

الملحق رقم ١٠ : مواصفات فنية من الاستشاري لتقديم المشاريع - ملخص الاعمال

I-SCOPE OF SERVICES

- 1- The scope of services is divided in 5 lots:
 - (Lot 1)
 - (Lot 2)
 - (Lot 3)
 - (Lot 4)
 - (Lot 5)
- 2- Below are the main engineering services to be provided. Each service is described in detailed in Section 2 Expected Deliverables.
 1. Site Assessment
 2. Design and Technical Documents
 3. Technical Support to Procurement
 4. Quality Assurance and Site Supervision
- 3- The awarded holders are expected to be able to offer the supplementary technical services listed below for construction projects with high degree of technical requirements:
 - i. Advanced Topographical Surveys
 - ii. Advanced Geotechnical Surveys
 - iii. Advanced Architectural Services
 - iv. Advanced Building Design Services
 - v. Blast Design and Seismic Analysis
 - vi. Social and Environmental Screening
 - vii. Project Management
 - viii. Drawing Illustrations

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II. EXPECTED DELIVERABLES

- 1- The table below describes in detail each required engineering service, including tasks and expected deliverables. Payments will be based on satisfactory completion of deliverables.
- 2- Deliverables shall be submitted to Lebanese University in electronic format (drawings in AutoCAD and PDF) and hard copies printed in an appropriate scale.

#	Service Descriptions	Tasks	Deliverables
Main Engineering Services			
1-	Site Assessment Evaluation of site characteristics and preparation of detailed analysis with recommendations for design and implementation.	<p>Assessment of sites for new construction Conduct site surveys (topographical, geotechnical and engineering); verify the land legal status and construction laws.</p> <p>Soil investigation Check the site topography for surface and subsurface exploration. Subsurface exploration (boreholes) involves soil sampling and laboratory tests of the soil samples retrieved.</p>	<p>Detailed report approved by LU with site layout, collected data, as-built drawings, building(s) and site analysis and recommendations.</p> <p>Detailed report approved by LU on soil investigation.</p>
2-	Design and Technical Documents Development of construction technical documents, and obtaining necessary construction permits, if required.	<p>Conceptual design Produce design sketches that comply with site conditions, criteria, performance standards and accessibility requirements; formulate and evaluate design options; develop conceptual design for the “passed-screening” option.</p> <p>Preliminary design documents Produce a preliminary design documents (architectural, structural and MEP) based on approved conceptual design</p> <p>Construction Permit Compile technical and administrative documents required for requesting permit and obtain necessary construction permits¹ from Authority.</p> <p>Final Design documents Produce the final set of drawings based on the obtained official construction permit.</p> <p>Detailed final Executional Drawings, specification, BOQ:</p> <p>Architectural design Develop Detailed design with finish materials' specifications.</p> <p>Structural design Detailed design with technical specifications and design analysis.</p>	<p>Feasibility report approved by LU includes design criteria, options' analysis and conceptual design drawings.</p> <p>Set of architectural, structural and Mechanical and electrical drawings, approved by LU and respective governmental entity.</p> <p>Original copy of permit(s) officially authorized by Authority.</p> <p>Set of architectural, structural and Mechanical and electrical drawings, approved by LU and respective governmental entity.</p> <p>Full set of architectural drawings² with specifications, approved by LU.</p> <p>Full set of structural drawings³, specifications, calculations and</p>

¹ Such as construction permit and permits from utility companies.

² Full architectural set includes master plan, layout, plans, sections, elevations, 3D images, details and finishes.

³ Full structural set includes foundation details, structural design and details of columns, beams, slabs, stairs, etc.

