

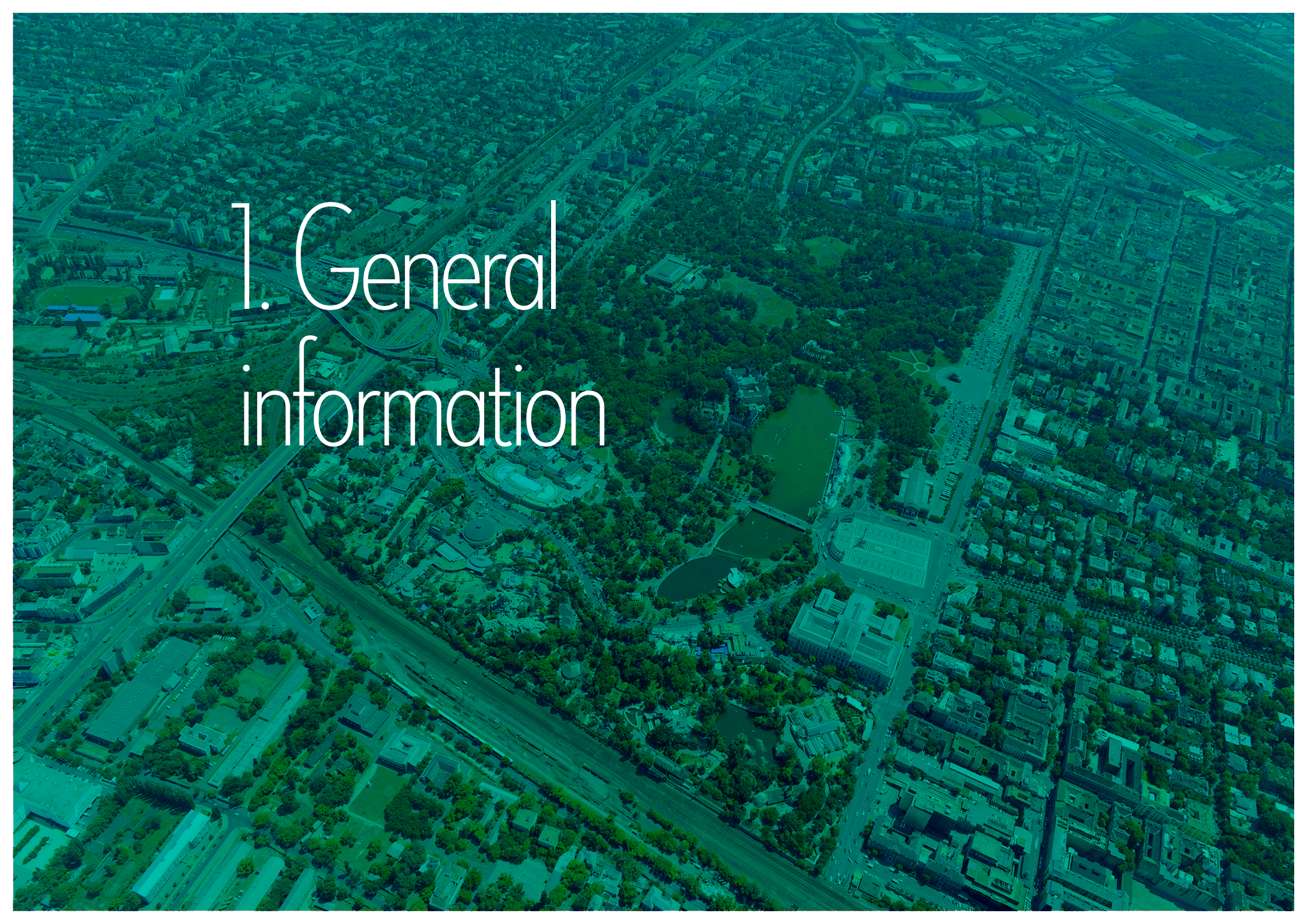
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Liget Budapest Second stage competition programme

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An aerial photograph of Central Park in New York City, showing the park's greenery, paths, and surrounding urban landscape. The image is overlaid with a semi-transparent teal color. The text "1. General information" is written in white, serif font, centered on the left side of the image.

1. General information

1. GENERAL REMARKS ON THE SECOND STAGE

The first stage of the international design competition announced for the museum buildings to be erected in the City Park is closed. More than 470 competition works were received before the deadline.

