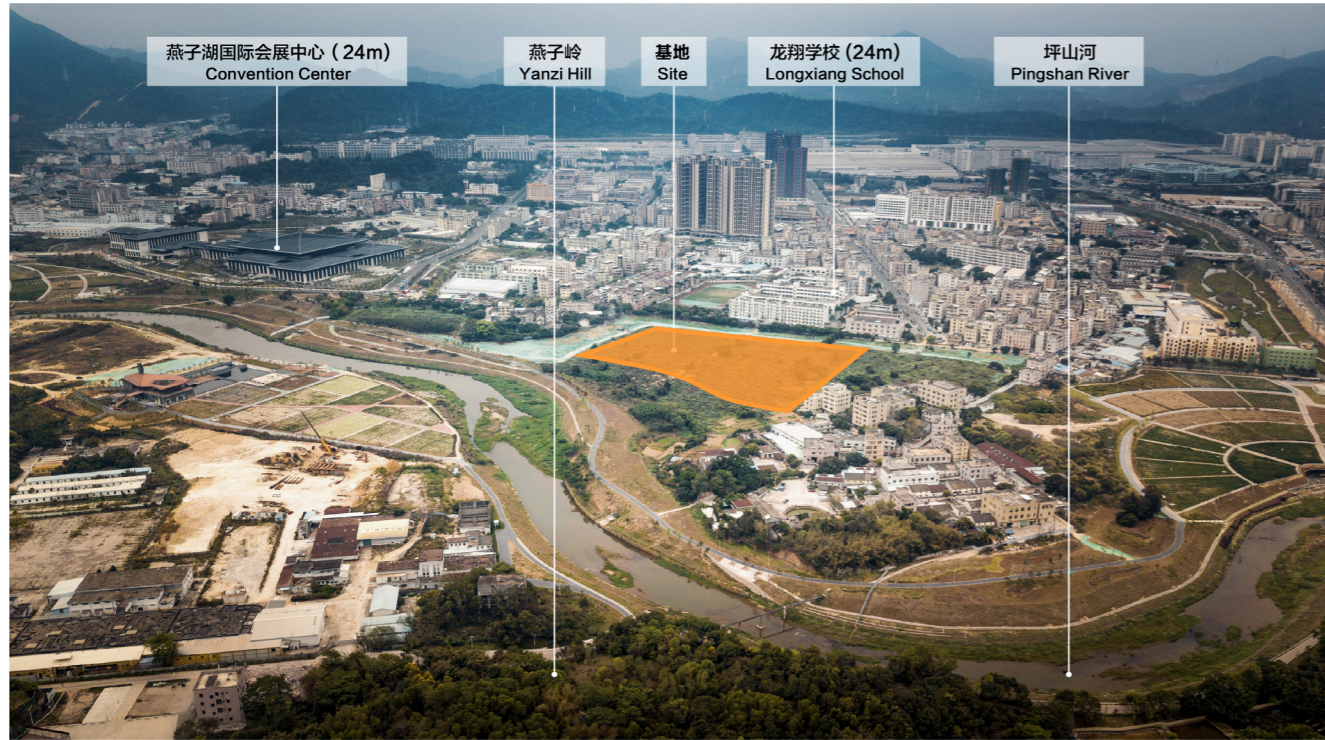


图 3 项目选址及周边现状航拍图
Figure 3 The Site and Aerial View of Surroundings

1.5 项目周边状况

项目北侧为坪山河及燕子岭，燕子岭至高点约 100 米；南侧为龙翔学校及住宅片区，临近建筑高度在 18 至 36 米之间；东侧为燕子湖国际会展中心高度约 24 米，距离项目约 300 米。



图 4 项目选址及周边环境关系图
Figure 4 The Site and the Surroundings

1.6 Climate Condition

The project is located in a subtropical marine climate region. The climate is mild and humid with abundant rainfall and long sunshine duration. The change of seasons is not obvious, with long summer and short winter. The average temperature is 22.3°C, with the highest temperature of 38.7°C and the lowest temperature of 0.2°C. The average annual sunshine hours are 2120.5 hours. The annual solar radiation is 5225 mega joules/square meters. The average relative humidity is 79%. The rainy season is from April to September every year, with an annual rainfall of 1924.7 mm. The prevailing wind is easterly to the southeast. The spatial and temporal distribution of rainfall is extremely unbalanced. In summer, typhoons often hit the area, causing severe weather such as rainstorm and flood. On average, the region is affected by tropical cyclones (typhoons) 4 to 5 times a year.

1.7 Geology and Hydrology

According to the terrain, landform, the foundation condition of existing and under-construction buildings in this area, it can be inferred that the engineering geological conditions at the site are good and suitable for development and construction. The specific conditions shall be subject to the geological survey report.

1.8 Infrastructure and Construction Conditions

The site is flat. Water, electricity, communication, network and other infrastructure can be connected to the municipal system. Construction materials such as cement, sand, stone, steel, wood and other construction materials needed by the project are easy to purchase and transport. Water and electricity for construction can be acquired nearby. The construction conditions are good.

1.9 Project Scale and Investment

The project site covers an area of 42000 square meters with a gross floor area of 100000 square meters. The total investment is limited to 3.5 billion RMB (excluding the collection fee for specimens). The construction investment is about 2.1 billion RMB. Final project scale and investment is subject to government approval.

1.6 气候条件

项目所在地为亚热带海洋性气候，气候温和湿润，雨量充沛，日照时间长。四季变化不明显，夏季长、冬季短。多年平均气温为 22.3°C，最高气温为 38.7°C，最低气温为 0.2°C，年平均日照时数为 2120.5 小时，太阳年辐射量 5225 兆焦耳 / 平方米，多年平均相对湿度 79%。每年 4 ~ 9 月为雨季，年降雨量 1924.7 毫米，常年主导风向为东南偏东风。流域内降雨时空分配极不平衡，夏季常遭遇台风侵袭，极易造成暴雨和洪涝等灾害性天气，平均每年受热带气旋（台风）影响 4 ~ 5 次。

1.7 地质水文条件

根据该地区地形、地貌及已建、在建的建筑地基情况，推断项目所在地的工程地质条件良好，适合进行开发建设。具体情况应以地质勘察报告为准。

1.8 基础设施及施工条件

本项目场地平整，水、电、通讯、网络等基础设施均可接入市政系统，建设项目所需水泥、砂、石、钢材、木材等建筑材料采购运输方便，施工用水、用电可以就近解决，施工条件良好。

1.9 项目建设规模及投资

项目占地面积为 4.2 万平方米，建筑面积为 10 万平方米，总投资控制在 35 亿（不含标本征集费）以内，建筑工程投资约 21 亿元，最终规模及投资以政府相关批复为准。

II Planning Conditions

2.1 Construction Land Indicator

Table 1 Planning Indicators

Site Location	Yanzi Lake Area, south of Yanzi Hill and Pingshan River, north of Longxiang School.	
Land Use	Cultural and Sports Facilities	
Site Area	4.2 Hectare	
Gross Floor Area	Above ground	65000 square meters
	Under ground	35000 square meters
Building Coverage Ratio	50% (adjustable according to the design)	
Green Coverage Ratio	≥ 30%	
Distance between Buildings	Subject to City Planning Standards and Guidelines of Shenzhen and other relevant standards	
Building Height	limit of 36 meters (partially breakable)	
Parking for Motor Vehicles and Bicycles	Subject to the approval feasibility study documents	
Setback	Subject to City Planning Standards and Guidelines of Shenzhen and other relevant standards	

二、规划条件

2.1 建设用地指标

表 1 地块规划指标表

地块位置	燕子湖片区，燕子岭与坪山河以南，龙翔学校以北地带。	
土地使用性质	文体设施用地	
用地面积	4.20 公顷	
建筑面积	地上	6.5 万平方米
	地下	3.5 万平方米
建筑覆盖率	50% (可依据设计方案进行适当调增)	
绿化覆盖率	≥ 30%	
建筑间距	满足《深圳市城市规划标准和准则》及相关规范要求	
建筑高度	建筑限高 36 米 (局部可突破)	
机动车及自行车泊位数	以发改可研批复要求为准	
建筑退让	满足《深圳市城市规划标准和准则》及相关规范要求	

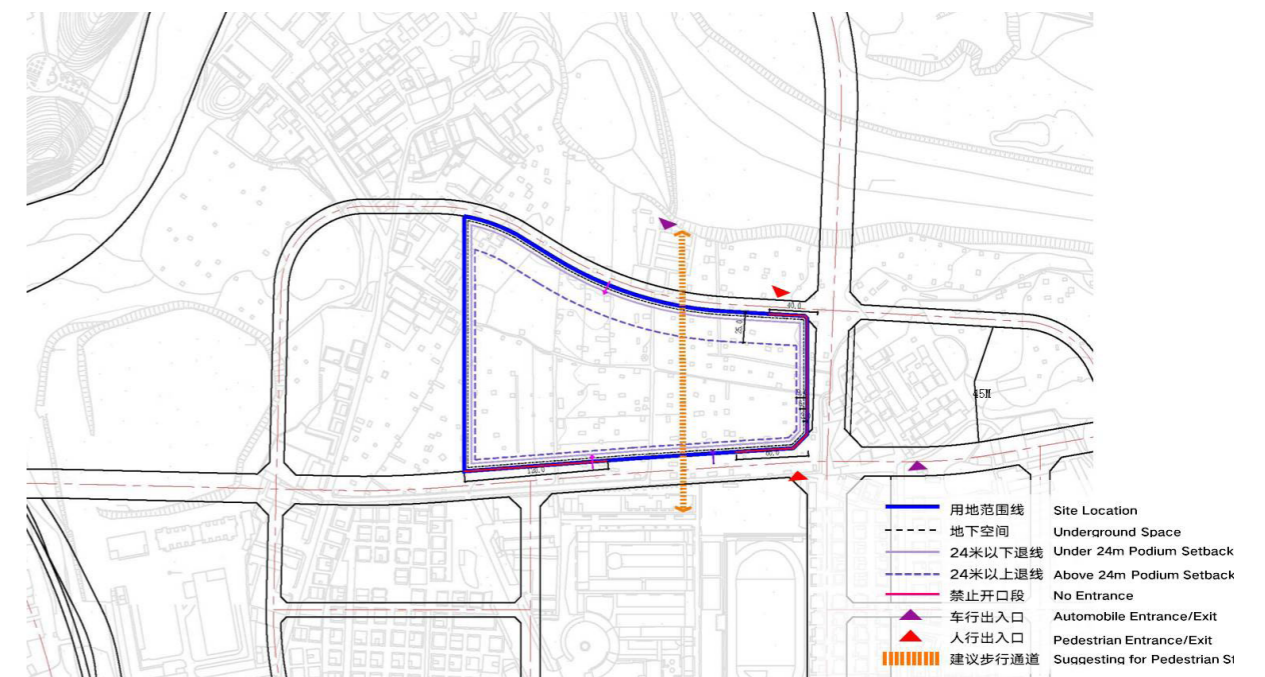


图 5 项目地块范围图
Figure 5 The Site Boundary

2.2 Overall Planning

1. It is recommended to reserve a ground walkway in the middle to ensure accessibility to the waterfront. The location and the shape of the walkway is changeable.
2. Ensure the publicness of the museum area. It is suggested that the outdoor space (including the outdoor park), the ground floor and the roof of the building should try to be public space, open to the public all day. Detailed design should consider to minimize the separation of space of road on north, and create a consistent experience integrated with the lakeside.
3. Integrate circulation with exhibition space and rest area together, taking user-friendly design of the drop-off and waiting areas into consideration.

2.3 Planning Conditions of Yanzi Lake Area

1. Yanzi Lake Area Topographical and Geomorphic Conditions

Yanzi Lake area is mainly river valley landform of alluvial basin, part of the area is hilly landform. The river channel's low-lying and open areas are on both sides of Lijing Road. As a whole, the area is characterized by high terrain on both sides, low in the middle, high in the west side and low in the east. The Yanzi Hill is about 100 meters relative to the ground. The elevation of the river has a height difference of 3-5 meters. The site of the museum is located at a lower point of the land. The following is the topographical and geomorphic map of the area:

2.2 总体布局

1. 建议中部预留一条地面步行通道，保障区域滨水可达性，位置和线型可变。
2. 保障博物馆片区的公共性。建议室外空间（含户外园区管理范围）、建筑首层和屋顶应尽可能作为公共空间，对公众全天候开放。详细设计中考虑弱化北侧道路的空间割裂性，创造与滨湖一体的游览、体验空间。
3. 结合流线组织及观览休憩空间，充分考虑落客、入馆等候区的人性化设计。

2.3 燕子湖片区规划条件

1. 燕子湖片区地形地貌条件

燕子湖片区主要为河流冲洪积盆地之河谷地貌，部分地段为丘陵地貌，河道低洼开阔处集中在荔景路两侧。片区整体呈现两边高中间低，西侧高东侧低地形特征。河道低洼开阔处集中在荔景路两侧，燕子岭山体相对地面高程约 100 米，河道标高存在 3—5 米高差。深圳自然博物馆选址位于地势较低处，片区地形地貌及项目选址示意图如下：

