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Project management

Project TN10/3680.010

Restructuring of the Swiss Embassy in London

DRAFT

Project Specifications

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1 Introduction

1.1 The project specifications (PRS)

The project specifications are the common working tool for all those involved in the project and define the client's requirements and framework conditions for the project. The document serves as a specification for the appointed consultants with regard to the required services (quality/quantity) to be provided. The project specifications are not equivalent to the project manual/architectural specifications.

This list of conditions and requirements to be followed is not intended to be exhaustive. A comprehensive design in accordance with the contract is required from each consultant. They are obligated to check the contents of the PRS and, if necessary, to change or add to the PRS with the client's approval.

The project specifications are valid for the entire design and construction period of the project and beyond.

1.2 Maintenance of project specifications

The PRS is checked at the beginning of each project phase as well as at the time of a significant change in the framework conditions. If necessary, the PRS is then adjusted by the client's project manager. Requests for changes to the PRS may be suggested to the client's project manager. The changes will be discussed in the responsible committee and a decision announced in the FOBL project commission. The PRS are approved by the FOBL PM.

Versions

The numbering of the versions follows the following rules:

Increase by 0.1: minor changes to the corresponding chapter, working documents or attachments.

Increase by 1.0: major change, addition to the relevant chapter, working documents or attachments.

1.3 Abbreviations and terms

Abbr.	Definition
FOBL	Federal Office for Buildings and Logistics
CCP	Construction cost plan
FDFA	Federal Department of Foreign Affairs
FOBL	Federal Office for Buildings and Logistics
BIM	Building Information Modeling
CHF	Swiss franc
E-CCPH	Element cost construction plan building construction
HVACSE	Heating, ventilation, air conditioning, cooling, sanitary, electrical
IT	Information technology
KBOB	Coordination conference for building and property bodies public clients
ICE	Initial cost estimate
PM	Project management
SIA	Swiss Association of Engineers and Architects

1.4 Base documents

- Competition brief from 10.01.2022
- Wellington project (competition entry Studio DIA Architects)
- Project definition from 07.04.2022 (V1.0*) (the content is included in this document)*
- FOBL Standards for buildings abroad (V 2.0 from 2018)
- Rolls and responsbilities for construction projects abroad

2 Project definition

2.1 Starting point

London is a global city and a culturally inspiring environment that has a significant influence on international diplomatic affairs. Therefore, it is not surprising that the Swiss Embassy in the British capital is one of the most important representations of Switzerland worldwide and its strategic base in the United Kingdom. It represents our country with diplomatic relations in the fields of politics, economy, finance, law, science, education and culture. The existing embassy is located in Marylebone, and after more than 50 years of continuous operation and incremental adaptation it is beginning to display significant functional, energy efficiency and organisational shortcomings.

The building (gross floor area of 6'500m^2) is a composition of two parts on the corner of Bryanston Square and Montagu Place, south of Regent's Park. The difference in styles is surprising as both wings were completed at the same time in 1971. The rather austere appearance of the building on Montagu Place (The Chancellery) contrasts with the Georgian style façade of the building on Bryanston Square (The Residence). The stuccoed corner building with its classical Ionic façade and the adjacent brick terrace houses were designed in such a way as to follow the typical arrangement of four/five storey townhouses on the square and thus reinstate the historical significance of the square as an element of urban design. The stuccoed corner and the façade on Bryanston Square are Grade II listed.

The Federal Office for Buildings and Logistics (FOBL) carried out several studies on the possibilities of constructing a new building or of taking over another, already existing one at another location. The outcome confirmed how excellent the current site of the Swiss Embassy is compared to other options. Its central location in the city with its long established address is something from which the embassy wishes to continue benefiting. In order to identify the opportunities of a renovation project early and allow sufficient time for the findings to be included in the overall project, FOBL examined the potential of the existing building. It soon became apparent that given the well-preserved load-bearing structure, a renovation and redevelopment would be the most sustainable solution. The concrete frame construction allows flexibility of the interior spaces as well as for any future operational changes. In addition, such a restructuring would preserve the embodied energy in the existing building, which is an advantage in the context of current environmental concerns.

A spatial analysis of current requirements has shown that the building has sufficient space for the Chancellery, Switzerland Tourism, and the semi-public interior spaces that allow for multiple uses, a pool of representative rooms, as well as service flats. The building should meet the users operational and security requirements by optimising spatial & functional adjacencies while providing healthy and comfortable living and working conditions. To this purpose FOBL launched an open design competition at the beginning of 2022 to find the best possible solution for this complex building project. The Wellington Project from the design team lead by Studio DIA was ranked first.