Based on the decision of the Jury that evaluated the submitted entries, 6 of the more than 110 competition works received for the building of the Museum of Ethnography, also 6 of the more than 170 competition works received for the House of Hungarian Music, and 5 of the nearly 110 works submitted jointly for the buildings of the Foto Museum Budapest and the Hungarian Museum of Architecture have entered the second stage.

After assessing the 80 competition works received for the building of the New National Gallery - Ludwig Museum the Jury has not found one that could have been regarded as suitable for implementation based on the assessment criteria. Nevertheless, thanks to their remarkable partial architectural solutions 5 works received praise from the Jury (in the Hungarian practice the competition works that are not awarded first, second or third prizes are called “purchases”).

This document is the addition of the first stage of the competition programme and shall be interpreted together with it. In matters not detailed here it is always the first stage of the competition that is governing.

All the competitors who entered the second stage will receive an invitation fee to the amount determined in the first stage of the competition if they submit a valid competition work that is not excluded from the second stage.

1.1 DETAILS CONCERNING THE BUILDING

1.1.1 GENERAL OPINION

1.1.1.1 COVERAGE, CITYSCAPE

Irrespective of the special features of the land sites designated for the museum buildings, they should simultaneously function as architectural emblems and gates to the park for people arriving from the city. In addition they should serve the atmosphere and the visitors to the Park and strengthen the City Park's function as an integrated part of the green area of the City Park. The masses over and under the ground level should be selected so that the buildings are able to fully meet the above dual function. Also a balance should be found between the freely shaped visitor and/or exhibition spaces and the spaces with floor-plans of a rational and defined structure. During the designing of the various museum buildings the area designated for the other buildings should be taken into account in order to establish the optimum passenger traffic link between them. It is not necessary to utilize the total building height defined in the competition programme.

1.1.1.2 ARCHITECTURE, SPATIAL ORGANIZATION

The design work should be continued in the spirit of progressive design and functional perfection. The units of the museum that have separable functions should operate perfectly both independently and jointly. During the shaping of the building masses and the exhibition areas and the other spaces of the main museum functions exaggerated spatial proportions should be avoided. The ground floor of the museum buildings and the functions available on the ground floor should integrate as organically as possible into the Park and into the pedestrian traffic of the Park. Designers should avoid the amorphous spaces where it is difficult to install an exhibition as well as sharp and acute-angled wall connections. The office spaces need to be separated

from the visitor areas. It is important to provide the necessary conditions for the independent operation of the separate units (dimensions, access, facilitating the joining of partner functions necessary for independent operation, etc.)

1.1.1.3 SUSTAINABILITY

It can be stated in general that the exclusion of natural illumination is a requirement in certain museum exhibition halls, however, where there is no such requirement the screening of the incoming light or complete shadowing should be ensured. Nevertheless, natural lighting is a basic requirement in the office rooms. The solar heat load should be managed properly. Balance should be maintained between the natural lighting of the spaces and the utilization of the solar heat gain and it should be regulated, for example, by indoor and outdoor frontal shading structures. An advantageous solution could be the grouping of spaces with similar air conditions. The ageing of the used materials should be kept in mind, and the limits of the technology to be used should be taken into account in the case of surfaces to be prepared on site. Irrespective of the design easy and cheap ways should be provided for the cleaning and maintenance of materials and buildings. It is advisable to rationalize the divided elevations in order to avoid excessive heat loss.

1.1.2 MUSEUM OF ETHNOGRAPHY

1.1.2.1 COVERAGE, CITYSCAPE

The building should fit into the two different environments (park and urban environment) with openings on the appropriate ground floor and higher floor levels with screening of the pedestrian traffic and/or letting it through the building. A large-scale ground floor and reception area communicating well with the promenade need to be designed.

1.1.2.2 ARCHITECTURE, SPATIAL ORGANIZATION

The designs should reflect the diversity of ethnography. Being able to walk through the permanent and temporary exhibition areas and the flexibility of using the different routes is a basic requirement; it is of fundamental importance to ensure that the temporary exhibitions are organized independently from each other. Preference is given to the direct connection of the permanent exhibition area and part of the temporary exhibitions, as well as to the creation of the spatial conditions of reflection. Both in the case of temporary and permanent exhibitions easy access must be ensured to the museum pedagogical spaces. On the other hand the separation of the children's museum is advisable and reasonable, and the creation of a direct link to the garden and/or to the roof terrace is a good solution. The visual storage shall connect to public traffic areas - e.g. stairways, community areas, corridors - the design of separated visual storage unit should be avoided.

