**List of APPENDICES**

**Appendix 1: Scope of Services (including time table)**

The Client desires and the Consultant agrees, that services enlisted in the present Appendix of the Agreement, should be performed by the Consultant. Scope of Services dedicated for the Consultant divides on two parts, namely:

* **Part 1** - Execution of the complete MEP Designing Services for Ibis RED Hotel & Fuel Station Building Located on Europe Str. Near Tbilisi International Airport, Tbilisi, Georgia.
* **Part 2** - Complete Specification package for the MEP design for Ibis RED Hotel & Fuel Station Building Located on Europe Str. Near Tbilisi International Airport, Tbilisi, Georgia.

**PART 1. COMPLETE MEP DESIGNING SERVICES, FOR IBIS RED HOTEL & FUEL STATION BUILDING LOCATED ON EUROPE STR. NEAR TBILISI INTERNATIONAL AIRPORT, TBILISI, GEORGIA.**

STAGE 1 - CONCEPT DESIGN

Data Collection: At the beginning of the concept design stage, the MEP team will review the Hotel design brief and identify all ambiguities. The team will also obtain all the client requirements, local standards and regulations, project’s planning restriction, Ibis RED guidelines and international standards. Key MEP personnel will be selected to conduct a meeting to gain further insight of the project and agree on all the above-mentioned items.

* + - * Planning of MEP systems, plant allocation and preliminary layouts for compliance with the design intent
* Formulate all the expected MEP challenges that will be faced in the project and devise a plan of how these challenges will be addressed.
* Ensure that the MEP plan is in full compliance with the authorities. Discuss project challenges with the authorities and devise a plan on how the authority requirements will be met.
* Prepare the project’s initial estimation of loads and utilities, including potential interface locations requirements
	+ - * Prepare MEP concept design report that includes a general description of the project’s MEP system and equipment, the preliminary load estimation, initial space planning and conceptual layouts
			* Determine the location of shafts and their sizes
			* Risers inlet points into the floor and ceiling height
			* Risers outlet points from the floor and ceiling height
			* Determine design criteria for each system and all areas

DELIVERABLES:

* Concept Design Report
* Projected drawing list
* Outlined options and alternatives as appropriate to meet the design brief
* Identification of notional space requirements and major plant selection as required
* Preparation of the drawings for above mentioned solutions.

STAGE 2 - SCHEMATIC DESIGN

* Define and discuss criteria involved in the Schematic design process.
* Develop all MEP systems based on the Client requirements and Concept Design Report and documentation.
* Prepare Schematic Design Report that will include design criteria,
* Design calculations and drawings. The report will include a description of systems and a detailed narrative to describe the works completed during this stage and works requiring additional investigation or further development during the subsequent stages.
* Develop schedules of electrical and mechanical load, capacity and plant requirements to assist in the identification and selection of major plant items
* Develop all concept design drawings and systems into schematic
* Develop the MEP schematic drawings and calculations
* Carry out check on multidiscipline coordination
* Attending workshops and meetings with the project’s PM and Client
* Preparation of cut sheets for the various MEP systems as required
* Prepare Electrical and Mechanical calculation reports of major plants and systems.
* Submission of principal schemes for approval
* Submission of Single line drawings
* Principal drawings for installation of engineering system equipment.

DELIVERABLES:

* Schematic Design Report
* 1:100 single line MEP layouts
* MEP systems’ schematics

Schematic Design for the MEP services shall include but not be limited to the following:

a. Mechanical Services:

* Flow diagrams of all HVAC systems
* Submission of principal MEP systems schemes for approval.
* Single line layouts of all HVAC systems showing equipment and zoning for each area
* Single line diagrams of all exhaust and make up air systems
* Single line piping diagrams of all chilled/ cooling water systems
* Indicate capacities of all major equipment
* Preliminary heat load calculations
* Preliminary calculations for sizing of equipment and systems
* Fire sprinkler systems layouts and riser diagrams
* Fire hose, cabinets, fire extinguishers, Siamese connections, and fire hydrant systems layouts and riser diagrams
* Any other information or computation required to permit verification of the design compliance with the design criteria, codes, standards and that is satisfactory for the intended purpose

b. Electrical Services:

* Site plan (1:250)
* Grounding, lightning protection plans (1:100)
* Lighting plans (1:100, 1:50)
* Power / communications Plans (1:100, 1:50)
* Electrical rooms, mechanical rooms, communications and fire rooms plans (1:100, 1:50)
* One-line diagrams
* Riser diagrams
* Preliminary Schedules for lighting and power panel boards, distribution panelboards
* Design studies listing electrical supply and distribution, electrical characteristics, total connected loads, kilowatt demand load, diversity factors, voltage drop, etc.
* Fire alarm and detection systems
* c. Plumbing Services:
* Single line layouts of all plumbing systems
* Riser diagrams for sanitary sewer, waste and vents; hot, cold and potable water; fire standpipe; storm drain; special piping systems
* Design studies listing criteria, codes, documents, and design conditions used
* Justification and brief description of types of plumbing fixtures, piping materials and equipment proposed for use
* Preliminary calculations and sizing of domestic hot and cold water, sanitary, roof drainage, com-pressed air, vacuum, water treatment, and special gas systems
* Preliminary hot water demand analysis
* Potable water consumption analysis
* Preliminary storm water and sewerage outflow analysis
* d. Any other information or computation required to permit verification of the design compliance with the design criteria, codes, standards and that is satisfactory for the intended purpose.