- Information about the existing building and its location can be found in the competition brief p. 6 – 14.
- Information about the first prize project can be found in the document 'Wellington Project'

2.2 Project objectives

The project “Restructuring the Swiss Embassy” will, on the one hand, deal with the cultural, economic, and political context of the guest country at the highest architectural level and, on the other hand, confidently, precisely and elegantly articulate Swiss values such as a cosmopolitan and modern approach to design. The architectural project in London intends to symbolise Switzerland as an innovative and successful country and create a sustainable platform which will carry the Embassy into a multifaceted and far-reaching new era.

In keeping with the Swiss values described above, the Embassy building should be sensitively and respectfully integrated into the overall urban fabric of Bryanston Square. The aim is to achieve favourable planning approval for the project.

With this project the client intends to implement the federal strategy for sustainability, encompassing the areas of society, economy, and the environment. Sustainability must drive the project: high economic efficiency, exemplary functionality and low environmental impact over the entire life cycle of the building.

The aim is, on the one hand, a refurbishment in accordance with today's construction requirements and, on the other hand, the creation of contemporary and flexible workspaces that take into account future changes in the needs of the user. The building must meet the specific user requirements for use and safety through optimised operational processes to create healthy and comfortable work and living conditions. The organisation of the building must be flexible enough to accommodate future adaptations to any space required by its users.

The building should be largely maintenance-free for the next 45 years and operating costs should be reduced as much as possible.

Art

In 2001 the walls of the underground garage were largely covered in graffiti by an art collective including the artist Banksy. These works are to be preserved and appropriately displayed.

Art for the building will be comissioned during developed design stage and enrich the project with a cultural contribution.

BIM

The goal is to implement BIM in the development of this project across all phases: design, construction, facility management.

3 Construction requirements

The following list of specifications and constraints is not intended to be exhaustive. The design team should carefully review, question and refine the requirements. In particular, the technical complexity and operating costs entailed in the listed requirements should be analysed for the client and the user.

3.1 Legal basis and standards

The design team and consultants are obliged to inform themselves of local regulations, standards and guidelines for the design of the project.

The building will be designed and built according to local codes and regulations. FOBL will crosscheck these with current Swiss regulations. FOBL may require some Swiss standards to be applied.

FOBL instructions and regulations must be taken into account.

Plan assessment by SECO

The workplaces must comply with SECO (State Secretariat for Economic Affairs) requirements.

3.2 Sustainability

The following recommendations from the FOBL Committee for Sustainable Construction are to be respected / implemented:

• Recommendation for life cycle analysis data in construction projects
• List of life cycle analysis data in construction projects
• Recommendation for sustainable construction
• Rules for life cycle analysis data in construction projects
• Use of sustainably produced timber and wood products
• Recommendation for conrete from recycled aggregate
• Sustainable construction in design and works contracts
• Sustainable construction – Requirements for designers
• Sustainable construction – Requirements for building contractors
• Building for a warming climate

In June, 2022 the competition jury lauded the winning project in particular for its sensitive and conservative handling of the existing building substance. The project is grounded in the concept of re-use. The design allows the theme of sustainability to be further developed so that a maximum can be achieved.

The concepts includes the following points:

Preservation
• Preservation of the existing structural elements
• Extensive preservation of the existing façade construction

Organisation
• As few imported building components as absolutely necessary (possibly in the areas of security and electrical and IT systems)

• Use of local contractors and construction workers
• Knowledge sharing on site (also positive for maintenance work)

Construction
• Optimal amount of thermal storage mass
• Effective shading of windows and façades
• Good natural ventilation and nocturnal cooling
• Use of plants for cooling (evapotranspiration)

Technical Systems
• Uncomplicated maintenance
• Adequate comfort for the users
• Possibility of individual adjustments made by the users
• Exploitation of solar energy with a photovoltaic system
• Use of grey water (for toilet flushing, garden watering)
• Cost optimisation
• Optimised investment and maintenance costs with respect to sustainability

The detailed sustainability concept, which is still to be developed, will be assessed using the SNBS short evaluation form.

3.2.1 Recycling economy, re-use of building components

With projects involving renovation and/or demolition the feasibility of re-use of existing building components ist to be evaluated. The process to be followed is according to the document K1P31_A4d_Wiederverwendung von Bauteilen.

3.2.2 Minergie (https://www.minergie.ch):

No certification is required. The building should aim to achieve Minergie standards.

3.3 Remediation of contaminated sites

Relevant local laws and regulations apply.