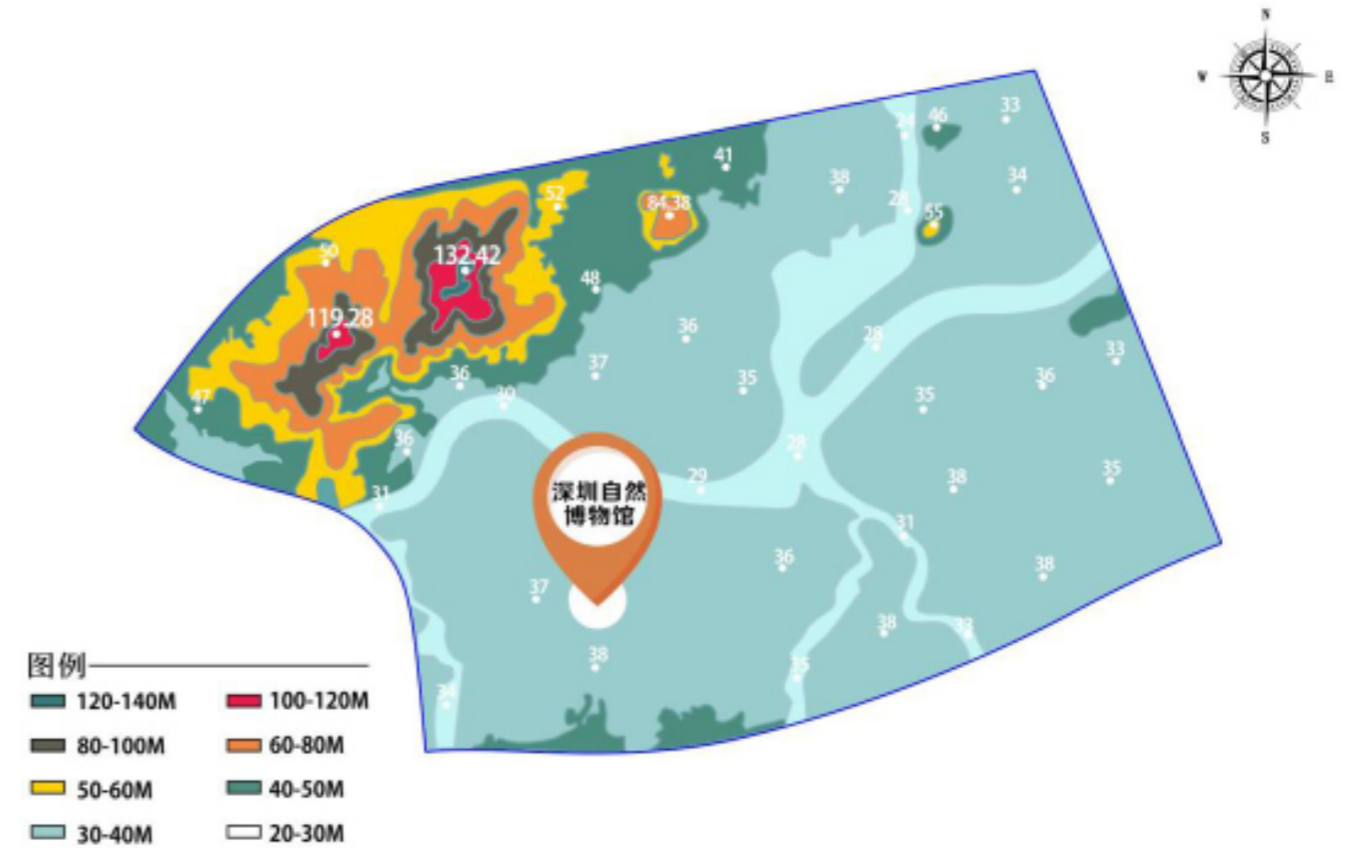


图 6 燕子湖片区地形地貌与项目选址示意图
Figure 6 The Topographical and Geomorphic Map of the Area

2. Ecological Resources and Water Conditions of Yanzi Lake Area

Yanzi lake area is rich in natural ecological resources, gathering natural elements such as mountains, rivers, farmlands and forests. Yanzi Hill is located in the northwest corner of the area, with highest point relative to the ground at about 90 meters. Other small hills are mainly distributed in the north side of the area. Farmland patches are scattered on the east part. The area contains main stream of Pingshan River, as well as two tributaries named Chi' ao River and Dunzi River. Within this area, the length of Pingshan River is 2.9 kilometers, and the length of Chi' ao River is 0.79 kilometers, length of Dunzi River is about 0.60 kilometers. Ecological resources and water conditions of the area and the site is as following:



图 7 燕子湖片区生态资源与水体条件示意图

Figure 7 Ecological Resources and Water Conditions of Yanzi Lake Area

3. The Future Urban Planning Condition of Yanzi Lake Area

- 1) The Land Use and Urban Design Requirements for Shenzhen Natural History Museum, see design brief attachment I.
- 2) The Conditions of Transportation Planning. The north, west and south sides of Yanzi Lake area are planned with three main urban roads, namely Jinniu West Road, Longping Road and Dongzong Road. The Lijing Road is running south and north. Wenxiang Road on the south of the site is a two-way four-lane road with a cross section of 24 meters. A two-way four-lane road is reserved on the east side, with a cross section of 27 meters. The north side is reserved for a two-way two-lane road with a cross section of 12 meters. Subway Line 16 (Longpingshan Line) will be built nearby. The nearest station, Dongzong Station is about 700 meters away, Jiangling Station is 1,000 meters away, and Xinwu Station is about 1200 meters away.

2. 燕子湖片区生态资源与水体条件

燕子湖片区自然生态资源丰富，聚集山、河、田、林等自然要素。燕子岭位于片区西北角，最高点相对地表高差约 100 米。其他小丘陵主要分布在片区北侧，东侧局部地带散布农田斑块。片区内包含坪山河干流、赤坳水与墩子河 2 条支流，规划范围内坪山河段长 2.9 千米、赤坳河段长 0.79 千米、墩子河河段长约 0.60 千米。片区生态资源与水体条件、项目选址示意图如下：



图 8 燕子湖片区及选址周边交通条件示意图

Figure 8 The Conditions of Transportation Planning of Yanzi Lake and the surrounding

3. 燕子湖片区未来城市规划条件

- 1) 深圳自然博物馆用地与城市设计要求，详见任务书附件一。
- 2) 交通规划条件。燕子湖片区未来交通规划北侧、西侧、南侧为已建成金牛西路、龙坪路、东纵路三条城市级干道，南北向为荔景路。深圳自然博物馆用地南侧文祥路为双向四车道的道路，断面24米；用地东侧预留双向四车道的道路，断面27米；用地北侧预留双向两车道的道路，断面12米。地块附近未来将建设地铁16号线（龙坪山线），距离最近站点东纵站直线距离约700米，距离江岭站直线距离约1000米，距离新屋站站直线距离约1200米。

III Design Basis

The construction of this project shall be in accordance with the current and effective national, local and industrial standards for engineering construction and museum construction. Specific forms include standards, codes and regulations (see design brief attachment 2 for details).

IV Design Principles

4.1 Nature Friendly

Fully present respect for the urban natural environment, pay attention to finding a harmonious and friendly integration between human and nature during the visit. Integrate nature into the architecture, and realize the interaction between human and nature.

4.2 Reflection of Yanzi Lake Area Characteristics

It is recommended to set "natural history museum" as the core concept, following the logic of global, panoramic, symbiotic, and companionship. Comprehensively consider the mountain (Maluan Mountain), the lake (Yanzi Lake), the river (Pingshan River) and the traditional buildings, historical feature. To build a perfect, natural ecological corridor and a "panoramic museum of the whole region" by means of panoramic information tour guides and all-region natural history study trails. It will play a leading role in the development of the ecological environment and living environment of surrounding cities.

4.3 24-Hour Natural History Museum

Fully consider the extended programs of the Shenzhen Natural History Museum, combined with the overall design along the Pingshan River, and build a comprehensive 24-hour museum that includes architecture, landscapes, astronomical observations, study camps, catering, cultural and creative industries, as well as online exhibitions.

4.4 Originality and Landmark

The design should be based on the natural and humanistic locality as foundation, integrated with the comprehensive natural characteristics of the project, and melted with original design concepts, to create a world-class cultural landmark with both outstanding image and first-class quality.

三、设计依据

本项目建设应依据现行有效的工程建设及博物馆建设的国家标准、行业标准和工程所在地的地方标准。具体形式包括标准、规范和规程等。（详见任务书附件二）

四、设计原则

4.1 以自然为友

充分体现对城市自然环境的尊重，注重寻找游览过程中人与自然的和谐友善相处方式，将自然融入到建筑中，实现人与自然的交流。

4.2 体现燕子湖片区特色

建议围绕自然博物馆为核心，按照全域、全景、共生、随在的思路，综合考虑项目所在的一山（马峦山）、一湖（燕子湖）、一河（坪山河）以及规划范围内的传统建筑、历史风貌，采取全域全景式信息化导览、全域自然博物研习径等方式，打造完美、自然的生态廊道，建设“全域全景式博物馆”。对周边城市生态环境、人居环境的发展产生积极的引领作用。

4.3 不落幕的自然博物馆

充分考虑深圳自然博物馆闭馆后的功能延伸，结合坪山河沿线整体意向设计，打造成建筑景观、天文观测、研学露营、餐饮文创、线上展览等全方位不落幕博物馆。

4.4 原创性与标志性

设计应立足于在地自然人文基础，结合本项目综合自然特性，融入原创性设计理念，打造兼具标志形象与一流品质的世界级地标文化建筑精品。

4.5 Green and Ecology

The Shenzhen Natural History Museum should consider maximize resources conservation, including energy saving, land saving, water saving, material saving, etc., protect the environment and reduce pollution, provide healthy, comfortable and efficient use of space, and buildings that coexist in harmony with nature. Scientific and rational selection of building technical measures, and full consideration of the application of passive energy-saving technical materials.

4.6 Forward-Looking Concepts

Beyond fulfilling existing construction needs, the design should provide possibilities for future adaptation in terms of space and programming, according to the development of scientific technology. Considering the project construction, operation and maintenance as a full life cycle to create an international First-class smart venue that can be updated iteratively.

4.7 Publicness and Openness

Thinking from the perspective of urban users, with the concept of “24-Hour Natural History Museum”, fully consider the open hour flexibility of the museum and create a diverse public space with strong vitality, as well as enhancing the interactive experience between citizens and the museum.

4.8 Economic Controllability

Follow the principle of economic rationality, design within budget and fully consider the static and dynamic economic costs of building construction and operation. Explore the balance of architectural art, technology and economy.

V Circulation Organization

Fully consider the functional requirements of the building, organize reasonable penetration and separation of various circulations in terms of spatial and temporal perspectives, such as pedestrian and vehicle ways, passengers and cargo flows, visitors and staffs, collections and exhibition arrangement, indoor and outdoor, on-site and off-site, horizontal and vertical, open and closed hours, etc. Create a safe, orderly and efficient multi-dimensional circulation system.

4.5 绿色、生态

深圳自然博物馆应最大限度地节约资源,包括节能、节地、节水、节材等,保护环境和减少污染,提供健康、舒适和高效的使用空间,与自然和谐共生的建筑物。科学合理选用建筑技术措施,充分考虑被动式节能技术材料应用。

4.6 前瞻性

在满足现有建设需求基础上,结合时代发展和科技进步趋势,在建筑空间和功能上做好未来可适性预留,从全生命周期维度思考项目建设和运维,打造可迭代更新的国际一流智慧场馆。

4.7 公共性与开放性

从城市使用者视角出发,结合“不落幕自然馆”的理念,充分考虑自然馆场区内空间的开放灵活性,营造具有旺盛生命力的多元公共空间,提升市民与自然馆的互动体验,打造公共、开放的场所。

4.8 经济可控性

遵循经济合理性原则,限额设计,充分考虑建筑建造和运营的静态和动态经济成本,探索建筑艺术、技术和经济的平衡。

五、交通流线组织

充分考虑建筑功能需求,从项目的人行与车行、客流与货流、观览与工作、馆藏与布展、室内与室外、场内与场外、横向与竖向、开馆与闭馆等不同空间和时间视角出发,合理组织各种流线的穿插和分离,营造组织安全、有序、高效的多维度交通体系。

VI Design Contents

Shenzhen Natural History Museum includes five core areas: Exhibition Area, Collection Storage and Conservation Area, Public Service Area, Science Education Area, Administration and Academic Research Area; as well as an astronomical observatory, parking and equipment rooms. The total floor area is 100000 square meters, in which 65000 square meters are above ground while 35000 square meters are under the ground.

Table 2 Floor Area Distribution Reference

No.	Category	Floor Area m ²	Percentage	Note
(I)	Exhibition Area	34,000	34.00%	
1	Permanent Exhibition Hall	21,800		
2	Special Exhibition Hall	6,000		
3	Temporary Exhibition Hall	5,000		
4	Exhibition Supporting Space	1,200		
(II)	Collection Storage and Conservation Area	13,500	13.50%	
1	Collection Storage Area	10,500		
(1)	Collection Management Area	2,500		
(2)	Collection Storage Room	8,000		Underground
2	Collection Conservation Area	3,000		
(III)	Public Service Area	12,000	12.00%	
(IV)	Science Education Area	7,100	7.10%	
(V)	Administration and Academic Research Area	6,200	6.20%	
(VI)	Astronomical Observatory	200	2.00%	
(VII)	Parking and Equipment Rooms	27,000	27.00%	Underground
1	Parking Garage	20,000		499 parking spot
2	Equipment Rooms	7,000		
	Total	100,000	100.00%	

[Note] The contents above could be adjusted and optimized according to design.