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			design analysis, approved by LU.
		Building service design Develop detailed design with technical specifications and design analysis of plumbing, sanitary, electrical services based on approved architectural design.	Full set of building service drawings, specifications, calculations and design analysis, approved by LU.
		Bid technical documents Prepare Bill of Quantities (BoQs) and confidential cost estimate; and compile all technical documents (design drawings, specifications and bill of quantities).	BoQs for new construction approved by LU.
			Confidential cost estimates.
3-	Technical Support to Procurement Assisting LU in the solicitation process and the selection of qualified construction companies.	Pre-qualification of contractors Assist LU in the evaluation and pre-qualification of contractors.	Report includes a shortlist of pre-qualified contractors approved by LU.
		Bidders' conference Attend bidders' conference with Potential Bidders; respond to their technical queries and questions.	Report includes answers to all technical queries and questions of Potential Bidders during the bidding process.
		Technical evaluation Assist in the evaluation of technical proposals, visits to bidders' offices and relevant projects, verification of references, etc.	Evaluation report approved by LU includes scores and remarks on each technical sub-criterion.
4-	Site Supervision/ Quality Assurance and Handover Technical oversight of ongoing construction activities to ensure compliance with specifications and signed contract and provide advice to LU on any potential risks related to timeline, budget and quality of works.	Quality assurance Undertake quality assurance and quality control plans and related procedures; review and approve contractor's construction schedule, detailed designs, shop and as-built drawings; inspect material sources and materials' tests. Site supervision and handover Assist in project's start-up; inspect and monitor time, progress, cost, quality and quantity of works and other agreed targets; certify payments and assist LU in the control of variation orders; document project records that provide the necessary evidentiary and analyses in case of claims and disputes; ensure that works are executed in accordance with local Bylaws, national and international health and safety standards, quality standards and signed contract; liaise and co-ordinate with local authorities, if required; issue the Certificates of Partial, Substantial and Final Completion of works; prepare monthly progress reports and final narrative report.	Reports approved by LU based on site visits.
	Supplementary Technical Services	Advanced engineering services required only for specific construction activities.	
1-	Advanced Topographical Surveys⁴ Prepared by a Land Surveyor with min 8-year relevant experience.	Establish Permanent Ground Markers on the site and prepare a detailed ⁵ topographical survey and drawings with photographic documentation.	Detailed report approved by LU with conclusions and recommendations.
2-	Advanced Geotechnical Surveys⁶ Prepared by an accredited Geotechnical firm/lab.	Provide detailed soil characteristics, bearing capacity, ground water level, depth of bedrock, soil layers and soil contamination; assess the potential for aggressive attack by the soil on concrete and steel; provide study on seismic vulnerability and underlying ground conditions.	Detailed investigation report approved by LU with conclusions and recommendations.

⁴ Topographical surveys required for specific sites (e.g. with steep slopes, irregular shapes).

⁵ Contours shall be interpolated on the drawings at 0.2m intervals and spot levels shall be shown on the drawing on an approximate 10m square grid.

⁶ Geotechnical surveys required for specific sites (e.g. multi-storey building located in a high-risk seismic zone).