3.4 Structural analysis

Structural design:

Relevant local laws and regulations apply. The consultant produces a user agreement (in accordance with the Swiss building standard SIA 260) during the concept design stage. He/she then updates it in accordance with each subsequent phase.

3.4.2 Earthquake safety

London is located in the earthquake hazard zone '*very low*'. The relevant local laws and regulations apply.

The structure is existing. For a structural description of the existing building please refer to page 10 of the competition brief.

The primary and the secondary structures must be separated.

3.5 Building physics

Relevant local laws and regulations apply.
The *FOBL Standards for Buildings Abroad* must be adhered to.

3.5.1 Thermal protection in summer and winter

The buildings are to be designed in accordance with the local requirements so that they comply with the relevant limits without active cooling.
For buildings with a high proportion of glass (ratio of facade to window area A_f / EBF> 30%), special clarifications (e.g. simulations) regarding summer and winter thermal insulation are necessary in addition to the information given below.
Particular attention should be paid to an efficient HVAC system.
Shade requirements:

- Sun protection should be in front of the glass, on the outside and be freely ventilated.
- For the glass, including sun protection, the total energy transmission value as a function of the proportion of glass must comply Swiss building standard SIA 180.
- Full functionality at medium wind speeds (at least up to 10 m/s, in extreme locations and/or higher building heights also for higher speeds).
- Full functionality at all outside temperatures and with rain.
- Blinds are to be designed in such a way that with inclined slats as much light as possible is directed to the inside (daylight deflection).
- It must be possible to set the slat positions according to the position of the sun, at different heights of the blinds, and the blinds must be lowered when they are open.
- Fixed shading devices are usually not desired. They are in conflict with the effectiveness in summer and the use of daylight in winter.

Fabric blinds usually do not meet the conditions listed above (except in special cases such as double facades); the manufacturer's information must be examined carefully.

All concepts must be submitted to the client with sufficient time for review and approval during the design development stage

3.5.2 Room acoustics

Relevant local laws and regulations apply.
The *FOBL Standards for Buildings Abroad* must be adhered to.

3.6 Building services concepts

3.6.1 Fundamentals

The building and the MEP systems must be designed for energy efficiency and achieve the designated target values.

- Energie Efficiency Path (Swiss standard SIA 2040) in Manufacture, Operation and Mobility. The Electricity Mix CH shall be used for the calculations.

- Energie Classification (weighted) from the standard Minergie-P.

Should the target values not be achieved, the higher values must be justified and approved by the property management.

Materials and building services systems must be chosen so that the standards of the label “Good Interior Climate” are attained. This is to be documented with control measurements.

The chosen materials and building services systems must fulfill, in terms of quality and ecology, the KBOB recommendations, “eco-bau” and, if applicable, the requirements for a particular energy efficiency label.

In particular, the KBOB recommendation “Building Services” must be respected in terms of general principles, client specifications and, especially, the required documentation at each project phase.

In general, all systems should be designed and built following the concept of “Efficiency / Ecology / Energie” from the KBOB recommendation “Building Services.” The currently valid KBOB recommendations are also to be referred to for the technical specifications. As a general principle, simple, dependable and secure technology should be utilized (as little as possible, as much as required.)

In general, the following procedure should be adhered to:
• Strategic planning of the requirements and solutions
• Compiling of room data sheets
• Translation of user requirements into systems concepts
• Compiling of the quantity structure in collaboration with the users
• Development of the concepts
• Determination of the MEP systems, definition of space requirements

The designers develop a concept for designating and labelling following the FOBL directive for labelling of building services systems.

An operation and maintenance concept shall be developed for all systems. Any and all building services systems, appliances and installations which in any way require maintenance (service, cleaning, repair, replacement) must be accessible without having to disassemble fix-mounted equipment or building components. Maintenance work must not impair the normal use of the building.

All building services concepts must be submitted to the client for approval during the design phase and far enough in advance to allow for the evaluation process.

All procurement and execution documents and drawings must be submitted to the client for approval and far enough in advance to allow for the evaluation process.

The following guidelines, in particular, should be observed:

KBOB recommendations (www.kbob.ch)
• BACnet application
• Building services
• Universal communications cabling
• Use of electrical cables, functional integrity, reaction to fire

The KBOB recommendations must be adhered during the preliminary project phase, and the approved designs must be translated into English to serve as specifications for design development.