六、设计内容

深圳自然博物馆包含陈列展览区、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五大核心区域，一个天文台，及停车库与设备用房。总建筑面积 100000 平方米，地上建筑面积控制在 65000 平方米，地下建筑面积 35000 平方米。

表 2 各功能区面积分配参考指标表

序号	项目类别	建筑面积m ²	占比	备注
(一)	陈列展览区	34,000	34.00%	
1	常设展览	21,800		
2	专题展览	6,000		
3	临时展览	5,000		
4	展览配套用房	1,200		
(二)	藏品保管保护区	13,500	13.50%	
1	藏品库区	10,500		
(1)	库前区	2,500		
(2)	库房区	8,000		地下
2	藏品技术保护区	3,000		
(三)	公共服务区	12,000	12.00%	
(四)	科普教育区	7,100	7.10%	
(五)	综合业务与学术研究区	6,200	6.20%	
(六)	天文台	200	2.00%	
(七)	停车库与设备用房	27,000	27.00%	地下
1	停车库	20,000		499 个车位
2	设备用房	7,000		
	合计	100,000	100.00%	

注：以上指标可根据具体方案进行优化微调。

6.1 Space above the ground

1. Exhibition Area

The most essential area open to the public in Shenzhen Natural History Museum is the exhibition area. The spatial relationship between exhibition halls should be allied to the systematic and flexible organization of exhibitions and multiple choices of visiting. It should provide smooth circulation for visiting, as well as fully consider distribution and evacuation of large crowds.

The exhibition area is based on the "6 + 1 + 3" mode: Six permanent exhibitions with the core concept of "evolution" (Vast Universe, Lucky Earth, Magnificent Life, Plant Kingdom, Animal World, Origin of Human); One special exhibition of Nature in Shenzhen facing the Bay Area and radiating South China with "Human and Nature" as the core value. Three temporary exhibition halls are for exquisite exchange exhibitions, which will cooperate with domestic and foreign natural history museums. The total area is 34000 square meters. The specific allocation is as follows:

Table 3 Exhibition Area GFA Reference

No.	Category	Area(m ²)	Notes	Percentage
(一)	Exhibition Area	34000		34.00%
1	Permanent Exhibition	21800		21.80%
1.1	Vast Universe	2800	<p>1. Exhibition Content: Using the development history of astronomy as a clue, focusing on presenting the cutting-edge achievements of astronomy research and try to answer the question of "where does human come from and where to go?"</p> <p>2. Display Highlights: The astronomical observation panel of the world's largest sky survey project shows how to draw a three-dimensional map of the universe; immersive space shuttle experience in dynamic scenes.</p> <p>3. Core Specimens: astronomical observation panel, lunar meteorites, martian meteorites, telescope objects.</p>	
1.2	Lucky Earth	3000	<p>1. Exhibition Content: From the perspective of a "geologist", showing how to study the evolution of the earth and how to find minerals. Answer the question of "why does the earth have life" and "what is the material foundation of human civilization".</p> <p>2. Display Highlights: Large-scale interactive exhibits demonstrate the changes in the earth's pattern and the environment caused by the movement of the earth's plates; the 15-meter-long crystal tunnel displays the law of mineral formation.</p> <p>3. Core Specimens: typical geological structural specimens, common gemstone crystals, etc.</p>	
1.3	Magnificent Life	4000	<p>1. Exhibition Content: physical evidence of biological evolution, using "evolutionary thinking" to interpret various life phenomenon, and interpret the scientific connotation and core value of theory of evolution.</p>	
1.3.1	Theory of Evolution	2000	<p>2. Display Highlights: "Tree of Life" shows the origin of species and kinship between them; a comparative display of a large number of fossil specimens of animals and plants in series.</p>	
1.3.2	Evolution of Life	2000	<p>3. Core specimens: representative paleontological fossil specimens from various chronologies.</p>	

6.1 地上空间

1. 陈列展览区

陈列展览区是深圳自然博物馆重点的对外开放区域，各展厅之间的空间组织应充分考虑展览的系统性、灵活性和参观的可选择性，展厅间有良好的展示动线，并充分考虑观众的集散与疏散。

陈列展览区以“6+1+3”的展览模式：“演化”为核心概念的6个常设展览（宇宙万象、幸运地球、壮阔生命、植物王国、动物世界、人之由来）；以“人与自然”为核心立足深圳面向湾区辐射华南的专题展；联合国内外自然博物馆，举办精品交流展的3个临时展厅。面积约34000平方米，具体分配如下：

表 3 陈列展览区面积及内容表

序号	项目类别	建筑面积 (m ²)	备注	占比 %
(一)	陈列展览区	34000		34.00%
1	常设展览	21800		21.80%
1.1	宇宙万象	2800	<p>1. 展览内容: 以天文学发展历史为线索，重点展示当天文学研究前沿成果，试图回答“人类从哪里来，要到哪里去”的问题。</p> <p>2. 展示亮点: 全球最大巡天项目天文观测盘展示如何绘制宇宙三维地图；沉浸式太空穿梭动态场景。</p> <p>3. 核心标本: 天文观测盘、月球陨石、火星陨石、望远镜发展实物。</p>	
1.2	幸运地球	3000	<p>1. 展览内容: 以“地质学家”视角，展示如何研究地球演化、如何找矿。回答“地球凭什么有生命”和“人类文明建设的物质基础”。</p> <p>2. 展示亮点: 大型交互展项演示地球板块运动造成的地球格局变化及环境变化；15米长晶体隧道展示矿物形成规律。</p> <p>3. 核心标本: 典型地质构造标本、常见宝石原矿晶体等。</p>	
1.3	壮阔生命	4000	<p>1. 展览内容: 生物进化的物证，用“进化思维”解读各类生命现象，诠释进化论的科学内涵和核心价值。</p>	
1.3.1	进化论展区	2000	<p>2. 展示亮点: “生命之树”展示物种起源及生物之间的亲缘关系；大量成系列的动植物化石标本的对比展示。</p>	
1.3.2	生命长河展区	2000	<p>3. 核心标本: 各地质年代代表性古生物化石标本。</p>	

No.	Category	Area(m ²)	Notes	Percentage
1.4	Plant Kingdom	4000	<p>1. Exhibition Content: The theme content is the comparison of ancient and modern plants, the evolution of plant propagation organs, and the evolution of life history of plant.</p> <p>2. Display Highlights: The comparison of the evolution from ancient to modern plants; the morphology, color, and smell of plant leaves, flowers and fruits are all presented together.</p> <p>3. Core specimens: ancient and modern plant specimens in contrast, plant propagation organ specimens, and plant life history specimens.</p>	
1.5	Animal World	5500	<p>1. Exhibition Content: From the perspective of global ecology, it displays the evolutionary relationship between life pedigree and species, and explains the interaction between various environmental factors and life.</p> <p>2. Display Highlights: classification and evolution of various groups of animals; large migration scenes of birds, mammals, insects, crabs, turtles and fish.</p> <p>3. Core specimens: Representative species of each evolutionary key period of amphibians, crawlers, birds and mammals.</p>	
1.6	Origin of Human	2500	<p>1. Exhibition Content: the origin and evolution of human beings, whether human beings are still evolving and where human evolution is heading.</p> <p>2. Display Highlights: Several hypothetical scientific films on how humans get out of Africa; scientific visualization models show the differentiation and evolution of various physiological functions of humans and other animals.</p> <p>3. Core Specimens: Evidence of human evolution, typical specimens that distinguish humans from other species.</p>	
2	Special Exhibition Nature in Shenzhen	6000	<p>1. Exhibition Content: From the perspective of "two generations of sojourners", supplemented by high-tech display methods, showing the diversity of species in the Bay Area, focusing on the green development path of Shenzhen.</p> <p>2. Display highlights: Large-scale human-computer interactive system to display urban development and water system purification; interactive Shenzhen underground geological visualization display.</p> <p>3. Core specimens: a full set of stratigraphic core specimens, rare animal and plant specimens in Shenzhen.</p>	
3	Temporary Exhibition	5000	For exchange exhibitions	
3.1	Temporary Exhibition 1	1300	According to general standards for temporary exhibition hall	
3.2	Temporary Exhibition 2	1700	—	
3.3	Temporary Exhibition 3	2000	—	
5	Exhibition facility room	1200	Facilitating temporary exhibition halls.	

序号	项目类别	建筑面积 (m ²)	备注	占比 %
1.4	植物王国	4000	<p>1. 展览内容: 以古今植物对比、植物繁殖器官演变、植物生活史演变等为主题内容体现植物的演化之路。</p> <p>2. 展示亮点: 古今植物对比展示植物的演化; 集中呈现植物叶、花、果实的形态、颜色和气味。</p> <p>3. 核心标本: 古今植物对比标本、植物繁殖器官标本、植物生活史标本。</p>	
1.5	动物世界	5500	<p>1. 展览内容: 全球生态视野下, 展示生命谱系及物种间的进化关系, 诠释各种环境因子与生命之间的相互作用。</p> <p>2. 展示亮点: 各类群动物的分类与演化方式; 鸟类、哺乳类、昆虫、螃蟹、海龟和鱼类等动物大迁徙场景。</p> <p>3. 核心标本: 两栖、爬行、鸟类和哺乳动物的各个演化关键节点代表性物种。</p>	
1.6	人之由来	2500	<p>1. 展览内容: 展示人类的起源与演化, 人类是否还在演化、人类演化将走向何方。</p> <p>2. 展示亮点: 人类如何走出非洲的几种假说的科学影片; 科学可视化模型对比展示人与其他动物各个生理功能分化演化。</p> <p>3. 核心标本: 人类演化的证据、人类区别于其它物种的典型标本。</p>	
2	专题展览 (深圳自然)	6000	<p>1. 展览内容: 以“两代旅居者”的视角, 辅以高科技展示手段, 展示湾区物种多样性变化, 重点介绍深圳绿色发展之路。</p> <p>2. 展示亮点: 大型人机互动触摸系统展示城市发展与水系统净化; 深圳地下地质可视化交互展示。</p> <p>3. 核心标本: 深圳全套地层岩心标本、珍稀动植物标本。</p>	
3	临时展览	5000	举办精品交流展	
3.1	临时展览 1	1300	按临展厅通用标准	
3.2	临时展览 2	1700	—	
3.3	临时展览 3	2000	—	
5	展览配套用房	1200	服务于临时展览	

注: 各分区面积可根据具体方案进行优化微调。

[Note] The contents above could be adjusted and optimized according to design.

2. Collection Storage and Conservation Area

The Collection Storage and Conservation Area is not open to public, which should be separated from other areas. This area is divided into collection storage space and collection conservation space. The total area is 13500 square meters, in which 8000 square meters is underground. The specific allocation is as follows:

Table 4 Collection Storage and Conservation Area GFA Reference

No.	Category	Area (m ²)	Notes	Percentage
(二)	Collection Storage and Conservation Area	13500		13.50%
1	Collection Storage	10500		
1.1	Collection Management Area	2500	Area facilitates packing and unpacking, identification, temporary storage, revolution storage, disinfection, buffer, air shower and so on.	
1.2	Collection Storage Room	8000		
1.2.1	Large Mammal Specimen Storage	—	For storage of large mammal specimens.	
1.2.2	Other organic Specimen Storage	—	For storage of other organic animal specimens	
1.2.3	Inorganic Specimens Storage	—	For paleontological and mineral specimen storage.	
2	Collection Conservation	3000		
2.1	Analysis and Detection Area	—	Installation and operation area for large analysis equipment.	
2.2	Repair Studio	—	For daily repair of specimens.	
2.3	Laboratory	—	For specimen cleaning, hanging, drying, etc., as well as sample preparation, routine chemical experiments and other functions.	
2.4	Temporary Storage Room	—	For temporary storage of collections to be repaired/restored.	
2.5	Chemical Storage	—	For chemicals storage.	
2.6	Studio Space	—	For other collection conservation work.	

[Note] The contents above could be adjusted and optimized according to design.

2. 藏品保管保护区

藏品保管保护区非开放区，应与其它功能区域独立分开。分为藏品库区和藏品技术保护区，面积约 13500 平方米，其中库房区 8000 平方米计入地下空间面积，面积分配如下：

表 4 藏品保管保护区面积及内容表

序号	项目类别	建筑面积 (m ²)	备注	占比 %
(二)	藏品保管保护区	13500		13.50%
1	藏品库区	10500		
1.1	库前区	2500	用于藏品的拆装、鉴选、暂存、周转、消杀、缓冲、风淋等。	
1.2	库房区	8000		
1.2.1	大型哺乳动物标本库	—	用于大型哺乳动物标本存放	
1.2.2	其他有机类标本库	—	用于其他有机类动物标本存放	
1.2.3	无机类标本库	—	用于古生物、矿物标本存放。	
2	藏品技术保护区	3000		
2.1	分析检测区	—	用于大型分析设备的安装运行	
2.2	修复区	—	用于标本的日常修复。	
2.3	实验室	—	用于标本清洗、晾置、干燥等，以及样品制备、常规化学实验等功能。	
2.4	临时库	—	用于待修复藏品的临时存放。	
2.5	药品库	—	用于化学药品存放。	
2.6	工作区	—	用于其它藏品保护工作。	

注：各分区面积可根据具体方案进行优化微调。

3. Public Service area

The public service area encourages to design with creativity, in line with humanity and new management philosophy. The design team can reasonably and flexibly consider the setting of 360-degree observation area according to the design scheme. The observation area is open to the public and can be used by tourists. It is for observation of the surrounding environment during the daytime (such as bird watching, garden scene viewing, and city scenery viewing). Eight sets of equipment can be placed in the area and 30 people can be accommodated. It is recommended to integrate with rest and dining spaces. The total floor area is 12000 square meters, the specific allocation is as follows:

Table 5 Public Service Area Floor Area Reference

No.	Category	Area (m ²)	Notes	Percentage
(三)	Public Service Area	12000		12%
1	VIP Reception	—	It is used to receive important guests, and equipped with independent room. Ensure privacy and hallways are set independently.	
2	Visitor Service Area	—	Meet various needs of visitors. Including but not limited to service desks, baggage depository, ticket offices, security screenings, wheelchair and children's car rental room, floor service and volunteer room, nursery room, parent-child bathroom, drinking water room, toilet, rescue room, garbage collection, leisure areas, observation areas, etc.	
3	Lobby	2500	Capable for temporary exhibitions and large events.	
4	Dining Area	4200	The dining area should meet the needs of visitors, and arrange small cafes according to visiting circulation and rest needs; Chinese restaurants should be set up independently to assure the possibility of independent operation after the museum is closed; staff dining area should meet the dining needs of 600 people, which should be set up separately from visitor's dining area. Full consideration should be given to various circulation designs, including the diners route, production and delivery route, logistics route, and tableware recycling and kitchen waste treatment route. Kitchen should have its independent logistics circulation, and the location should be far from visiting circulation.	
5	Cultural and Creative Stores	—	Cultural and creative stores should be placed on different floors, and one of them is a flagship store, which should be equipped with product storage room.	