STAGE 3 - DETAILED DESIGN DEVELOPMENT

* Review the client comments on the schematic design and incorporate the changes into the detailed design
* Prepare the detailed project’s electrical and mechanical drawings, sections and details
* Update the schematic calculation report for the mechanical and electrical systems and include all detailed MEP calculations.
* Update the project’s MEP schedules and replace the estimated loads with actual calculated loads.
* Liaise and coordinate closely with the project’s architect, MEP system specialists and all other disciplines to ensure delivery of an integrated design.
* Apply value management techniques to ensure the project cost does not exceed the client’s established budget.
* Hold discussions with the Employer and receive final comments on this stage submission.

DELIVERABLES:

* 1:100 MEP Layouts
* 1:50 MEP Details Drawings
* MEP systems’ detailed schematic drawings
* Full set of Specifications of the project;
* Respective Brand list of the project indicating benchmark brans or alternative quality materials;
* Mechanical and Electrical detailed calculation reports

Detailed Design for the MEP services shall include but not be limited to the following:

* Final design calculations for all MEP systems.
* Final and fully coordinated detailed design drawings of all infrastructure networks, including power distribution, potable water, water feature, irrigation, street lighting, sewerage, etc.
* All risers, shafts, chases and equipment rooms sized and located on architectural plans.
* Plumbing drawings showing mains and branches, location of risers, and schematic system diagrams.
* Preliminary Gas installation systems and diagrams which should be detailed and finalized at later stage by Licensed Engineer.
* HVAC drawings (double line) showing all equipment, supply, return and exhaust ductwork, location of risers and schematic system diagrams.
* Power drawings showing panel locations, main distribution and schematic system diagrams.
* Lighting drawings coordinated with architectural and mechanical drawings and shown on reflected ceiling plans.
* ICT, telephone and PABX installation design.
* CCTV installation design including associated surveillance equipment and alarms.
* MATV installation design and documents.
* Background music installation design as required.
* Security and access control installation design.
* Building Management Systems design limited to typical equipment control diagrams and data point lists.
* Fire protection and control design documentation including external hydrants and portable firefighting equipment.
* Lightning protection.
* Television, video and audio-visual systems design.
* Equipment room plans and required pad identification.
* Louvers located, sized and coordinated with architectural drawings.
* Acquire respective design approvals
* Take into consideration designs and solutions produced by the Interior and façade lighting and/or any other consultants engaged in Hotel project
* The Consultant should take into account applicable norms and standards of the fire life safety regulations, as well as any fire safety report produced by respective parties engaged in the project
* Fire scenario / matrix
* The Consultant should take into account Kitchen layouts showing MEP connection points, capacities and requirements.

**Acoustical Design**

* Acoustical report (Room noise criteria, acoustical measures for MEP systems etc.)

**AV System**

* AV Equipment list
* AV Equipment layout
* AV Equipment cable topology
* AV Equipment feed electrical power list

**IT System**

* IT Equipment layout
* Information of IT System type (IP TV, Pay TV, IP Phone, Wireless access point, etc.)

**Security/Access System**

* Security system equipment brand list
* Security system equipment layout

**PART 2 – COMPLETE SET OF SPECIFICATIONS PACKAGE FOR THE MEP DESIGN OF IBIS RED HOTEL AND FUEL STATION BUILDING, TBILISI, GEORGIA.**

Consultant shall produce complete package of technical specifications to the MEP design project of IBIS Hotel and Fuel Station Building Projects (Design Project is attached to the present Appendix).

Specifications must include, but should not be limited to the following components:

* Design drawings;
* Bill of Quantities – fully itemized, with the quantity of materials to enable tenderer to accurately cost the work for which they are bidding.
* Material specifications – such as diameter, type, grade, quality and other important parameters of materials (e.g. for pipes i.e. polyethylene pipes or UPVC), joining methods (e.g. electro-fused or compression fittings etc.).
* Requirements for Material Testing.
* Frequency of testing or the number of tests.
* Installation methods and specific workmanships required.
* Development approval conditions if any, that have to be complied with throughout the construction.
* Brand list of materials and equipment, showing indicative manufacturer and/or equal quality alternative of the materials.