FOBL directives and specifications
• Directive concderning building automation
• Directive concerning energy measurement
• Directive concerning labelling of building services systems
• Fact sheet “cooling of floor distributors communications cabling”
• Directive concerning fire alarm systems for civil federal buildings
• CAD-guidelines
• KBOB Excel tool for efficiency calculation
• Visualisation concept building automation FOBL
• Specialised requirements for procurement by tender
• Template testing documentation
• Acceptance procedures for building services systems
• Directive concerning operation and maintenance records
• IT-EDA (Swiss Foreign Affairs Office) and FOBL “Working Paper Buildings Abroad”
• Process document K1P90_C15d checklist domestic photovoltaic systems

The FOBL directives and specifications must be adhered during the preliminary project phase, and the approved designs must be translated into English to serve as specifications for design development.

Fire Safety: The local fire building regulations apply.

Security systems: Technical guidelines from the Swiss association of security systems providers SES (www.sicher-ses.ch).

NIN low-voltage installation standards: Preliminary project phase following NIN low-voltage installation standards (NIN) SEV 1000 from electrosuisse.

NIN low-voltage installation standards: Project development phase following BS 7671 – IET Wiring Regulations / based on IEC 604364 and the harmonising document HD 60364.

The KBOB recommendations for building services systems apply:
https://www.kbob.admin.ch/kbob/de/home/themen-leistungen/gebaeudetechnik.html

IT Security Building Services Systems

All IT applications are subject to the provisions of IT security.

If IT applications are implemented, they must undergo a protection needs analysis. The building systems designers are required to use only approved applications, to submit these conceptually to the client for evaluation and, if available, to provide data and specifications for the applications. At the same time, Swiss federal IT security consultants will verify the systems and subject them to a protection needs analysis

IT applications FOBL-standard:
• Alarm transmission over TUSNet
• Access control system
• Electrical measurements
• Time logging (application of the user organisation)
• Photovoltaic data logger solarlog-web.ch with a SIM card (if PV is implemented)

IT applications FOBL-standard, system to be newly procured:

• Building automation ICE
• Load management charging stations in the sense of plant regulations

IT applications not FOBL-standard -- require consultation with FOBL/EDA:
• Control systems or graphic interfaces
• Blinds control, lighting control (a BUS system is usually sufficient)
• Security systems (Burglary, Attack)
• Logistics management systems of the user organisation
• Visitor or vehicle processing, etc.
• Traffic management systems
• Charging stations for e-vehicles
• Parking area surveillance
• Video surveillance systems
• Specialised applications of the user organisation and sub-tenants
• Cooking technology applications

3.6.2 Energy concept

The building and its infrastructure should be conceived in a progressive and energy-efficient manner.

The building is to be heated -- and, if required, cooled -- exclusively with renewable resources. A maximum amount of self-generated energy from renewable resources should be aimed for. The building components and technical systems required to achieve this goal must be evaluated individually in terms of costs, energy, efficiency and advantages/disadvantages.

Thermal insulation should not only be focused on for heating in winter but also for cooling in summer. The guidelines of the KBOB recommendation "Building Services Systems" must be adhered to and, especially for buildings with a large proportion of glazing, the SIA leaflet 2021.

The recommendations of the KBOB leaflet "Building for a Warming Climate" must be followed.

The designer must compile an energy concept with a feasibility study of alternative solutions with efficiency calculations (KBOB Excel tool) which at least fulfills the requirements set out in the leaflet SIA 2040 "Efficiency Path Energy". The feasibility study forms the basis for the choice of heating and cooling energy sources.

A concept study with economic efficiency calculations for the use of rain water for garden watering, for hybrid heat-exchangers and other systems should be performed. An expansion of the concepts to include toilet flushing should also be considered.

3.6.3 Energy measurement concept

An energy measurement concept in accordance with the FOBL directive concerning energy measurement must be developed and approved by the internal specialist advisers.

For dwellings and similar uses utility company meters will be utilised.

3.6.4 Electrical systems analyses and bases for decisions

During the preliminary project phase analyses must be conducted and the relevant bases for decision-making developed, for example:
• Verification and duplication of technical guidelines
• Lighting design and visual comfort for artificial lighting
• Workplace lighting with ceiling lights or floor lamps
• Application of local codes vs. Swiss codes
• Installation of critical cabling in escape and rescue routes
• Functional stability of lines relevant for fire safety
• Evaluation of system perturbations
• Operational concepts
• Photovoltaic following process document FOBL

3.6.5 Electrical systems

New lighting systems utilising LED technology should be continuously adjustable to the maintenance value for the required lighting intensity value according to the specification SN EN 12464-1 (illumination of workplaces). Für die illumination of office work spaces a basis for the decision between ceiling lights and floor lamps must be developed.

In addition, the lighting intensity in meeting rooms should be individually adjustable, and manual on/automatic off switches (according to presence and daylight) should be used.

If possible, lighting in circulation areas should be equipped with automatic switches (according to presence and daylight) and with a scene-based constant light control.