[Note] The contents above could be adjusted and optimized according to design.

3. 公共服务区

公共服务区功能分区鼓励创新，可考虑新颖空间，体现人性化及新的管理理念。设计单位可根据设计方案合理灵活的考虑 360 度观测区的设置，观测区对外开放，可供游客使用。区域内可放置 8 套设备及容纳 30 个人，建议结合休息餐饮用于白天周边环境观测（如观鸟、观园、观城市风光）。面积约 12000 平方米，具体分配如下：

表 5 公众服务区面积及内容表

序号	项目类别	建筑面积 (m ²)	备注	占比 %
(三)	公共服务区	12000		12%
1	贵宾接待区	—	用于接待重要来宾，面积差异化，配套独立用房。注重私密性。通道独立设置。	
2	公众服务区	—	满足观众各种需求。包含但不限于服务台、存包处、票务处、安检、轮椅及儿童车租用室、楼层服务与志愿者用房、大厅、母婴室、亲子卫生间、休闲区、观测区、饮用水间、卫生间、救助室、垃圾回收站等。	
3	大厅	2500	能够满足举办临时展览、大型活动的需求。	
4	餐饮区	4200	应满足观展人群需求，结合参观路线及休息需求分散布置轻餐饮；中式餐厅等重餐饮应独立设置，满足闭馆后独立经营的可能性；工作人员餐厅应满足 600 人次的用餐需要，与观众餐厅分区布置。应充分考虑各种流线设计，包括就餐者流线、制作及送餐流线、进货流线及餐具回收和厨余垃圾的处理流线等。厨房的布置应有独立后勤流线，位置远离各参展流线。	
5	文创区	—	在不同楼层分别设置文创商店，设置文创旗舰店 1 间，应配备商品库房。	

注：各分区面积可根据具体方案进行优化微调。

4. Science Education Area

Science education area is to facilitate science education activities for middle school and primary school students, including but not limited to, science education classroom, workshop, multi-media classroom, laboratory, virtual studio, natural science reading room, Friend-of-the-Museum activity room, academic lecture hall, Nature Theater (co-functioning as international conference hall), conference room, 4D theater, dome cinema, IMAX cinema, etc., with a total area of 7100 square meters.

Among them, the academic lecture hall can accommodate 150 people; the Nature Theater can accommodate 600 people; the 4D theater can accommodate 200 people; the dome cinema seats are about 270, about 18-23 meters in dome diameter; the IMAX cinema can accommodate 300 people. The Nature Theater and cinemas should be able to open independently after museum is closed.

4. 科普教育区

科普教育区用于满足中小学生学习科普教育活动，包括但不限于科普教育中心、科普教室 / 手工坊、多媒体电教室、实验室、虚拟演播室、自然科普阅览室、博物馆之友活动室、学术报告厅、自然剧场（兼具国际报告功能）、学术会议室、动感 4D 影院、球幕影院、巨幕影院等，面积约 7100 平方米。

其中，学术报告厅容纳 150 人；自然剧场容纳 600 人；动感 4D 影院容纳 200 人；球幕影院座位数为 270 座左右，直径考虑 18-23 米；巨幕影院容纳 300 人。自然剧场及影院应满足闭馆后可单独开放的需求。

5. Administration and Academic Research Area

The Administration and Academic Research Area covers a total area of 6200 square meters, including scientific research center, library and archives, business and service room, security room and information management room of intelligent museum.

Table 6 Administration and Academic Research Area GFA Reference

No.	Category	Area(m ²)	Notes	Percentage
(五)	Administration and Academic Research Area	6200		6.2%
1	Scientific Research Center	—	It is used for scientific research in various disciplines, with offices and experiment labs. Multiple rooms should be set up, including but not limited to paleontology research center, geology research center, animal research center, astronomy research center, academician workstations, etc.	
2	Library and Archives	—	To meet the research needs of researchers in the museum. Consider future possibility of opening to the public. Including but not limited to archives, archive management, library, reading room, editing room, image collection studio, etc.	
3	Business and Administration Room	—	To meet the needs of various business departments, such as management office, reception, meeting, property management, security, etc.	
4	Service Room	—	To serve the daily needs of the museum operation, including but not limited to confidential archive room, personnel archive room, financial archive room, reception room, mail room, storage room, property management room, toilet, pantry, party building activity room, labor union activity room, etc.	
5	Security Room		Meet the needs of security functions	
6	Information Management Room of Intelligent Museum	—	Computer room and control management	

[Note] The contents above could be adjusted and optimized according to design.

6. Astronomical Observatory

The astronomical observatory is for public education, it covers an area around 200 square meters. The design should meet the requirements of opening during evenings. It is equipped with a 1-meter diameter professional stargazing telescope. The observatory should be built on an independent foundation where there is no shielding for observation. The dome is 12 meters in diameter and can accommodate 30 people at a time. And load capacity is at least 10 tons (see design brief attachment 3 for details).

5. 综合业务与学术研究区

综合业务与学术研究区包括科研中心、图书档案资料中心、业务及服务用房、保卫用房及智慧博物馆信息管理用房，面积约 6200 平方米，具体分配如下：

表 6 综合业务与学术研究区功能分配及要求表

序号	项目类别	建筑面积 (m ²)	备注	占比 %
(五)	综合业务与学术研究区	6200		6.2%
1	科研中心	—	用于各学科进行科学研究。兼具办公和实验功能。应按照学科设置多个房间。包含但不限于古生物研究中心、地质研究中心、动物研究中心、天文研究中心、院士工作站等	
2	图书档案资料中心	—	用于满足馆内科研人员研究需要。考虑未来对外开放的功能需求。包含但不限于档案库、档案整理室、书库、阅览室、采编室、图像采集工作室等	
3	业务管理用房	—	用于多个业务部门的管理办公、接待、会议、物业管理、安保等	
4	业务服务用房	—	服务于馆内日常工作需求。包含但不限于机要档案室、人事档案室、财务档案室、接待室、文印收发室、储藏室、物业管理用房、卫生间、茶水间、党建活动室、工会活动室等	
5	保卫用房	—	满足安全保卫功能需求	5
6	智慧博物馆信息管理用房	—	机房及控制管理	

注：各分区面积可根据具体方案进行优化微调。

6. 天文台

天文台定位科普，面积约 200 平方米。满足夜间开放使用需求，配置 1 米口径专业观星望远镜；建筑要求独立地基，观测无遮挡；圆顶直径 12 米，满足空间可一次容纳 30 人；承载重量 ≥ 10 吨。（详见任务书附件三）

6.2 Underground Space

Collection storage area, parking garage, and equipment room should be considered placing underground. The design of the underground space should comply with relevant building codes. And organic relationship of above-ground and underground spaces should also be considered.

1. Collection Storage Area

The Collection storage area is about 8000 square meters, which is considered to be placed underground. The design should fully consider the functional relationship between storage area and collection management area.

2. Parking Garage

The total area of parking garage is around 20000 square meters and includes 499 parking spots.

3. Equipment Room

The total area of equipment room is around 7000 square meters.

6.3 Outdoor Exhibition Area

On the premise of satisfying requirements for sponge city and green area rate, the outdoor landscape within the project's red line should present an original and distinctive style, as an extension of the indoor exhibition, a supporting scientific park that blends with the surrounding natural ecology. To achieve the use for science education, interactive experience, ecological environment display, tourism and leisure.

VII Other Professional Design Requirements

Other professional designs should meet the requirements of relevant national and local codes and standards, and apply new concepts and cutting edge technologies. According to project construction needs and standards, present a scientific and reasonable design with full consideration in planning, architecture, structure, interior, electronic and mechanical, landscape, intelligent venues and informationization, curtain wall, signage, life support, cinema, VR, elevator, acoustics, lighting, floodlight, prefabrication, fire protection, civil air defense, doors and windows, BIM, green building, sponge city, etc.

In case of any inconsistency, the Chinese shall prevail.

6.2 地下空间

藏品库房区、停车库及设备用房考虑布置于地下，地下空间的设计应符合相关规范，并同时考虑地上、地下空间的有机处理

1. 库房区

藏品库房区考虑置于地下，设计应充分考虑与库前区的使用关系，合理设计，面积约 8000 平方米。

2. 停车库

停车库考虑 499 个停车位，面积约 20000 平方米

3. 设备用房

设备用房面积约 7000 平方米。

6.3 户外展览区

在满足海绵城市及绿化率的前提下，旨在项目红线范围内的室外景观应呈现出一个原创的、风格鲜明的，作为室内展示的延伸，与周边自然生态融合的配套科学园区。达到科学教育、互动体验、生态环境展示、旅游休闲的效果。

七、各专业设计要求

各专业设计应符合国家和地方相关规范和标准要求，应用先进理念和前瞻技术。依据项目建设需求及标准，进行科学合理的规划、建筑、结构、室内、机电、景观、智慧场馆及信息化、幕墙、标识、维生、影院、VR、电梯、声学、光学、泛光、装配式、消防、人防、门窗、BIM、绿建、海绵城市等专业设计。

以上所有内容均以中文版为准。

Chapter 2
Design Development Phase
(Not Required for Concept Design
Phase)

第二章节
深化设计要求
(概念草案不作要求)

I. Detail Requirements for Core Functional Areas

1.1 Exhibition Area Functional Distribution and Requirement

Table 3 Exhibition Area Functional Distribution and Requirement

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirements			%
			Layout with Circulation	Space and Structure	Electromechanical and Other Notes	
(a)	Exhibition Area	34000	1. It is suggested to be arranged in the convenient location of relevant functional areas and open areas; 2. It is suggested to consider arranging the audience gathering area at the entrance of the exhibition hall on each floor; 3. Each exhibition hall shall have independent safe passage and the exit shall be unblocked; 4. It is suggested to set up a wide corridor buffer zone between the exhibition halls and the public space, which can also be used as a temporary rest area for the audience.	The space shall be as large as possible and try to avoid columns.	1. Constant temperature and humidity (fresh air), zoning control. Independent exhaust system and filtration. 2. The exhibition hall meets the need of disinfection.	34.00%
1	Permanent Exhibition	21800	The permanent exhibition hall is arranged in the order of natural evolution history. It is suggested to be arranged on the first floor and the second floor to ensure the consistency of visiting experience.			21.80%
1.1	Vast Universe	2800		The net height is about 10 meters.	Avoid natural lighting.	
1.2	Lucky Earth	3000		A net height of more than 6 meters is advisable. Special consideration should be given to load-bearing requirements since the collections can be more than 2 tons.	Semi-open or enclosed, partially natural lighting.	

一、核心功能区详细设计要求

1.1 陈列展览区功能分配及要求

表 3 陈列展览区功能分配及要求表

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求			占比 %
			布局与流线	空间及结构	机电及其他	
(一)	陈列展览区	34000	1. 建议安排在相关功能区、开放区域通行便捷部位; 2. 建议在展厅入口及各层展厅考虑观众集散区; 3. 各展厅均要有独立安全通道, 出口要畅通; 4. 建议在展厅外与公共空间通道之间设置宽阔的廊道缓冲区, 又可作为观众临时休息区。	尽量大空间, 展区内尽量无柱。	1. 恒温恒湿 (新风), 分区控制; 有独立的排风系统及过滤。 2. 展厅满足密闭消杀需要。	34.00%
1	常设展览	21800	常设展厅按自然演化历史的顺序布置, 建议布置于一、二楼较, 连续性较好。			21.80%
1.1	宇宙万象	2800		展示高度 10 米左右。	避免天然采光。	
1.2	幸运地球	3000		净高度 10 米以上为宜; 部分展品重达约 2 吨, 需特别考虑展厅承重要求。	半开放或封闭, 局部可天然采光。	

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirements			%
			Layout with Circulation	Space and Structure	Electromechanical and Other Notes	
1.3	Magnificent Life	4000		A net height of 20 meters could be considered. Encourage architects to give full play to their talents.		
1.3.1	Evolutionism	2000		It is suggested to be more than 6 meters high.	Avoid natural lighting.	
1.3.2	Evolution of Life	2000		A net height of more than 10 meters is advisable. Special consideration should be given to load-bearing requirements since the angiosperm can be more than 2 tons.	Can be open. Avoid natural lighting.	
1.4	Plant Kingdom	4000		A net height of more than 6 meters is advisable. Special consideration should be given to load-bearing requirements since the angiosperm can be more than 2 tons.	Avoid natural lighting or natural lighting areas should not be too large. The height should not be less than 4 meters.	
1.5	Animal World	5500		A net height of 20 meters could be considered. Encourage architects to give full play to their talents.	Avoid natural lighting.	
1.6	Origin of Human	2500		A net height shall be more than 6 meters.	Avoid natural lighting.	
2	Special Exhibition	6000				
2.1	Special Exhibition	6000		A net height of more than 10 meters is advisable.	Avoid natural lighting.	
3	Temporary Exhibition	5000	1. It is suggested that the exhibition hall should be arranged on different floors, with two separate entrance and exit gates as well as back doors for exhibition. 2. The temporary exhibition hall is frequently replaced. The circulation to supporting rooms shall be smooth.	A net height shall be more than 8 meters. The width shall be no less than 4 meters. The height should not be less than 4 meters.		