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3-	<p>Advanced Architectural Services⁷</p> <p>Prepared by an Architect with min 8-year relevant experience, within the accredited consulting firm</p>	<p>Identify project requirements and constraints; prepare summary report and concept design based on collected data, climate information, national and local Bylaws, best practices, permit requirements, accessibility requirements, project information, etc.; develop project design in 2 stages: preliminary and detailed with cost estimates; provide specifications for works and finishes; ensure design is compliance with national and international health and safety standards, environmental sustainability and internationally recognized quality standards.</p>	<p>Detailed design drawings in appropriate scale approved by LU with finish specifications</p>
4-	<p>Advanced Building Service Design</p> <p>Preparing and/or reviewing advanced designs for specific projects and/or systems (e.g. large-span steel structures, cold-room stores, renewable power sources), prepared by a Specialized Engineer (Structural, Electro-mechanical, IT, etc.) with min 8-year relevant experience.</p>	<p>Structural and civil works Collect data from topographical, geotechnical, utilities surveys and seismic design considerations; prepare options layouts with cost estimates; develop detailed structural and civil design for the selected alternative with structural analysis and calculations.</p> <p>Electro-mechanical works HVAC⁸ and extraction system; automated elements⁹; water pumps, well and water purification systems; waste management and environmental efficiency systems; backup power and energy supply¹⁰; energy distribution systems; fire detection and suppression systems; security and building control systems; ICT¹¹ networks; lightning protection; refrigeration; water drainage and plumbing; carbon emission and reduction.</p>	<p>Detailed design drawings in appropriate scale approved by LU with material/equipment specifications including complete analysis and calculations.</p>
		<p>Technical peer review Review of existing design and technical documents to check compliance with requirements and deliverables; ensure completed works are able to perform satisfactorily under the expected conditions of use; ensure Health and Safety required by local practice are in place and recorded; check compliance with relevant regulatory requirements, national/international codes and standards; confirm that appropriate surveys have been carried out; confirm constructability and maintainability considerations are in place; ensure cost-effectiveness; verify interdisciplinary design reviews are carried out.</p>	<p>Detailed report approved by LU with conclusions and recommendations.</p>
5-	<p>Blast Design and Seismic Analysis</p> <p>Ensuring design compliance with anti-blast and seismic standards for specific projects (e.g. located in areas exposed to explosions, in high-risk seismic zones), prepared by a Specialized Engineer with min 8-year relevant experience.</p>	<p>Blast design Conduct vulnerability assessment; identify explosive threats and level of protection; determine air-blast parameters and building performance in response to the identified threats; develop mitigation measures and recommendations; discuss with LU scope of works, logistics, approach and timing.</p> <p>Seismic analysis Collect data from building planning and control records, site geotechnical records, area seismic activity records, local drainage records and any as-built information for the subject buildings; conduct surveys and testing; undertake Tier level 1 to 3 reviews; prepare a conclusive assessment report.</p>	<p>Detailed analysis report approved by LU with conclusions and recommendations.</p>

⁷ Architectural designs for specific complex projects

⁸ Heating, ventilation and air conditioning

⁹ Elevators, escalators and automated doors and windows

¹⁰ Gas, electricity and renewable sources such as solar, wind, geothermal and biomass

¹¹ Information and communications technology

6-	<p>Social and Environmental Screening Ensuring sustainable development and providing direction for the management of social and environmental risks, prepared by an Environmental Scientist with min 8-year relevant experience.</p>	<p>Assess social and environmental risks and impacts associated with each of the following standards: labor and working conditions; resource efficiency and pollution prevention; community health, safety and security; land acquisition and involuntary resettlement; biodiversity conservation and sustainable management of living resources; indigenous people; cultural heritage; climate-resilient development. Determine the level of risk; develop a risk management plan.</p>	<p>Detailed analysis report approved by LU with conclusions and recommendations including Risk Management Plan.</p>
7-	<p>Project Management Providing technical support to LU programme and Supply in project planning, reviewing technical documents, contract administration, procurement, risk and quality management, conducted by a Project Manager with min 10-year experience.</p>	<p>Support to project and contract management Identify project requirements and constraints; develop terms of reference; prepare a project delivery programme for all phases including key milestones; develop documentary system; select and manage services of third parties; liaise with LU and manage stakeholders; provide technical support on reviewing designs and cost estimates; provide technical expertise during execution; establish management control systems on estimated quantities and costs; manage contracts under direction of LU; review and approve recommendations, requests, management plans submitted by the engineering firm; provide direct monitoring of project execution and work progress; prepare progress reports; manage test of works and materials; attend technical meetings.</p> <p>Support to procurement management Develop scope of work including cost estimation for selecting a design engineering firm; provide preliminary cost estimates for construction works; conduct construction market survey; review and update the shortlist of construction companies; attend Bidders' conferences; participate in tender evaluation and draft recommendation on contract award; prepare cost comparison between bids and the cost estimate.</p> <p>Risk management Prepare and maintain a Risk Register that records identified risks; determine responsibility for the risk management process; advise on commercial impact of risks; develop and implement mitigation plans of risks.</p> <p>Quality management Develop initial quality and project plans¹²; identify the standards to be used as part of the project; provide quality auditing and oversight of sub-contractors; ensure the works are completed in accordance with the contract with specific reference to the development and implementation of Quality Procedures; identify and generate project quality records during the life of the contract and made available for review by LU.</p>	<p>Reports approved by LU submitted on monthly basis and/or upon completion of specific task include technical information, conclusions, recommendations and required actions.</p>
8-	<p>Drawing Illustrations Prepared by a Junior Draughtsman with 3-year experience.</p>	<p>Support team to develop design drawings by using AutoCAD, 3D illustrations, etc.</p>	<p>Complete design drawings approved by LU.</p>