Target values according to the standard SIA 387/4 should be strived for when replacing existing systems. Feasibility and economic efficiency must be evaluated.

New lighting control systems are to be planned als KNX-DALI and to be structured in a sensible manner. If IT components are used, the Swiss federal government specifications with respect to IT security and network architecture are to be met. Interfaces between the ICE and the KNX-DALI systems should remain moderate.

If the sun shading control is replaced it should be done with a KNX-DALI system and be structured in a sensible manner, so that the responsbility for protecting the shades is coordinated with the properties of the shading system.

If the security lighting system is replaced it should be conceived as a centralised system (CPS).

Emergency power: the entire building should be equipped with a diesel-powered emergency power supply to secure 72 hours of operation. A concept should be developed in the preliminary project stage.

UPS system: central components of the IT system should be protected with UPS.

Photovoltaic: it should be demonstrated how the maximum amount of renewable energy can be generated with a photovoltaic system. The process document K1P90_C15d Checklist Construction of Domestic Photovoltaic Systems is to be used correspondingly for projects abroad.

Descriptions and schematic diagrams are to be submitted and elucidated during each project phase at an early date for review and approval by FOBL specialist consultants. This applies

to all design phases with their corresponding levels of detailing. (See also the chapter on documentation in the KBOB recommendation Building Services Systems.)

230 VAC plug system

• **Technical suitability**: In consultation with Stefan Bigler from EDA with use of local plug systems is recommended. The permanent utilisation of adapters is not permitted at the level CENELEC.

• **Note:** https://www.iec.ch/world-plugs Plug Details / Plug Type G / Used in: UK, Ireland, Cyprus, Malta, Malaysia, Singapore, Hong Kong The Type G electrical plug has three rectangular blades in a triangular pattern and has an incorporated fuse (usually a 3 amps fuse for smaller appliances such as a computer and a 13 amps one for heavy duty appliances such as heaters). British sockets have shutters on the live and neutral contacts so that foreign objects can't be introduced into them.

• **Decision:** The final decision for the selection of the plug system is made by the client and user representatives.

Loading Stations for E-Vehicles

It should be possible to charge e-vehicles in the parking garage and at outdoor parking spaces.

The possibility of providing charging stations for normal charging 11kW for 30% of the parking spaces should be investigated. For the time being, no quick-charging stations are foreseen.

The basis for decision-making should be structured in increments according to the standard SIA 2060. In particular, the extension level D should comprise 30% of the parking spaces.

The conditions for an incremental and uncomplicated future expansion of the number of charging stations should be realised.

Appropriate positions in the parking garage and at outdoor parking spaces should be defined with the client.

A separate, private energy metering of all of the e-vehicle charging stations.

Communications-enabled charging stations with Mode 3 according to IEC 61851-1 and IEC 15118 should be used.

The hardware concept must be developed in consultation with the FOBL specialist consultant.

3.6.6 Information and communications sytems

The document "Working Paper Buildings Abroad" from FOBL and IT-EDA should be followed.

In the areas of information and communications systems the interfaces between client, user and service provider must be considered. Appropriate solutions should be developed in consultation with the users and service providers.

If active IT components are applied for building services systems, the Swiss federal government specifications regarding IT security and network architecture must be respected.

A WLAN system with complete coverage should be installed.

The existing universal communications cabling should be adapted to reflect the new spacial organisation of the building and according to current KBOB recommendations and international UCC standards. A spare connection point should be provided for every four workplaces (rule of thumb: 1.25 UCC ports per workplace.)

Descriptions and schematic diagrams are to be submitted and elucidated during each project phase at an early date for review and approval by FOBL specialist consultants. This applies to all design phases with their corresponding levels of detailing. (See also the chapter on documentation in the KBOB recommendation Building Services Systems.)

3.6.7 Integrated testing

A scenario matrix including a script for the integrated test must be developed and attached. The integrated tests take place chronologically as follows: commissioning of all systems > acceptance procedure with the authorities > acceptance procedure with FOBL specialist consultants > recitifcation of deficiencies > additional check > integrated test.

The goal of the test is: Functional check of all security-related systems and equipment with emphasis on personal security and, to a lesser degree, property protection under various adverse conditions such as fire, power outage, UPS operation and emergency power operation. Possible security weaknesses should be identified.

The time expenditure for integrated testing must be foreseen in the contracts with the designers and the contractors. During the procurement process this chapter must be clearly specified.