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求			占比 %
			布局与流线	空间及结构	机电及其他	
1.3	生命进化	4000		可考虑 20 米以上的挑高层，鼓励设计师充分发挥。		
1.3.1	进化论展区	2000		高度建议 6 米以上。	避免天然采光、密闭。	
1.3.2	生命长河展区	2000		净高度 10 米以上为宜；需特别考虑展厅承重要求。	可开放，避免天然采光。	
1.4	植物王国	4000		净高 6 米以上为宜；展厅后半部分的被子植物最大重量约为 2 吨，需特别考虑展厅承重要求。	密闭，避免天然采光或天然采光区域不宜过大。	
1.5	动物世界	5500		可考虑 20 米以上的挑高层，鼓励设计师充分发挥。	密闭，避免天然采光。	
1.6	人之由来	2500		净高度 6 米以上。	密闭，避免天然采光。	
2	专题展览	6000				
2.1	深圳自然	6000		净高度 10 米左右为宜。	密闭，避免天然采光。	
3	临时展览	5000	1. 建议安排在不同楼层，各个展厅需两个独立进出大门及布展用后门。 2. 临时展厅展览更换频繁，与展览配套用房流线通畅。	净高度 8 米以上；展厅大门宽度不低于 4 米，高度不低于 4 米左右。		

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirements			%
			Layout with Circulation	Space and Structure	Electromechanical and Other Notes	
3.1	Temporary Exhibition 1	1300				
3.2	Temporary Exhibition 2	1700	The two rooms shall be arranged in the adjoining area and are connected by a passageway. They can be used jointly to hold big exhibition.	A room of about 600 square meters and another room of about 1,100 square meters.		
3.3	Temporary Exhibition 3	2000	It is suggested to be on the first floor to facilitate the temporary arrangement of large and heavy specimens.	It is suggested to adopt the partition wall which can be easily moved and the two exhibition halls can be flexibly adjusted.		
4	Exhibition facility room	1200	Unblocked hallway to temporary exhibition hall.	The width of hallway shall not be less than 4 meters.		

[Note] The contents above could be adjusted and optimized according to design.

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求			占比 %
			布局与流线	空间及结构	机电及其他	
3.1	临时展览 1	1300				
3.2	临时展览 2	1700	两间布置在相连的区域、之间有通道相连，可以联合起来举办大展。	需一间 600 平方米左右，另一间 1100 平方米左右。		
3.3	临时展览 3	2000	建议设置在一楼等方便大型重型标本的临时布展撤展工作。	建议采用可方便移动的隔墙，设计成可灵活调整面积的两个展厅。		
4	展览配套用房	1200	与临时展厅流线通畅。	通道宽不低于 4 米。		

注：各分区面积可根据具体方案进行优化微调。

1.2 Collection Storage and Conservation Area Functional Distribution and Requirement

Table 4 Collection Storage and Conservation Area Functional Distribution and Requirement

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirements			%
			Layout and Circulation	Space and Structure	Electromechanical and Other Notes	
(2)	Collection Storage and Conservation Area	13500	The collection Conservation Area should be connected with the exhibition area and the comprehensive business area.		1. Air fire extinguishing method must be adopted in Collection Storage and Conservation Area; 2. According to the different materials of the collection and the differences in room functions, the constant temperature and humidity air conditioning and fresh air system should be reasonably configured	13.5%
1	Collection Storage	10500			Special care must be taken not to have any water supply points and not to have any water supply and drainage pipes above the ceiling of the room.	
1.1	Collection Management Area	2500	The Collection Management Area must be adjacent to the storage area			
1.1.1	Loading Area			Area not less than 300 square meters		
1.1.2	Administrative office of doorway					
1.1.3	Revolution Storage Room			It is recommended to set 10-12 rooms. A single room's reference area is 100 square meters.		

1.2 藏品保管保护区功能分配及要求

表 4 藏品保管保护区功能分配及要求表

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求			占比 %
			布局与流线	空间及结构	机电及其他	
(二)	藏品保管保护区	2500	藏品保管保护区与陈列展区、综合业务区需分别有通道连通。		1. 藏品保管保护区必须采用气体灭火方式; 2. 根据藏品材质不同、以及房间功能差异合理配置分区恒温恒湿空调及新风系统。	13.5%
1	藏品库区	10500			需特别注意不得有任何给水点, 且房间吊顶上方不得有任何给排水管道。	
1.1	库前区	2500	库前区必须邻近库房区			
1.1.1	装卸区			面积 ≥ 300 m ²		
1.1.2	出入口管理室					
1.1.3	周转库区			建议设置 10-12 间, 单间参考面积 100 m ² 。		

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirements			%
			Layout and Circulation	Space and Structure	Electromechanical and Other Notes	
1.1.4	Photographic Area (also for specimen mounting)			It is recommended to set 2 rooms, 1 of which is for 360-degree photography and the area is ≥ 200 square meters. Another room's reference area is 150 square meters.		
1.1.5	Storage area for equipment and materials			About 4 rooms can be set. One room is more than 150 square meters, and the other rooms may be around 100 square meters.		
1.1.6	Disinfection Area for Collections			The reference area is 100 square meters.	The collection needs to be disinfected with low oxygen and nitrogen or frozen disinfection. There are drainage points and independent exhaust pipes. It's not necessary to set constant temperature and humidity air conditioning.	
1.1.7	Workshop					
1.1.8	Buffer		It should be installed as close as possible to the storage area.	The reference area is 200 square meters.	Independent constant temperature and humidity air conditioning	
1.1.9	Air Shower		It is placed along with the hallway through which can reach the collection management area.			
1.2	Collection Storage Room	8000	Shall not be placed in different floors.			

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求			占比 %
			布局与流线	空间及结构	机电及其他	
1.1.4	摄影区 (兼标本装架)			建议设置 2 间, 其中 1 间用于 360 度摄影, 面积 ≥ 200 m ² 。另 1 间参考面积 150 m ² 。		
1.1.5	库房设备材料存放区			可设置 4 间左右。其中 1 间面积 ≥ 150 m ² , 其余单间参考面积 100 m ² 。		
1.1.6	藏品消杀库			参考面积 100 m ² 。	对藏品进行低氧充氮消杀或冷冻消杀。设排水点和独立排风管道。可不设恒温恒湿空调。	
1.1.7	工作间					
1.1.8	缓冲间		应设置在尽量靠近库房区位置	参考面积 200 m ² 。	有独立恒温恒湿空调	
1.1.9	风淋室		随通道走向设置, 通过风淋室后通达库房区。			
1.2	库房区	8000	不得分层设置			

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirements			%
			Layout and Circulation	Space and Structure	Electromechanical and Other Notes	
1.2.1	Large Mammal Specimen Storage		It should be set up near the storage area's entrance	1. The size of the passage ensures the smooth entry of large specimens (such as 10×3.5 meters) and the net height is not less than 6 meters. 2. There are 3 rooms in total, one of which has an area of ≥ 500 square meters, and the others could be around 300 square meters.		
1.2.2	Other Organic Specimen Storage			It is suggested to set up about 20 rooms. Single room reference area is of 300 square meters.		
1.2.3	Inorganic Specimens Storage			It is recommended to set about 6 rooms, of which 2 rooms have an area of ≥ 300 square meters. Other single room reference area is 200 square meters.		
2	Collection Conservation	3000	1. The operation of equipment that involves a lot of electricity and water shall be separated from other functional areas independently. 2. It must be on the ground and connected with the Revolution Storage Area. 3. The waste water treatment equipment room (1 room, area ≥ 50 square meters) is generally under the waste water production area		1. Exhaust system shall be configured; 2. Special waste water and waste gas treatment system should be equipped in the area where waste water and waste gas are produced. 3. The exhaust gas treatment system consists of a separate exhaust pipe connecting each area and a filtration fan on the roof.	
2.1	Analysis and Detection Area		There are 200-300 square meters to place the room with heavy weight and equipment of high precision with shockproof requirements, which should be set on the ground floor but no underground floor.	It is recommended to set 12 rooms or so. A single reference area is of 100 square meters.	1. There are 2 rooms equipped with exhaust gas treatment system. 2. The rooms all face north with drainage points and no windows.	

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求			占比 %
			布局与流线	空间及结构	机电及其他	
1.2.1	大型哺乳动物标本库		应设置在靠近库房区入口	1. 通道尺寸保证大型标本 (如 10*3.5 米) 顺利进入, 建筑层高不小于 6 米。 2. 共设置 3 间房, 其中 1 间面积 ≥ 500 m ² , 其余单间参考面积 300 m ² 。		
1.2.2	其他有机类标本库			建议设置 20 间左右。单间参考面积 300 m ² 。		
1.2.3	无机类标本库			建议设置 6 间左右, 其中 2 间面积 ≥ 300 m ² 。其余单间参考面积 200 m ² 。		
2	藏品技术保护区	3000	1. 涉及较多用电用水设备的运行, 应与其它功能区域独立分开。 2. 必须位于地上, 且有通道与库前区相连。 3. 废水处理设备间 (1 间, 面积 ≥ 50 m ²) 一般设置在产生废水区域的下层。		1. 需配置排风系统; 2. 有产生废水废气的区域还需配备专门的废水废气处理系统。 3. 废气处理系统由连接各区域的独立排风管道和屋面的过滤风机组成。	
2.1	分析检测区		其中有 200-300 平米为放置有防震需求的超重及高精设备用房, 需设置在地上首层且无地下层。	建议设置 12 间左右, 单间参考面积 100 m ² 。	1. 有 2 间配置废气处理系统。 2. 房间均为北向、不开窗、有排水点。	

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirements			%
			Layout and Circulation	Space and Structure	Electromechanical and Other Notes	
2.2	Repair Studio		It is non-open areas. Window display or other forms may be considered for visitors.	It is recommended to set 5 rooms, one of which has an area of ≥ 150 square meters, and the other one has a reference area of 100 square meters.	1. There are water supply and drainage points, equipped with waste gas treatment system. 2. The rooms are south-facing with large area of natural lighting.	
2.3	Laboratory			7 rooms or so are recommended. Single room reference area is 100 square meters.	1. There are water supply and drainage points and a waste water and waste gas treatment system. 2. All rooms are naturally lit.	
2.4	Temporary Storage Room		Close to the Repair Studio.	Reference area is 100 square meters.		
2.5	Chemical Storage		Keep away from the Analysis and Detection Area and Repair Studio.	Area is ≤ 80 square meters.	The room faces north with windows.	
2.6	Studio Space		Close to the Analysis and Detection Area.	It is recommended to set 3 rooms, one of which has an area of ≥ 80 square meters.	Rooms face the south with open windows, water supply and drainage point. Configure the waste water treatment system.	

[Note] The contents above could be adjusted and optimized according to design.

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求			占比 %
			布局与流线	空间及结构	机电及其他	
2.2	修复区		为非开放区域, 可考虑以橱窗或其他形式为观众提供参观条件。	建议设置 5 间房左右, 其中 1 间面积 ≥ 150 m ² , 其余单间参考面积 100 m ²	1. 有给排水点; 并配置废水废气处理系统。 2. 房间均为南向、大面积天然采光	
2.3	实验室			建议设置 7 间房左右。单间参考面积 100 m ²	1. 有给排水点, 并配置废水废气处理系统; 2. 房间均自然采光。	
2.4	临时库		应设置靠近修复区	参考面积 100 m ²		
2.5	药品库		远离分析检测区和修复区	面积 ≤ 80 m ² 。	房间为北向、开窗	
2.6	工作区		应设置靠近分析检测区	建议设置 3 间房, 其中 1 间面积 ≥ 80 m ²	房间为南向、开窗、有给排水点。配置废水处理系统。配置废水处理系统。	

注: 各分区面积可根据具体方案进行优化微调。

The streamline of the collection is an important reference for the design. The following figure provides the schematic diagram of the streamline of the collection (refer to the figure below), and the designer will deepen the scheme according to the industry standard.