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تابع - الملحق رقم ١٠ : مواصفات فنية من الاستشاري لتقديم المشاريع - ملخص الاعمال

تعتمد الجامعة اللبنانية على بناء مبان في مختلف المناطق بالتقسيم التالي:

- **مبنى كلية الاعلام** - الفنار والذي يتتألف من طابق سفلي، أرضي واربع طوابق فوق الارض، مساحة كل طابق حوالي 680 متر مربع مقسمين كما يلي:
 - طابق سفلي: مساحة لزوم بيت الدرج، مساحة خاصة بال Supplies Department ، غرفة اساتذة، غرفة خاصة لشؤون الطلاب، غرفة Studio و مساحة خاصة للتخزين.
 - طابق أرضي: مساحة لزوم بيت الدرج، مواقف للسيارات و غرفة استعلامات
 - طابق اول: مساحة لزوم بيت الدرج، مكاتب العمادة و المدراء، الادارة، مكاتب للموظفين، مكتب المعلوماتية ومكتب التسجيل
 - طابق ثاني: مساحة لزوم بيت الدرج، غرفة للتصوير و المكتبة و قاعات
 - طابق ثالث: مساحة لزوم بيت الدرج، مختبر الكمبيوتر، مكتب المدير و قاعات للتدريس.
 - طابق رابع: مساحة لزوم بيت الدرج و قاعات للتدريس.
- **مبنى لزوم منامة الطلاب DORMS** - الفنار والذي يتتألف من طابق سفلي و ارضي و اربع طوابق فوق الارض. مساحة كل طابق حوالي 1000 متر مربع مقسمين كما يلي:
 - طابق سفلي: مساحة لزوم بيت الدرج، مساحة خاصة بنادي رياضي، مساحة خاصة كافيتريا، مساحة خاصة بغرفة الغسيل، الادارة، مساحة الغرف التقنية و مساحة للتخزين
 - طابق أرضي: مساحة لزوم بيت الدرج، مواقف للسيارات و غرفة استعلامات.
 - طابق اول: مساحة لزوم بيت الدرج، 26 غرفة منامة و حديقة
 - طابق ثاني: مساحة لزوم بيت الدرج، 26 غرفة منامة.
 - طابق ثالث: مساحة لزوم بيت الدرج، 26 غرفة منامة.
 - طابق رابع: مساحة لزوم بيت الدرج، 26 غرفة منامة.
- **مبنى لزوم معهد العلوم الاجتماعية** - الفنار والذي يتتألف من طابق سفلي و ارضي و ثلاث طوابق فوق الارض. مساحة كل طابق حوالي 480 متر مربع مقسمين كما يلي:
 - طابق سفلي: مساحة لزوم بيت الدرج، مساحة خاصة بالمسرح، مساحة خاصة كافيتريا، الادارة، قاعة متعددة الاستعمالات، مكتبة و مختبر الكمبيوتر
 - طابق أرضي: مساحة لزوم بيت الدرج، 5 قاعات للتدريس، الادارة، غرفة الاجتماعات.
 - طابق اول: مساحة لزوم بيت الدرج، 5 قاعات للتدريس، الادارة ، غرفة الاجتماعات
 - طابق ثاني: مساحة لزوم بيت الدرج، 5 قاعات للتدريس، الادارة ، غرفة الاجتماعات.
 - طابق ثالث: مساحة لزوم بيت الدرج، 5 قاعات للتدريس، الادارة ، غرفة الاجتماعات.
- **مبنى لزوم كلية الاداب - الحدث** و الذي يتتألف من 10 اقسام بحسب محتوى التدريس و مساحة مشتركة موزعين كما يلي:
 - المساحة المشتركة تضم: 3 قاعات مسرح/تدريس تسع 250 شخص، 3 قاعات مسرح/تدريس تسع 170 شخص، موقف، كافيتيريا، الادارة، 3 قاعات متعددة الاستعمالات، مكتبة، 3 مختبرات كومبيوتر (مجموع المساحات حوالي 5000 متر مربع)
 - المساحة الخاصة بكل قسم تضم: 5 قاعات تدريس تسع 60 تلميذ، غرفة الادارة، غرفة اجتماعات و حمامات بمساحة تقريبية (750 متر مربع لكل قسم)