3.6.8 Heating / Cooling

Thermal equipment (heat pumps, cooling units) are to be procured separately (including installation). The main award criteria are the life-cycle costs of the machines and the TEWI values. For smaller projects the equipment can be integrated into the procurement of the heating or cooling systems. However, the life-cycle costs and TEWI values still constitute award criteria.

Only natural refrigerants may be utilised. Exceptions must be justified an require a special application and approval. The equipment should be procured using the applicable template from the FOBL specialist consultant.

Descriptions and schematic diagrams are to be submitted and elucidated during each project phase at an early date for review and approval by FOBL specialist consultants. This applies to all design phases with their corresponding levels of detailing. (See also the chapter on documentation in the KBOB recommendation Building Services Systems.)

3.6.9 Ventilation / Climate

The indoor air quality requirements and the comfort level as specified in the standard SIA 180 and 382/1 must be fullfilled. (See 3.5.2 Indoor Climate -- framework parameters should be defined for each specific project.)

The ventilation and cooling systems and their distribution should be conceived in such a way as to comply with the specified climate conditions in all climate zones.

The various different climate zones, as well as the interfaces with "non-climate" zones are to be separated from one another with constructive measures (airlocks).

Descriptions and schematic diagrams are to be submitted and elucidated during each project phase at an early date for review and approval by FOBL specialist consultants. This applies to all design phases with their corresponding levels of detailing. (See also the chapter on documentation in the KBOB recommendation Building Services Systems.)

The relative humidity must be maintained in a comfortable range by means of moisture storage, moisture recovery, etc. The designers must demonstrate measures with which the requirements of the standard SIA 382/1 can be met. Humidification of supply air is not foreseen. An reserve element and the necessary stabilizing distance in the air preparation unit must be provided for possible installation at a later date.

The following tool is useful for specifying filters for ventilation systems according to the new filter standard ISO 16890 and current standards SIA 382/1 and SWKI guideline VA 104-01/VDI 6022: Werkzeug Filterauswahl .

Standards FOBL:

• The monobloc shall be provided with a reserve element at the supply air, before the reserve element for humidification, for a possible additional filter stage.

• The capacity of the ventilator shall take into account the second filter stage.

• The designer shall evaluate whether air pollutants on site allow for the classification AUL 1. After project completion at the outdoor air intake.

• If the classification AUL 1 can not be achieved or if the label Good Interior Climate cannot be attained, then the second filter stage should be installed.

3.6.10 Plumbing

The water heating (system type and heating level) should be chosen based on economic considerations. The water heating is a component of the overall energy concept and must be determined by the heating and plumbing designers together. Waste heat recovery (for example from commercial cooling) must be integrated. A comparison between central and decentral placement of the water heating equipment with efficiency calculations shall be developed. The recommendations of SWGW and DIN concerning legionella must be adhered to.

Descriptions and schematic diagrams are to be submitted and elucidated during each project phase at an early date for review and approval by FOBL specialist consultants. This applies to all design phases with their corresponding levels of detailing. (See also the chapter on documentation in the KBOB recommendation Building Services Systems.)

The cleaning concept must show the number and locations of cleaning rooms, how cleaning equipment will be emptied and whether larger sinks for particular uses are required. The cleaning concept must be approved by the client and users.

Plumbing fixtures and accessories shall be wall-mounted so as to allow for unimpeded cleaning of the floors.

The washbasins in the toilets (including handicapped toilets) will only be fed with cold water. The washbasins in the following rooms will have hot and cold water connections: bathrooms, toilets and kitchens in private apartments; changing rooms; cleaning rooms (if necessary); first-aid rooms; toilets in kitchen areas (food hygiene); hygiene zones.

Water pipes must consist of noncorrosive materials. The drinking water network should be kept as compact as possible. As a matter of principle, drinking water should be replenished at least once a day in all of the pipes. Measures must be implemented to prevent unwanted heating of drinking water (legionella).

Plastic materials may be used for waste water pipes, but sound insulation must be sufficiently considered.

3.6.11 Building Automation

The design of the systems must follow the BBL directive concerning building automation and chapter 5 of the KBOB recommendations Building Services Systems.

Descriptions of the system functions and controls, as well as the topology and schematic diagrams of the network, are to be submitted and elucidated during each project phase at an early date for review and approval by FOBL specialist consultants. This applies to all design phases with their corresponding levels of detailing. (See also the chapter on documentation in the KBOB recommendation Building Services Systems.)

Building automation will be conceived as a separate network, independent of office automation.

3.7 Security and Safety

Security measures are defined by the security committee of the FDFA (Federal Department of Foreign Affairs), the Fedpol (Federal Office of Police) and FOBL and represented in the security plan, which must be approved by FDFA’s security section.