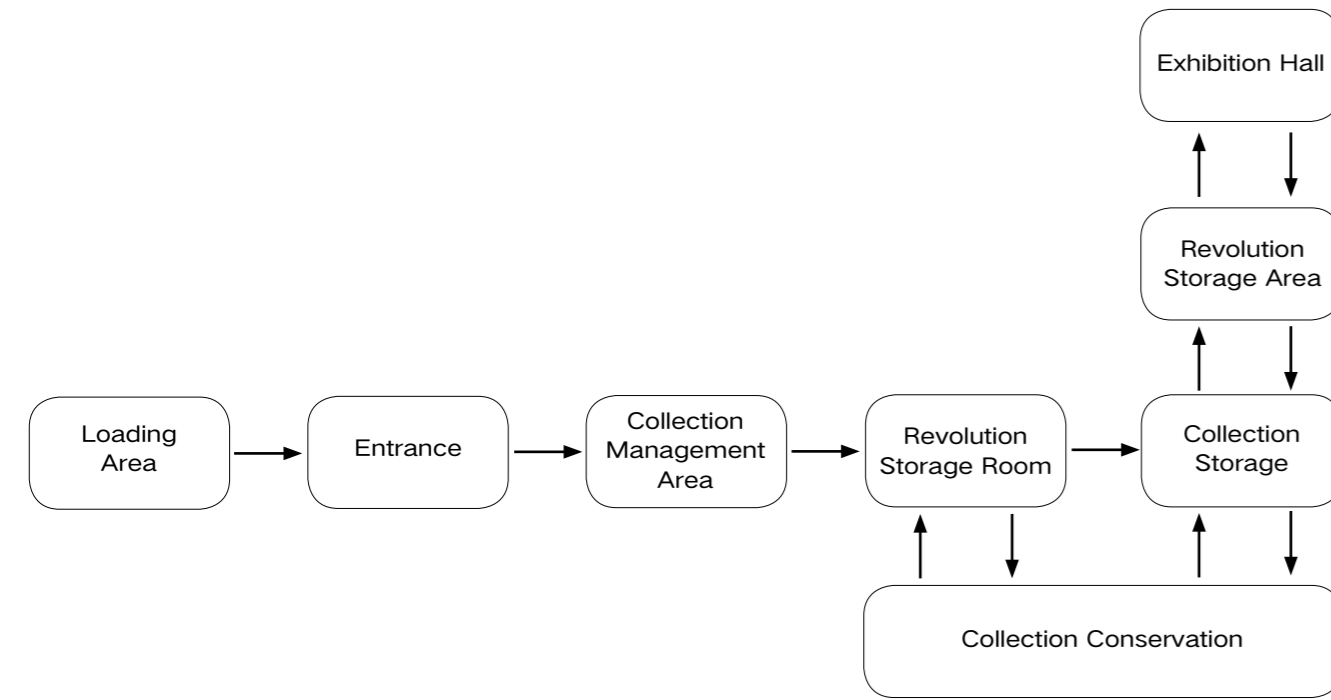


Figure 8 Collection Flow Diagram

藏品的流线是设计的重要参考，下图提供藏品流线示意图（详下图）的参照方案，后续由设计单位根据行业规范深化方案。

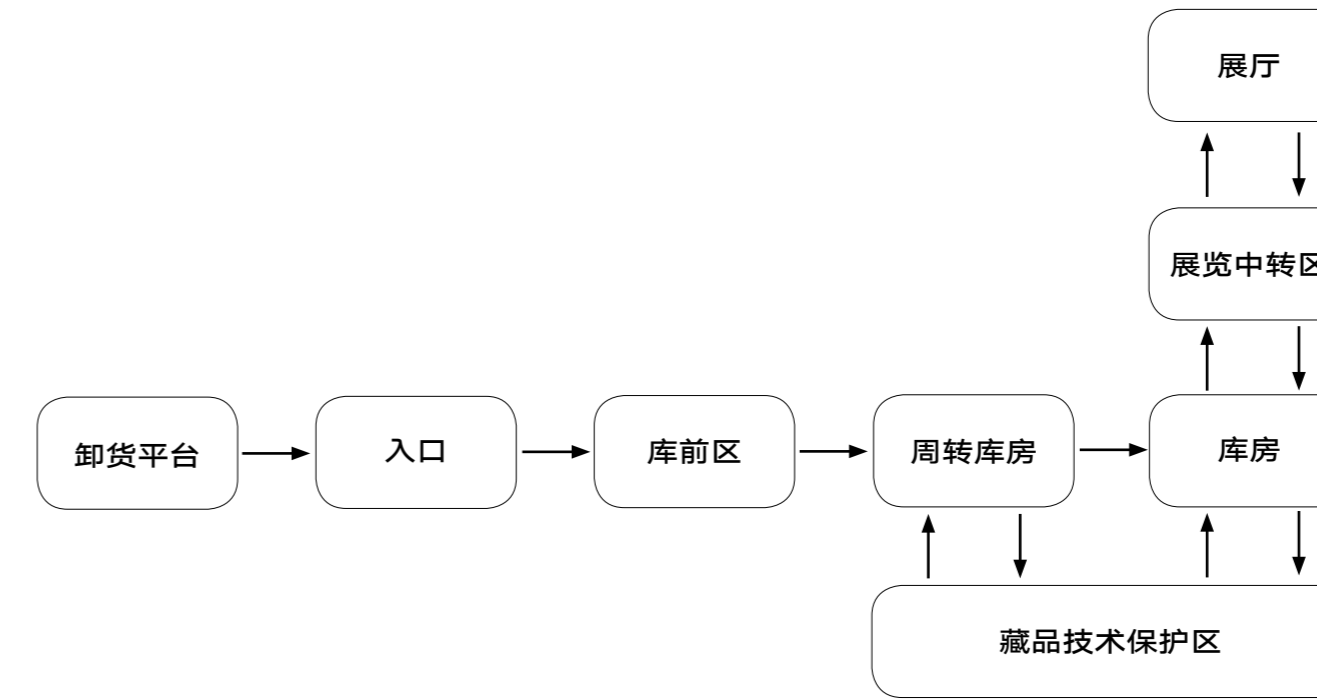


图 8 藏品流线示意图

1.3 Public Service Area Functional Distribution and Requirement

Table 5 Public Service Area Functional Distribution and Requirement

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirement	%
(III)	Public Service Area	12000		12.00%
1	VIP Reception		It is equipped with independent room. Ensure privacy and hallways are set independently.	
2	Visitor Service Area			
3	Lobby	2500	1. In addition to the general service functions, it should be able to be used as a large event place where people gather and disperse, and the space can be isolated from the inside of the hall for separate use and management when needed, such as hosting night events. 2. Considering point of support of hoisting exhibits in the ceiling of the building, such as model hoisting and dinosaur head fixation.	
4	Dining Area	4200	The kitchen should not affect other functional area.	
4.1	Light Catering (café, etc.)		1. It serves a large number of visitors, and is characterized by fast turnover of staff. Food supply is mainly through distribution and food type is relatively simple. 2. Appropriate close to and combine with the exhibition hall. Ensure convenience for a large number of visitors in and out.	
4.2	Fast Food Restaurant		It should be able to accommodate about 1000 people, and solve the problem of large number of exhibitors in a short time. It should meet the demand of famous chain brands' settlement.	
4.3	Business Restaurant		It should be independent and with a good dining environment. It should be able to open to the public in the closed period.	
4.4	Staff Canteen		Meet the dining needs of 600 people, including tow or three private rooms.	
5	Cultural and Creative Stores		Cultural and creative stores should be placed on different floors, and one of them is a flagship store, which should be equipped with product storage room.	

[Note] The contents above could be adjusted and optimized according to design.

1.3 公众服务区功能分配及要求

表 5 公众服务区功能分配及要求表

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求	占比 %
(三)	公共服务区	12000		12.00%
1	贵宾接待区		面积差异化, 配套独立用房, 注重私密性, 通道独立设置。	
2	公众服务区			
3	大厅	2500	1. 除一般性服务功能外, 应能适应作为大型活动场所密集人群集散场地, 能够在需要时与馆内部实现空间隔离以便单独使用和管理 (如举办夜场活动) 2. 建筑天花需考虑吊装展品着力点, 如模型吊装、恐龙头部固定等。	
4	餐饮区	4200	厨房的设置应不影响其他功能区	
4.1	轻餐饮 (咖啡厅等)		1. 服务于大量参观人群, 特点是人员周转快, 食品供应基本为配送, 食物品种较为简单。 2. 宜临近展厅, 与展厅相结合, 方便大量参观人流进出。	
4.2	快餐		可容纳约 1000 人用餐, 能够在短时间内解决大量参展人流就餐问题。应满足著名连锁品牌入驻的需求。	
4.3	商务餐厅		设置上应相对独立, 有良好就餐环境, 并能够在闭馆期对外开放使用。	
4.4	工作人员餐厅		可容纳约 600 人用餐, 其中包含 2—3 间包房。	
5	文创区		宜在不同楼层分别设置文创商店。同时应考虑设置文创旗舰店 1 间, 应配备商品库房。	

注: 各分区面积可根据具体方案进行优化微调。

1.4 Science Education Area Functional Distribution and Requirement

The Science Education Area is functioning for collaboration between museum and schools, aiming at providing various educational activities with rich contents and novel forms, in order to establish the education brand for the natural history museum. The area is about 7100 square meters. Function distribution and requirement is as follow:

Table 6 Science Education Area Functional Distribution and Requirement

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirement		%
			Layout and Space	Electromechanical and other notes	
(IV)	Science Education Area	7100			7.10%
1	Science Education Centre		Independent entrance and exit. The center can be connected or closed to the natural history museum. Buses can be driven directly to the entrance and exit. Place waiting room. Place lesson preparation room for teachers and staff.		
1.1	Science Education Classroom, Workshop		Several rooms which can accommodate about 50 people each.		
1.2	Multi-media Classroom		Several rooms which can accommodate about 50 people each.	It should be equipped with recording and broadcasting equipment which can carry on the course recording and broadcasting or on-line watching, and also the multimedia equipment such as the projection sound required by the class which can meet the diversified needs of the course.	
1.3	Laboratory		Several rooms which can accommodate about 50 people each.	It should be equipped with basic laboratory facilities of primary and secondary schools, such as independent operation platform pool experiment operation lighting, and also the water supply and drainage facilities.	
1.4	Virtual Studio			It should be equipped with studio facilities, such as background screen studio recording sound lighting equipment teleprompter.	

1.4 科普教育区功能分配及要求

科普教育区用于与多家学校开展馆校合作，推出各类内容丰富、形式新颖的教育活动，打造自然馆品牌教育。面积约 7100 平方米，功能分配及要求见下表：

表 6 科普教育区功能分配及要求表

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求		占比 %
			布局及空间	机电及其他	
(四)	社会教育区	7100			7.10%
1	科普教育中心		独立出入口；中心内部可与自然馆联通或关闭；大巴可直接抵达出入口；设置等候区；设置教师或自然馆工作人员备课间。		
1.1	科普教室 / 手工坊		设置多间，每间容纳约 50 人		
1.2	多媒体教室		设置多间，每间容纳约 50 人	配备录播设备，可以进行课程录播或在线观看，配备上课所需的投影、音响等多媒体设备，能满足多样化的课程需求。	
1.3	实验室		设置多间，每间容纳约 50 人	配备中小学基础实验室设施，如独立操作台、水池、实验操作照明灯具等；配备给排水设施。	
1.4	虚拟演播室			配备演播室的设备设施，如背景屏幕、演播台、录音、音响、灯光设备、提词器等。	

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirement		%
			Layout and Space	Electromechanical and other notes	
1.5	Natural Science Reading Room		1. One room that can accommodate about 500 people. 2. Need to consider the connection between the Administration and Academic Research Area and the Library and Archives.		
2	Friend-of-the-Museum Activity Room		Several rooms which can accommodate about 100 people each.		
3	Academic Lecture Hall		One room that can accommodate about 150 people.		
4	Nature Theater		One room that can accommodate about 600 people.	Stair seat, co-functioning as international academic report hall.	
5	Conference Room		Several rooms which can accommodate about 50 people each.		
6	4D Theater		One room that can accommodate about 200 people.		
7	Dome Cinema		One room that is 18 to 23 meters in diameter.		
8	IMAX Cinema		To accommodate about 300 people.		

[Note] The contents above could be adjusted and optimized according to design.

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求		占比 %
			布局及空间	机电及其他	
1.5	自然科普阅览室		1. 设置 1 间，容纳约 500 人； 2. 需考虑与综合业务与学术研究区的图书档案管理中心有通道连通		
2	博物馆之友活动室		设置多间，容纳约 100 人		
3	学术报告厅		设置 1 间，容纳约 150 人		
4	自然剧场		设置 1 间，容纳约 600 人	阶梯座位，兼具国际学术报告功能。	
5	学术会议室		设置多间，容纳约 50 人 / 间		
6	动感 4D 影院		设置 1 间，容纳约 200 人		
7	球幕影院		设置 1 间，直径 18-23 米		
8	巨幕影院		约容纳 300 人		

注：各分区面积可根据具体方案进行优化微调。

1.5 Administration and Academic Research Area Functional Distribution and Requirement

Table 7 Administration and Academic Research Area Functional Distribution and Requirement

No.	Category	Floor Area (m ²)	Spatial Layout and Other Requirement		%
			Layout and Space	Electromechanical and Other Notes	
(V)	Administration and Academic Research Area	6200			6.2%
1	Scientific Research Center		Seven rooms	Consider water supply, drainage and central ventilation systems.	
2	Library and Archives		1. Connected with the Science Education reading room 2. Storage area installation of dense rack, considering the storage area floor bearing	Windows are not allowed in the warehouse.	
3	Business and Administration Room		To meet the needs of about 180 people and office services		
4	Service Room				
5	Security Room				
6	Information Management Room of Intelligent Museum			The total design power is about 300kW.	

[Note] The contents above could be adjusted and optimized according to design.

1.5 综合业务与学术研究区

表 7 综合业务与学术研究区功能分配及要求表

序号	项目类别	建筑面积 (m ²)	空间布局及其他要求		占比 %
			空间布局	机电及其他	
(五)	综合业务与学术研究区	6200			6.2%
1	科研中心		设置 7 间	考虑给排水及新风系统	
2	图书档案资料中心		1. 与科普教育阅览室有通道相连; 2. 库房安装密集架, 考虑库房地板承重。	库房不能设置窗户	
3	业务用房		满足约 180 人办公及办公服务需求		
4	业务服务用房				
5	保卫用房				
6	智慧博物馆信息管理用房			总设计功率约 300kW	

注: 各分区面积可根据具体方案进行优化微调。

II Intelligent Museum's Requirements

2.1 Design Objectives

To grasp the Greater Bay Area's historic opportunity and the increasing demand for intelligent museums, see from the angle of Shenzhen Natural History Museum's specific location and potential, adhere to the service-leading and innovation-driven strategy, with collection/exhibition/research/science and education being the key practicing line, with data integration usage as the core, utilizing big data/cloud computing/5G/AI technology as the means, making an intelligent museum equipped with interconnected facilities, integrated data, intelligent applications, efficient management and perfect services. To empower the construction of the first innovative natural history museum in the Greater Bay Area, build up a good basis for a world-leading modern museum.