Efforts should be made to preserve and ensure the harmony of the architectural concept in both the indoor and outdoor spaces. An office building like outward appearance should be avoided. The material usage and the selected structures should also be in harmony (e.g. false ceilings, floors, internal surface finish). In regard to the supporting structure the durability of the used material is especially important, it is definitely recommended that the use of materials sensitive to weather and to biological / chemical conditions (e.g. wood) for supporting structural purposes be avoided.

1.1.3 FOTOMUSEUM BUDAPEST AND HUNGARIAN MUSEUM OF ARCHITECTURE

1.1.3.1 COVERAGE, CITYSCAPE

This section is composed of the gate to the Park and to the city, thus the large-scale, transparent and livable design of park-city connection is recommended (surfaces, garden design, transport, etc.).

It is necessary to consider the location of the buildings and their positions within the design area and to eliminate unforeseeable events.

1.1.3.2 ARCHITECTURE, SPATIAL ORGANIZATION

Neither the architectural nor the photographic museum's exhibition materials require spaces with excessively large internal heights and with overly large floor spaces. Therefore it is recommended that big exhibition spaces be designed that can be easily and tastefully separated into smaller units at a later date in line with the architectural concept. Over-dimensioned internal spaces should be avoided. Some areas can be designed more freely due to their function, floor plan and spatial design,, while the functionally more determined units (storage rooms, workshops, offices, etc.) should be designed more rationally. If the designer uses amorphous space forms for the exhibition halls the exhibition functions should be largely taken into account. Efforts should be made to establish rational internal order instead of wanton floor plan solutions, for example the joining of walls at sharp angles should be avoided. All the public functions, i.e. the shops and the café shall be housed on the ground floor according to the competition programme. The unit of rooms receiving and preparing the art objects shall be rationalized while taking into account the work processes. An option should be

provided on the surface (too) for the incoming art objects. The design of the building's elevation should be in accordance with the basic concept.

1.1.4 HOUSE OF HUNGARIAN MUSIC

1.1.4.1 COVERAGE, CITYSCAPE

Compared to the other museum buildings, the House of Hungarian Music has a special location, virtually in the heart of the Park. Therefore, we would welcome a positioning and design that fits into the landscape, is airy and does not clash with the surroundings, while the building should have a 21st-century architectural look. The relationship of the building with its surroundings is of outstanding importance not only in regard to accommodating the pedestrian traffic, but also in respect to the open-air functions. The connection with the garden and with the Park should be part of the experience, but proper noise protection should also be ensured.

1.1.4.2 ARCHITECTURE, SPATIAL ORGANIZATION

The House of Hungarian Music is partly a museum and exhibition hall, and partly a lecture and event centre. Both functions are equally important. The museum and exhibition places should be functional and flexible, the greater part of the exhibitions is amplified, thus the acoustic separation of the different spaces is extremely important. With the right selection of the proportion of spaces that are placed under the ground level the over-ground mass can be reduced, and it is also advantageous for the acoustically protected spaces. The floor plans should be as simple as possible and the easy transformation of the exhibition should be ensured. The smooth in-delivery of objects and access to the event and exhibition halls should be ensured. The offices and service units should be separated from the passenger areas. The independent and undisturbed operating of the event area outside the opening hours of the exhibition spaces

should be ensured with good spatial organizational solutions. Access to all functions needed for independent operation should be provided.

We want to emphasize the importance of fully meeting the acoustic requirements of the spaces. The sound in the spaces should not be too dampened or too echoey, and when organizing open air events a separation from the surrounding noises should be ensured.

1.2 DETAILING OF DESIGN PROGRAMS

The design briefs of the museums can be downloaded from the homepage.

An aerial photograph of a city, likely Oslo, featuring a large green park (Frognerparken) in the center. The city is densely packed with buildings, and a river (Akerelva) is visible in the background. The entire image is overlaid with a teal gradient. The text "2. Design requirements" is written in a large, white, serif font, positioned in the upper left quadrant of the image.

2. Design requirements

2.1 SUSTAINABILITY

In regard to the buildings to be designed consideration and taking into account of all aspects of sustainability is the definite intention of the Promoters. Entrants must implement green solutions in the building with a comprehensive and holistic approach.

2.1.1 ENERGY PERFORMANCE

In order to evaluate the energy performance of the designed building, the following measurement data should be provided as the outcome of an energy modelling tool.