Relevant local laws and regulations for safety apply.

3.8 Material / color concept and sampling

A material / color concept and samples must be developed and be approved by FOBL.

3.9 Site Utilities

Relevant local laws and regulations apply.

3.10 Construction site installation

Relevant local laws and regulations apply.

3.11 Relocation

The move will be planned and organised by the user (FDFA) with the support of FOBL. The occupancy plan of the user forms the basis of the relocation strategy.

3.12 Corporate design of the Swiss Federal Administration

The guidelines for the visual identity of the Swiss Federal Administration (CD Bund) must be implemented uniformly in all areas (e.g. room signs and building site signs).

3.13 CAD/CAFM

FOBL as the client uses a CAFM (Computer Aided Facility Management) system and electronic plan management for building management. The necessary data is created and then made available to the relevant organizational units. The targeted use of this data can only be guaranteed if it corresponds to a uniform standard defining content, form, structure and quality.

The following applies:

- Guideline CAD data, version 2007; Regulation of the data quality of graphic building and management data (CAD data) on behalf of FOBL.
- Building Automation Systems: Regulation of definition, data acquisition. Allocation and settlement of areas in civil properties owned by the federal administration.

The design team provides the client with properly prepared data in accordance with the given guidelines no later than 3 months after completion of construction (date of commissioning).

The final invoice is eligible for payment when the contractor has provided the client with the requested data and other documentation on the project accprdomg FOBL's specifications and in both electronic and paper form.

Warranty documents and instruction manuals are to be handed over to the user upon acceptance of the building. The contractor must provide training to the users and/or property manager in the operation of the building systems.

The plan data exchange takes place via the Proom project room or an alternative platform, and classified documents via SecureCenter.

4 User requirements

The user requirements for the new building are contained in the attached competition brief. Should these requirements change, requests for changes must be submitted and documented using the "*Project modification*" form.

The role of the users in the project is regulated in the document *Rollen bei Bauprojekten im Ausland*.

5 Building operation requirements

5.1 Basics

Preliminary remarks

The following specifications are based on the experience FOBL and Facility Management (FM) with its various buildings. There may be exceptions to adherence due to reasons of planning approval, heritage status, respect for the existing building fabric or respect for the use of the entire facility and the spaces. However, any deviations must be justified by the design team and coordinated with the FOBL project manager.

Starting point

Use, rentability, cost, value preservation, ecology and also return on investment on a property can be influenced strongly in the design and construction phases. Therefore, these issues and specifications must be taken into account early in the design process. Around 85% of the total costs of a property are incurred during the operational phase and only around 15% during the preparation, design and construction phases.

The term project and construction-accompanying FM (pbFM) includes:

- The introduction of knowledge from the management phase of existing properties in all phases.
- To develop the necessary bases for the client for investment decisions so that the property can be managed economically over its entire life cycle.
- Ensuring that the requirements from the perspective of the client, user and manager / service provider are coordinated and taken into account in the project.
- Preparing the management concept during project design and implementation so that a smooth transition into the management phase is guaranteed.

The aim and purpose of the pbFM is:

- To guarantee the client that the FMs needs and specifications and the life cycle costs of the properties are optimally implemented.
- To ensure that the FMs requirements are represented and enforced during project planning and implementation.
- To guarantee a smooth takeover of the property and handover to the users.
- To ensure data transfer and data updates.

Most important requirements of the pbFM

- To provide adequate time in the construction schedule for the property handover / takeover, the instruction of property operators and users as well as the necessary tests (in particular the integral test.)
- The life cycle costs must be included as a criterium for the tender and award procedures for the key technical building systems.

5.2 Basics of the construction design

- Cost-optimised management and adequate maintenance of the property must be guaranteed.
- The prevention of possible acts of vandalism is to be paid sufficient attention to for all building components, surfaces and construction details. Appropriate constructions and materials must be selected that do not foster vandalism, such as poor accessibility, appropriate dimensioning, etc.

5.3 Property operation

Property operation / Custodial services

- In principle, it must be taken into account that certain property maintenance work can only be carried out outside of normal opening hours. This underlines the need for simplified processes and simple constructions.
- Rooms for housekeeping equipment (ladders, lift trucks, snow removal, etc.) are to be designed in sufficient size, easily accessible and centrally located.
- In larger properties, an office room for custodial services is to be provided near the main entrance.

Maintenance and operation of technical systems components

Maintenance, operation and servicing concepts are to be developed and submitted for approval in the same way as the building services, with detailed information on the procedures and the local conditions (plans), what is to be checked, cleaned, replaced, where, when, etc.