Located in the Guangdong-Hong Kong-Macao Greater Bay Area, Shenzhen Natural History Museum will build up a resource-rich public cultural system with advanced technology and convenient services. Actively taking up the responsibilities of natural resources' storytelling and the popularization of knowledge of the nature, stimulating Shenzhen's culture vitality, using innovation and creative idea to empower the Greater Bay Area's culture integration. Through the construction of the intelligent museum, the following objectives should be achieved:

1. Build up a first-class collection center, revolving around the collection of natural history relics

By integrating huge amounts of heterogeneous natural historical relic data from multiple sources, establishing characteristic collection catalogue, utilizing technologies such as cloud storage, data mining and deep learning, forming a cross-museum, interdisciplinary and multilingual system of natural knowledge expression and presentation. So as to support the needs of sections such as exhibition, research, science and education.

2. Build up a first-class exhibition center, revolving around the display of natural specimens

Improve the standardization, synergy and intelligent level of exhibition management, launch more exhibitions with higher quality, utilizing technologies such as 5G, VR/AR and multimedia to achieve a perfect interactive experience between the public and the collections. So as to enrich the public's spiritual experiences with more high-quality exhibitions, and create a brand effect of the museum.

3. Build up a first-class research center, revolving around the research of nature

Make full use of big data, cloud computing, AI and other technologies to break down the barriers of collection and research, dig into a multidimensional knowledge system, provide new research visions and form new resources. Based on the research of collections' cultural implication and value, conducting the ontological monitoring, regulation and protection procedures, so as to comprehensively enhance the preventive protection and research ability.

4. Build up a first-class science and education center, revolving around the popularization of knowledge of the nature

With education and cultural transmission being the key target, explore new mode of knowledge dissemination and cross-disciplinary exchange, to build a comprehensive, multilevel and wide-range scientific education system. Using technology to empower digital media communication, cultural creativity, social education and public cultural services, improve the audiences' ability to make sense of scientific knowledge, assist the museum to become globally one of the most influential organization in the field of the popularization of knowledge of the nature.

二、智慧博物馆需求

2.1 设计目标

把握大湾区建设历史机遇和智慧博物馆发展趋势，着眼深圳自然博物馆的独特位势，坚持业务主导、创新驱动，以收藏、展览、研究和科教为业务主线，以数据整合利用为核心，以大数据、云计算、5G、AI等技术为手段，打造设施互联化、数据融合化、应用智能化、管理高效化、服务完备化的智慧博物馆建设格局，助力大湾区首座创新型自然馆建设，为实现“中国领先，世界一流”奠定坚实基础。

基于粤港澳大湾区视角，深圳自然博物馆将建成资源丰富、技术先进、服务便捷的公共文化服务体系，积极承担讲好自然资源故事、做好自然知识科普、当好自然文化传播者的使命和责任，以传播、服务激发深圳文化精气神，以创新、创意助力粤港澳大湾区文化大融合。通过智慧博物馆建设，实现以下目标：

1. 围绕自然历史遗物收藏业务，打造一流收藏中心

通过整合海量、多源、异构的自然历史遗物数据，建立特有的馆藏资源目录体系，通过云存储、数据挖掘、深度学习等技术，形成跨越博物馆、学科、语言的自然知识表达和呈现体系，为展览、研究、科教及各项业务需求提供支撑。

2. 围绕自然标本陈列展览业务，打造一流展览中心

提升展览管理规范化、协同化和智能化水平，推出更多更好的精品展览，结合5G、VR/AR、多媒体等技术，实现公众与藏品高度融合的完美互动体验，让更多优质精品展览走进公众的精神世界，打造博物馆展览品牌效应。

3. 围绕自然科学研究业务，打造一流研究中心

充分利用大数据、云计算、AI等技术，打通收藏与研究的壁垒，挖掘立体化的知识体系，提供新的研究视野、形成新的研究资源。基于藏品的文化意蕴及价值研究，开展本体监测、调控及保护工作，全面增强预防性保护研究水平。

4. 围绕自然科普教育业务，打造一流科教中心

以教育为先、文化传承为主要目标，探索知识传播与跨界交流新模式，构建全方位、多层次、宽领域的科普教育体系，以科技赋能新媒体传播、文化创意、社会教育和文化公共服务，提升观众对自然科学知识的识读能力，助力博物馆成为国内外最有影响力的自然科学知识普及者及文化传播者。

2.2 Design Contents

According to the first-rate paradigm of "One museum" (integrating collection, exhibition, research, and science and education into one intelligent museum), "Two ideas" (the technical idea of "big data + internet", and the implementation idea of "overall planning, step-by-step implementation"), "Three characteristics" (in-depth perceptions, extensive connected networks, intelligent applications), "Four dimensions" (overall dockable, peripheral extensible, horizontal integratable and vertical throughout), "Five subjects" (standard system, infrastructure, data resources, supportive applications, service system), the fusion and integration platform of Shenzhen Natural History Museum's Intelligent Museum will fully cooperate with architecture, decoration, lighting, building, security, weak current and other peripheral professions, to form a comprehensive intelligent operation system.

The fusion and integration platform of Shenzhen Natural History Museum's Intelligent Museum will centering around the "1 + 1 + 1 + 1 + N" construction paradigm, i.e. "integrated standard system + integrated big data center + universal administration platform + intelligent strategic decision center + N intelligent application systems", and complete the following construction tasks:

1. Develop an integrated standard system, and create a new planning paradigm

Adhere to domestic and international professional standards and policies, strengthen the construction of data standard, supportive application standard and indicator system, formulate new norms and corresponding management requirements, achieve the unification of planning and construction standards, and lead the intelligent development of natural history museums at home and abroad.

2. Establish an integrated big data center, and consolidate the foundation of intelligent brain

Integrate the new museum's and Shenzhen municipal government's cloud resources, gradually improve computing infrastructures such as data acquisition equipment, sensing monitoring equipment, operation and maintenance support equipment, etc. So as to realize the unified and dynamic management, allocation, monitoring and deployment of the whole service systems, and provide a reliable, stable, intelligent and safe basic support. On the basis of data exchange, aggregation, cleaning and fusion, construct a data service hub that can be shared by various departments and units, and provide a unified supportive data service for the whole museum's intelligent applications, accelerate the analysis of big data and meet the needs of real-time services and decision analysis.

3. Develop a whole-domain service platform to achieve efficient collaboration with the whole museum

Adopting "Central Platform, System Integration and Application Extension" micro service and technology to establish a whole-domain business service platform, to provide organic integration and general support to the whole library, achieve cross-department collaboration of business processes, data resource related use, user authentication and permission unification, information classification, and forming a mechanism to guide synergies and promote business integration.

4. Establish museum's intelligent decision-making center to achieve efficient and accurate decision-making process

Using advanced technology, such as big data and artificial intelligence, to build an intelligence museum decision-making center which is aiming at providing comprehensive, multi-level unified situational presentation, emergency command assistance and integration of the museum's facilities, environment, collections, exhibitions, knowledge and audiences' operation and maintenance. Forming a decision-making model based on data analysis for the museum to adjust and dynamically optimize its operation service, and to form a museum's "perceive, judge, and execute" efficient operation mode, making the museum "brain" more intelligent.

2.2 设计内容

按照“一馆(收藏、展览、研究和科教“四位一体化”的智慧博物馆)、两理念(“大数据+互联网”的技术理念、“统筹规划,分步实施”的实施理念)、三特征(全面深入的感知、泛在互联的网络、智能融合的应用)、四维度(整体可对接、外围可扩展、横向能融合、纵向能贯穿)、五主体(标准体系、基础设施、数据资源、应用支撑、业务系统)”的顶层框架搭建,深圳自然博物馆智慧博物馆融合集成平台,与建筑、装饰、采光、楼宇、安防、弱电等外围系统通力配合,形成博物馆全生态的智慧运营体系。

深圳自然博物馆智慧博物馆融合集成平台将围绕“1+1+1+1+N”的建设规划体系,既“一体化标准规范体系+一体化大数据中心+全域业务管理平台+智慧决策中心+N项智慧应用系统”,完成以下建设任务:

1. 制定一体化标准规范体系,打造全新规划范式

遵循国内外、行业标准规范及政策法规,加大数据标准、应用支撑规范和指标体系建设力度,制定新规范体系并配套管理制度,实现规划建设规范统一,引领国内外自然博物馆的智慧化进程。

2. 建立一体化大数据中心,夯实智慧大脑基础

整合新馆及深圳市政务云资源,逐步完善包括数据采集设备、感知监测设备、运维保障设备等信息化建设基础,实现对全业务系统资源统一、动态的管理、配置、监控和部署,提供可靠、稳定、智能、安全的基础支撑。以数据交换、集聚、清洗、融合为基础,构建可供各部门及单位共享的数据服务中心枢纽,并为全馆的智慧应用提供统一的数据服务和重要支撑,加速分析大数据,满足实时业务和决策分析需求。

3. 开发全域业务服务平台,实现全馆高效协同

采用“统一平台+系统集成+应用扩展”微服务和中台技术的架构设计,打造全域业务服务平台,为各要素提供有机集成和共性支撑,实现业务流程跨部门协同、数据资源关联使用、用户身份和权限统一认证、信息分级呈现,形成协同效应引导、促进业务整合的作用机制。

4. 构建博物馆智慧决策中心,实现决策高效精准

运用大数据、人工智能等先进技术,构建智慧博物馆决策中心,对整个博物馆的设施、环境、藏品、展览、知识和观众等各要素进行全方面、多层次的统一态势呈现、应急指挥辅助和综合运维,基于数据分析形成决策模型,便于博物馆及时调整、动态优化运营服务,形成博物馆“感知、判断、执行”地高效运行模式,让博物馆“大脑”更加智慧。

2.3 System Composition

1. Comprehensive platform

1) Private Cloud and Data Resource Pool System

Including super fusion server and its corresponding virtualization software, data security system, antivirus software, network management software, operation and maintenance system backup software, cloud service software, disaster storage system, etc.

2) 3D Data Model of the Whole Library

It includes a 3d model control of the buildings and an all-profession data model, in order to achieve exchange with other profession's fiber-optical and, with the 3D model visualization of the museum, to intelligently operate the museum.

3) 3D Application Software of the Whole Library

It includes the 3D model lightweight platform of the museum and the model refining technique, which provides various kinds of 3D data for other areas of the museum.

4) Comprehensive Business Platform for Intelligent Museum

Integrate all the business systems in the museum, which includes the OA administrative office, exhibition business, collection business, volunteer business, member management business, big data analysis, multimedia management and other systems, and achieve an one-stop office.

5) Development of Platform and Interactive Interface between Systems

Realize the workflow integration and interaction between the platform and each subsystem.

6) Computer Room Facilities of the Intelligent Museum

The area of the machine room is around 300 square meters , with closed cold channel, inter-line air conditioning, high-frequency modular UPS, which includes 3 cold channels with each of it has the capacity of 24 cabinets, the core exchange equipment at Storage building and all kinds of application servers and intelligent system servers.

2. Intelligent management

1) The Museum's Intelligent Management Platform for Museum Affairs and Scientific Research

According to the development cycle of software, it includes the preliminary communication phase, project development phase, software deployment and implementation phase, training and implementation of debugging phase, trial run phase, delivery phases and other phases.

2) The GIS System of the Intelligent Management Platform for Museum Affairs and Scientific Research

According to the development cycle of software, it includes space mapping phase, preliminary communication phase, project development phase, software deployment and implementation phase, training and debugging phase, trial run phase, delivery phase and other phases.

3) Office Automation Software (including mobile office and multi-library interconnection)

This includes collaborative work, document management, form management, performance management, target management, meeting management, cultural construction, mobile office, and multi-library collaborative management.

4) RFID File Management System

Including the establishment of archives, storage process management, archives retrieval, data statistics, archives lending, system Settings, system Settings, APP self-help.

5) Storage and Collection Business Integrated Management System

The comprehensive storage and collection management system can be customized and developed according to the relevant business characteristics of the museum. It can realize

2.3 系统组成

1. 综合平台

1) 私有云及数据资源池系统

含超级融合服务器及对应的虚拟化软件、数据安全系统、防病毒软件、网管软件、运维系统备份软件、云服务软件、容灾存储系统等。

2) 全馆三维数据模型

含场馆楼宇三维模型管控，建立全专业的数据模型，实现与各专业的光纤及精装修数据交换，通过三维可视化方式进行智慧管控。

3) 全馆三维应用软件

含全馆三维模型轻量化平台、模型美图处理，为全馆其他业务平台提供各类三维数据等。

4) 博物馆智慧化综合业务平台

对博物馆内所有业务系统做整合，将 OA 行政办公、展览业务、藏品业务、志愿者业务、会员管理业务、大数据分析、多媒体管理等系统统一串联起来，做 workflow 集成，实现一站式办公。

5) 平台及各系统交互接口开发

实现平台与各子系统之间的工作流集成与交互。

6) 智慧博物馆机房设施

按照建设 300 平米机房设计，采用封闭冷通道方式、行间空调、高频模块化 UPS 的方式，共建设 3 条冷通道，每条冷通道 24 个机柜的容量。存储建筑内的核心交换设备、各类应用服务器、智能化各系统服务器等。

2. 智慧管理

1) 博物馆智慧化馆务与科研管理平台

按照软件研发周期，包含前期沟通、项目开发、软件部署实施、培训实施调试、试运行、交付等各阶段。

2) 博物馆智慧化馆务与科研管理平台 GIS 系统

按照软件研发周期，包含空间测绘、前期沟通、项目开发、软件部署实施、培训实施调试、试运行、交付等各阶段。

3) 办公自动化软件（含移动办公、多馆互联）

包括协同工作、公文管理、表单管理、文档管理、绩效管理、目标管理、会议管理、文化建设、移动办公，并支持多馆协同管理。

4) RFID 档案管理系统

含建立档案库、入库流程管理、档案库检索、数据统计报表、档案借阅、系统设置、系统设置、APP 自助等。

5) 库房与藏品业务综合管理系统

综合库房与藏品管理系统可根据博物馆相关业务特点定制化开发，实现藏品从征集鉴定开始，到藏品信息登录编目、查询统计、报送审核、导出转换等一系列功能。同时此系统需要汇集与

a series of functions from collection and appraisal to collection information registration and cataloging, query and statistics, report and review, export and conversion. At the same time, the system is able to gather information related to collections, including 3D scanning information, RFID collection location information, collection preservation environment information, etc.