- The building's estimated yearly operational energy demand (MJ/m²a)
- The building's estimated yearly primary energy consumption (kWh/ m²a) using the following primary energy factors:
 - electricity: 2,50
 - heating: district heating - 0,75
 - cooling: district cooling - 1,00
- The estimated total resulting CO₂ emissions per year (kg/yr) using the following specific lifecycle emission rates
 - electricity - 365 g/kWh
 - heating: district heating - 140 g/kWh
 - cooling: district cooling - 182 g/kWh

The suggested software and settings are outlined in the Annex 1 - Building Simulation Parameters which is only a document for your information, it is not a requirement to meet that criteria.

GENERAL PRINCIPLES

In addition to the specifications of the first stage the Entrants should do their utmost to maintain the energy hierarchy according to the following:

- reduction of the energy demands of the building
- application of energy-efficient solutions

- use of renewable resources for meeting energy demands.

In this competition stage you are requested to keep in mind the reduction of the energy demands of the building, and the purpose of this part of the work to be submitted is to prove that the highest possible reduction can be achieved.

Preference is given to the use of active and passive solar architectural solutions, and to the use of natural lighting and ventilation on the relevant places.

2.1.2 HEALTH AND COMFORT

The indoor air condition of the premises designed for extended stay should meet the specifications of category II described in standard EN 15251:2007. Alternatively the Category B requirements set out in Table A.1 of Annex A of ISO 7730:2005 can be met. There are no other changes compared to the content of stage one.

2.1.3 WATER MANAGEMENT

The competition does not require that the entrants design rain and grey water utilization equipment, nevertheless the architectural consequences of these solutions (e.g. space requirement) should be included in the submitted competition materials.

2.1.4 MATERIAL USE

In order to assess the environmental effects of the building materials the enclosed order of layers table should be filled in properly. The following instructions should be taken into account in order to properly fill in the table:

- The estimation of the environmental impact of the main building structures shall be made by using the Green Guide to Specification LCA database operated by BRE. After free registration the database is available at the below link.

<http://www.bre.co.uk/greenguide/podpage.jsp?id=2126>

- If the main structures of the design correspond to a degree of 90% to any of the pre-defined structures of the database, please indicate the identification number

and the GreenGuide category (A+, A, B, C, D, E) of the structure in the order of layers table, next to the layer.

- If the main structures of the plan do not correspond to any of the pre-defined structures of the database we request that you use the materials and denominations of the Green Guide Calculator – Available Components List available below, when specifying the used materials.

<http://www.bre.co.uk/filelibrary/greenguide/PDF/GreenGuideCalculatorComponentsListv4.pdf>

2.2 BUILDING INFORMATION MODELING

In the competition it is not mandatory to use the BIM system. However, the Promoters draw the Entrants' attention to the fact that in the design, construction and operation processes every participant will be required to join the BIM system of the Promoters. The planned requirements and expectations of the Promoters in connection with the BIM systems can be found in the Annex 2 - BIM. Based on the above the use of Open BIM (IFC) format is recommended in the competition phase.

2.3 REGULATION PLAN

See the Building Regulation Plan of the City Park in the Annexes.

2.3.1 REGULATIONS OF HEIGHT

The permitted maximum building height is: 25 metres.

Above the ground level please avoid the use of extremely large building masses. The use of maximum building height along the whole length of the elevation is not preferred.

Option – the permitted max. height of architectural mark: 40 metres.

None of the horizontal sections of the architectural marks measured above the 25 metre building height may exceed 10% of the footprint of the building to be erected. The architectural mark option is only valid for the Museum of Ethnography. In the case of the other competition works all the elements of the planned buildings should meet the requirement of the biggest building height.

3. System of Rules

An aerial photograph of a city, likely New York City, showing a dense urban landscape with a mix of green spaces, buildings, and a complex highway interchange. The entire image is overlaid with a semi-transparent teal color. The text '3. System of Rules' is written in a white, elegant serif font, positioned in the upper-middle section of the frame.

3.1 GENERAL INFORMATION

3.1.1 DEADLINES

The deadlines of the second stage of the two-stage international design competition are as follows:

Stage II

Beginning of the second stage _____ 08.08.2014

Deadline for questions _____ 02.09.2014.

Deadline for answers _____ 10.09.2014

Date of arrival of competition works (Stage II) _____ 04.11.2014 14:00 CET

Announcement of results _____ 19.12.2014

The timeline of the design competition and the other deadlines are available on the homepage of the design competition.