The following areas are to be incorporated and documented:

Exterior

- Flushing and cleaning access for waste-water pipes, including shafts and gutters
- Curtain wall elements: periodic control of the suspensions
- Joint sealing
- Window cleaning devices such as facade lifts
- Removal of cement washout or other dirt from roof drains
- Safe access for inspection of flat roofs (removal of weeds and plants because of the risk of root penetration) and on pitched roofs (removal of moss, unclogging of gutters and drains)

Interior

- Service/Maintenance of Lifts and other transport systems
- Automatic sliding doors
- Fire partitions: test the door releases in the event of a fire
- Fire-fighting posts and equipment
- Rolling cabinet systems: inspection of the safety devices

Disposal, Waste removal

- For waste separation, the size and number of different containers must be determined with the collection companies according to the expected quality and quantity of waste and the agreed collection frequencies. The dimensions of the disposal room depend on the size and number of the different containers, taking their handling into account.
- A rinsing device with the appropriate space requirements is to be provided for cleaning these waste containers.
- Lockable rooms may have to be provided for discreet waste, depending on the disposal concept.
- The access routes are to be built without steps. Ramps are not or only partially suitable for transporting pallets and containers.
- Doors and lift cabins are to be dimensioned according to the size of the pallets and containers.

Property-related original equipment

- All items necessary for building operations (office furniture, cleaning equipment, workshop equipment, storage racks, ladders, lifting vehicles, equipment for external cleaning and winter service, as well as all equipment for disposal, etc.) must be integrated into the project and their costs taken into account.

Cleaning

- The cleaning room shall be equipped as follows: Sink with cold and warm water, soap dispenser, paper towel dispenser, waste bin, flush-mounted floor drain.

Furniture

The equipment necessary for the operation of the building (office furniture, representative furniture, etc.) must be included in the project and budgeted for. All the flats will be delivered unfurnished.

5.4 Technical facility management

Maintenance and operation of the building parts

The constructions must be easily accessible and easy to maintain.

5.5 Surroundings (roof)

- Changes to the design of the surroundings must respect the original concept, and, depending on the property, historically-protected garden maintenance.
- Native plants must be selected and planted according to their location.
- A splash guards must be installed along the façades.
- Areas for ladders and other cleaning equipment must be permanently accessible.

5.6 Space management, space allocation

- The space management must be carried out in accordance with the FOBL specifications.

Room numbering

- The room numbering must be in a logical order.

5.7 Security and Safety

Building locking

- The building must be locked in accordance with the FOBL's locking concept.

5.8 Contracts

- Contracts must be carried out in accordance with the FOBL requirements.

5.9 Fees, taxes, accounting

- All fees, taxes and levies incurred by the project must be included in the project costs.

5.10 Operating cost plan / operational management concept

- Must be conceived, developed and implemented in accordance with the pbFM. In the case of initial investments (for new buildings), the fee costs are charged to the project credit.

5.11 Acceptance, takeover and handover (including building files)

The acceptance, takeover and handover must take place in accordance with the FOBL handover concept. In summary, this provides for the following:

- Acceptance of the works by the design and project management teams and rectification of any defects.
- Handover to the PM-FOBL (client representative).
- All systems are to be checked and adjusted by means of an integral test at the end of construction.
- Takeover of the entire facility by the property management (project manager).
- Handover of the entire facility by property management to users

The property management takes over the property only under the condition that the security and functionality can be fully guaranteed.

6 Cost management

The aim is to achieve an optimal relationship between costs and benefits. In all phases, everyone involved in the project must therefore evaluate the technical implementation on the one hand and take into account the economic efficiency and operational benefit on the other.

The costs determined must be underpinned with empirical values in each phase so that accurate information about the costs is available at an early stage. If necessary, corrective measures are to be initiated by the relevant bodies.

6.1 Cost structure

The cost structure can be established using the local classification methods. The costs are later structured for FOBL according to CCP (three-digit building cost plan CRB).

The initial cost estimate (ICE original) is the basis.

VAT is included in the costs.

The following figures apply and represent a cost ceiling:

Based on preliminary estimates, the construction costs were calculated at GBP 40 million excl. VAT (excluding fees, ancillary costs, charges, etc.).

6.2 Cost control

- Cost accounting takes place continuously by the appointed consultant.

7 Deadlines

- Concept design (Vorprojekt): 2022/23
- Developed design (Bauprojekt): 2023/24
- Project and credit approval by Swiss parliament: 2025
- Construction: 2027

8 Approval of the specifications

The present project specifications are approved and released by the following bodies:

Project head user

Overall project head FOBL

Project head client FOBL

Expert advice from local advisors