□ مبني لزوم كلية العلوم - النبطية والذي يتألف من طابقين سفليين و ارضي و خمس طوابق موزعين مساحة كل طابق حوالي 2500 متر مربع مقسمين كما يلي:

- طابق سفلي ثاني: مساحة لزوم بيت الدرج و موافق للسيارات
- طابق سفلي اول: مساحة لزوم بيت الدرج، موافق للسيارات،
- طابق أرضي: مساحة لزوم بيت الدرج، الادارة، الكافيتريا
- طابق اول: مساحة لزوم بيت الدرج، 20 قاعة تدريس و قاعات
- طابق ثاني: مساحة لزوم بيت الدرج، 20 قاعة تدريس
- طابق ثالث: مساحة لزوم بيت الدرج، 20 قاعة تدريس، 3 مخ
- طابق رابع: مساحة لزوم بيت الدرج، 24 مختبرات، غرفة اجه
- طابق خامس: مساحة لزوم بيت الدرج و مكتبة.

□ مبني لزوم منامة الطلاب DORMS - طرابلس و الذي يتالف من طابق سفلي و ارضي و اربع طوابق فوق الارض. مساحة كل طابق حوالي 1000 متر مربع مقسمين كما يلي:

- طابق سفي: مساحة لزوم بيت الدرج، مساحة خاصة بنادي رياضي، مساحة خاصة كافيتريا، مساحة خاصة بغرفة الغسيل، الادارة، مساحة الغرف التقنية و مساحة للتخزين
- طابق أرضي: مساحة لزوم بيت الدرج، مواقف للسيارات و غرفة استعلامات
- طابق اول: مساحة لزوم بيت الدرج، 26 غرفة منامة و حديقة
- طابق ثان: مساحة لزوم بيت الدرج، 26 غرفة منامة
- طابق ثالث: مساحة لزوم بيت الدرج، 26 غرفة منامة
- طابق رابع: مساحة لزوم بيت الدرج، 26 غرفة منامة

□ مبني لزوم كلية العلوم-زحلة والذي يتتألف من طابقين سفليين وأرضي وخمس طوابق فوق الارض.

مساحة كل طابق حوالي 2000 متر مربع مقسمين كما يلى:

- طابق سفلي ثانى: مساحة لزوم بيت الدرج وموافق للسيارات.
- طابق سفلي اول: مساحة لزوم بيت الدرج، موافق للسيارات، 6 قاعات تدريس/مسرح، مخزن ومساحات تقنية
- طابق أرضي: مساحة لزوم بيت الدرج، الادارة، كافيتيريا.
- طابق اول: مساحة لزوم بيت الدرج، 20 غرفة تدريس و قاعة تدريسيّة/مسرح تسع ل 300 تلميذ.
- طابق ثانى: مساحة لزوم بيت الدرج، 20 غرفة تدريس
- طابق ثالث: مساحة لزوم بيت الدرج، 20 قاعة تدريس، 3 مختبرات، غرفة اجتماعات، مكاتب الادارة
- طابق رابع: مساحة لزوم بيت الدرج، 24 مختبرات، غرفة اجتماعات، مكاتب الادارة
- طابق خامس: مساحة لزوم بيت الدرج و مكتبة.

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