6) Collection Environment Management System

IoT based information collection method is established to collect all kinds of environmental information both indoor and outdoor areas. Meanwhile, parts of the environmental security parameters can be obtained from the basic protection environment.

7) RFID Collection Management System

RFID technology and IoT technology are comprehensively applied to the collections. Collection information are acquired through collection management system.

8) Collection Information Collection System

It includes photo documentary, 3D data scanning, and modeling of collections.

9) Library Management System

Combining RFID technology with library management system, books and materials are managed by positioning technology.

10) Network Security and Authentication System

According to level 3 information security standard construction, including firewall, fortress machine, security audit, intrusion prevention, wireless Internet authentication equipment, database audit, webpage tamper-proof, web firewall, gateway, VPN, etc.

11) Multi-Library Interconnection System

Hardware and software equipment needed for the interconnection construction of multiple libraries in different places.

12) Property Management System

Including purchase management, inventory management, asset management, equipment management, security management, charge management, investment management, etc.

3. Intelligent Service and Display

1) Integration Platform for Intelligent Service and Display

The integration platform for museum service and exhibition is based on 3D data and combined with the museum service display characteristics, to integrate and manage all kinds of business data such as service, display related personnel, data information and display planning.

2) Public Service System

Including the official website public edition, children's edition, special edition, each edition has its own Chinese, English, Japanese, Korean, Cantonese language mode and interface design.

3) APP Development

Including both the client version and management version of APP development, it combines exhibition space, display content, service content, AR technology and so on for APP application development.

4) Audience flow analysis and management system

Taking the area, the building, the exhibition hall and the public space of each floor as the statistical range, the comprehensive analysis and management are carried out in combination with personnel positioning, face recognition video analysis, wireless signal, ticket information and other information.

藏品相关的信息，包括 3D 扫描信息、RFID 藏品位置信息、藏品保存的环境信息等。

6) 藏品环境管理系统

建立基于 IoT 方式的信息采集方式，对馆内、室外等区域各类环境信息做采集，同时也可以从馆内基础保护环境，获得部分空间安全、环境安全参数。

7) RFID 藏品管理系统

将 RFID 技术与 IoT 技术等综合应用到藏品的关联方面，通过藏品管理系统获取与藏品相关的各类信息。

8) 藏品信息采集系统

含藏品平面拍摄、三维数据采集及建模。

9) 图书资料管理系统

将 RFID 技术与图书管理系统相结合，通过定位技术将图书资料进行管理。

10) 网络安全与认证系统

按照信息安全等保三级标准建设，含防火墙、堡垒机、安全审计、入侵防御、无线上网认证设备、数据库审计、网页防篡改、web 防火墙、网闸、vpn 等。

11) 多馆互联系统

异地多馆互联搭建所需的软硬件设备。

12) 物业管理系统

含采购管理、库存管理、资产管理、设备管理、安保管理、收费管理、招商管理等。

3. 智慧化服务与展示

1) 智慧化服务与展示集成平台

面向博物馆服务和展示的综合平台，以三维数据为基础，结合博物馆的服务展示特点，对于服务、展示相关的人员、数据信息、展示策划等各类业务数据做集成管理。

2) 公众服务系统

含官方网站公众版、少儿版、专题版，每个版本分为中英日韩粤屋种语言，含接口设计。

3) APP 应用开发

包含客户端与管理端的不同 APP 方向，结合展览空间、展示内容、服务内容、AR 技术用用等做 APP 应用开发。

4) 观众客流分析及管理系统

以区域、建筑、展厅、各楼层公共空间为统计范围，结合人员定位、人脸识别视频分析、无线信号、票务信息等多种信息做综合分析与管理。

5) 电子票务系统

含门票出入库、售票、领票、查询、自助取票、检票、财务等功能，含取票机、闸机、售票终端、检票机、交换机、打印机、布线等。

6) 智能讲解导览系统

含 200 部自助导览机、团队讲解器、充电存储箱、防盗报警器、租赁管理软件、身份证读卡器、布线等。

5) E-ticketing system

Including tickets' in-and-out of storage, selling, collection, inquiry, self-service collection, checking, finance, etc. Including tickets' collection machine, gate machine, ticketing terminal, checking machine, switch, printer, wiring, etc.

6) Intelligent navigation system

Including 200 self-service navigators, group audio guide devices, charging storage boxes, burglar alarms, rental management software, ID card readers, wiring, etc.

7) Multimedia information release system

Including multimedia release management software, information management workstation, HD playback box, full color P3LED screen, full digital HD image controller, image mosaic controller, audio, power amplifier, field all-in-one machine, multimedia central control system, wiring, etc.

8) Curation management system

Including exhibition information management, exhibits information management, exhibitor management, staff management, exhibition arranging management, logistics management, budget management, exhibition retrospection, exhibition theme management, exhibition information release, query statistics, etc.

9) Audio and video non-linear editing and network broadcast system

Website HD image editing and production, video production, courseware production, AR production, small game production, sample 720-degree look-around, exhibition hall 720-degree panoramic tour, venue outlook aerial photography. Link the content mentioned above with the visiting map and guiding the audience.

10) Integrated conference management system

11) MOOC online education system

12) Cultural and creative design management system

Based on all kinds of information inside the museum, provide such information for cultural and creative design, and record the whole process of the cultural and creative design management system' s release, information feedback, outcome display, collaboration and so on.

13) Catering and store sales system

14) Mobile museum display system (science popularization caravan)

Including vehicle and digital display system production costs.

15) Emergency response system

4. Intelligent Conservation

1) Intelligent Conservation application and analysis platform

Proceed data reconstruction, reorganization, cleaning, digging and recreation of cultural relics digital conservation and cultural relics preventive protection outcomes, to form cultural relic big data analysis results, which can be used in exhibitions, education and research.

2) Cultural relics preventive conservation system

Applied to the collection, display, storage and circulation of cultural relics, collecting environmental data of the storage and exhibition area, and carrying out strategic control of the high-precision temperature, humidity and light environment equipment in each area. The environmental parameters of the collection will be used as an index to evaluate the health of the collection.

3) Scientific research system

7) 多媒体信息发布系统

含多媒体发布管理软件、信息发管理工作站、高清播放盒、全彩 P3LED 屏、全数字高清图像控制器、图像拼接控制器、音响、功率放大器、场内一体机、多媒体中控系统、布线等。

8) 策展管理系统

含展览信息管理、展品信息管理、参展单位管理、单位人员管理、布展管理、物流管理、预算管理、展览回顾、展览主题管理、展览信息发布、查询统计等。

9) 音视频非线性编辑及网络直播系统

网站高清图像编辑制作、视频制作、课件制作、AR 制作、小游戏制作、标本 720 度环视制作, 展厅 720 度全景漫游、场馆外部航拍, 并可通过地图将上述内容做链接, 为观众做导览。

10) 综合会议管理系统

11) MOOC 在线宣教系统

12) 文创设计管理系统

以博物馆内的各类信息为基础, 为文创设计提供各类信息以便于广泛开展文创设计, 同时对文创设计管理的发布、信息反馈、成果展示、合作等过程做全记录。

13) 餐饮与商店销售系统

14) 流动博物馆展示系统 (科普大篷车)

包括车辆及数字化展示系统制作费用

15) 应急响应系统

4. 智慧保护

1) 智慧化保护应用与分析平台

对文物数字化保护、文物预防性保护成果做数据重构、重组、清洗、挖掘、再创造, 进而形成文物大数据分析成果, 该成果可利用与展览、教育、研究等业务。

2) 文物预防性保护系统

应用在文物的征集、展示、储藏和流转各个方面, 采集藏品存放及展出区域环境数据, 并对各区域的高精度温度、湿度控制设备和光环境设备进行策略控制。藏品的环境参数将作为藏品健康度评价的一个指标。

3) 科学研究系统

4) 区域中心监控室

5) 深圳域内环境监测及数据采集

采用各种物联网数据采集方式, 实现对于深圳区域范围内的与文物保护、研究相关数据的采集。

6) 标本技术保护试验系统

“标本技术保护试验系统”和“标本技术保护实验室系统”能在藏品整理与修复阶段对藏品进行标记和保护。

7) 标本保护实验室系统

4) Regional center monitoring room

5) Environmental monitoring and data collecting in Shenzhen

Using various IOT data collection methods to realize the collection of data related to the conservation and research of cultural relics in Shenzhen.

6) Sample technical protection test system

The "sample technical protection test system" and the "sample technical protection laboratory system" can mark and protect the collection during the process of collection management and restoration.

7) Laboratory system for sample protection

Provide various test equipment for sample protection test.

8) Acquisition system for repairing data

Record the whole process of sample restoration through various videos, pictures, data, application and approval records, etc.

9) Sample restoration management system

Including project management, program management, process management, acceptance management, statistical analysis, acceptance and implementation, commissioned approval, etc.

10) Collection inspection system

RFID technology can be used to track the location of the collection in real time, and evaluate the location's security level during the process of collection circulation.

11) Environmental monitoring system for the preservation of cultural relics in original collections

III Other Professional Design Requirements

Other professional designs should meet the requirements of relevant national and local codes and standards, and apply new concepts and cutting-edge technologies. According to project construction needs and standards, present a scientific and reasonable design with full consideration in planning, architecture, structure, interior, electronic and mechanical, landscape, intelligent venues and informationization, curtain wall, signage, life support, cinema, VR, elevator, acoustics, lighting, floodlight, prefabrication, fire protection, civil air defense, doors and windows, BIM, green building, sponge city, etc. Special considerations of the project are as follows:

1. Setting up direct drinking water machines for the audience.
2. Fully combine with the concept of "sponge city" and reasonably design the rainwater system. Fully consider the connection with the water system of Pingshan River and Yanzi Lake.
3. Passenger and cargo elevator design shall meet the demand of carrying capacity and streamline of the project, and the special cargo elevator shall be designed in combine with the cargo hallway to meet the special demand of collection and exhibition. The height and width of the elevator door shall be no less than 4 meters, and the depth of the elevator car shall be no less than 4 meters.
4. The outdoor equipment should be set so as not to affect building's facade effect, and important facilities should not affect the landscape effect.
5. This project shall be implemented under the national green building three-star standard.

为标本保护试验提供各种试验设备。

8) 修复数据采集系统

对标本修复的全过程做各种视频、图片信息、数据信息、修复流程等进行申请、审批等进行记录。

9) 标本修复管理系统

含项目管理、方案管理、过程管理、验收管理、统计分析、接受实施、委托审批等。

10) 藏品巡检系统

采用 RFID 技术可以实时追踪藏品的位置,在藏品流转过程中能够实时评价藏品所处位置的安全。

11) 原馆藏文物保存环境监测系统

三、其他专业设计要求

各专业设计应符合国家和地方相关规范和标准要求,应用先进理念和前瞻技术。依据项目建设需求及标准,进行科学合理的规划、建筑、结构、室内、机电、景观、智慧场馆及信息化、幕墙、标识、维生、影院、VR、电梯、声学、光学、泛光、装配式、消防、人防、门窗、BIM、绿建、海绵城市等专业设计。项目特殊重点考虑内容如下:

1. 需考虑设置观众直饮水装置。
2. 需充分结合“海绵城市”理念,合理设计中(雨)水系统,并充分考虑与坪山河、燕子湖之间水系统的联系。
3. 客货电梯的设计需满足项目运载力和流线需求,特种专用货梯需结合货运通道,满足馆藏及布展特殊货运需求,电梯门高宽不少于4米,轿厢进深不少于4米。
4. 室外机设置应尽量做到不影响其外立面效果,重要设施不影响景观效果。
5. 本项目参照国家绿色建筑三星级标准实施。

Attachment 1: Pre-Qualification Document

Attachment 2: Design Brief Attachments

Attachment 1 Shenzhen Natural History Museum Site Location and Urban Design Analysis
Attachment 2 Design Basis
Attachment 3 Detail Description of astronomical observatory
Attachment 4 Detail Indices of Shenzhen Natural History Museum Site
Attachment 5 Shenzhen Natural History Museum Site Coordinates
Attachment 6 Site Photos

附件一：资格预审申请文件格式

附件二：任务书附件

任务书附件一 深圳自然博物馆用地与城市设计要求
任务书附件二 设计依据
任务书附件三 天文台详细说明
任务书附件四 深圳自然博物馆预选址详表
任务书附件五 深圳自然博物馆坐标
任务书附件六 场地周边实景图