3.2 QUESTIONS AND ANSWERS

Entrants invited to the second stage of the design competition may turn to the Promoters with their questions concerning the competition documentation and the competition on the homepage of the design competition until the deadline indicated in point 3.1.1.

The questions received before the deadline will be answered by the Promoters until the date indicated in point 3.1.1. and all the questions and answers will be published on the homepage. After this the answers to the questions will form part of the competition documentation.

3.3 FORMAL REQUIREMENTS

3.3.1 COMPETITION POST

The entries will be submitted in closed envelopes as described in point 3.5. The envelope shall carry the address sheet of the given entry in its original form. The address sheet (the same as the one used in the first stage for the given entry) is available on the competition website. Apart from the wording specified on the address sheet (including the identification code) the Entrant may not write on or mark the envelope.

3.3.2 ELECTRONIC DATA CARRIER

The package containing the competition work shall contain a CD, DVD, or pendrive data carrier. Only the files below may be on the electronic data carrier. File names should be given in the following way.

- | | |
|---|-------------------------------|
| – Design drawings bound A1 .pdf format,
150 dpi resolution | filename: 1.pdf |
| – Description, portrait A4 . pdf format; | file name: 2.pdf |
| – Completed space lists (.xls or .xlsx); | file name: 3.1.xlsx, 3.2.xlsx |
| – Table of order of layers | file name: 4.1.xlsx, 4.2.xlsx |
| – output of energy modeling software | file name: 5.1 pdf, 5.2 pdf |

The sheets containing the design drawings shall be indicated with a number and title given by the Entrant while strictly maintaining a policy of anonymity.

The maximum size of the whole submitted material may not exceed 500MB.

All background information (author, last modified by, etc.) should be removed from the file submitted. This is completely the Entrant's responsibility and failure to do so might result in the exclusion of the Entrant.

3.3.3 PRINTED MATERIALS

The entry shall be submitted in the electronic format detailed above and also in printed form. The printed material shall also be included in the competition post according to the following.

- The view of the maximum A1 format design drawings reduced to A3 size in minimum 150 dpi resolution
- A technical description in A4 portrait format and building energetic simulation in A3 landscape format - two A4 portrait sheets shall be displayed on one A3 landscape sheet
- Tables in A4 portrait format, in the same way as in the case of the technical description, edited to A3 landscape format.

The material shall be submitted in a single copy according to the following.

- colour printing
- min. 180 gram paper
- laced
- hard backboard
- water clear foil front cover
- site plan on the first page.

It is mandatory for the printed material to be submitted in a single copy, but the post containing the competition work may optionally include two further copies identical to the original in order to assist the work of the Jury. The number of copies does not affect the evaluation of the entry.

The entries submitted may only contain the design of buildings relating to the given competition and they cannot contain any references to other entries of the Entrant that might have been submitted to other competitions of the Promoters. Please find the submission process in point 3.5.

3.3.4 ANONYMITY

The design competition is anonymous. The competition post, the printed documentation, the electronic device may not contain any wording, sign, name, company name, identifying element that may breach confidentiality. It is not permitted to put any signature, code, emblem referring to the authors on the package containing the entry or the various parts of the work; or to mark them in any way that breaches confidentiality. The entry may not contain any reference to the authors or to their place of work.

The files submitted on an electronic device and in their background information not any elements breaching the above-described confidentiality are allowed. It is the Entrant's responsibility to verify this.

The identification code can only be indicated on the outer side of the envelope containing the competition material as detailed in point 3.1.1.

The identification code may not be included in any submitted material!

Any entry breaching anonymity will be excluded from the assessment by the Jury.

3.4 CONTENT REQUIREMENTS

In order to participate in the second stage of the design competition a minimum of the following work parts must be submitted. The entries that do not contain all the work parts listed below will be excluded without assessment.

The units used in the entry shall be quoted in SI system.

3.4.1.1 DESIGN DRAWINGS

Site plan 1:2000

The site plan shall present the road and public utility connections of the Museum, as well as the access from the direction of the park, the other museums and the city.

Site plan 1:500

As a minimum the following shall be indicated on the drawing.

- roof surface with deep shadow of optional angle

- hard landscaping and green areas
- entrances
- transportation systems
- parking
- bicycle and pedestrian routes

Floor plans 1:200

About every different level floor plans with furniture (except for the exhibition spaces and storage rooms) should be submitted in details of 1:100-scale and with dimensioning.

Sections 1:200

A sufficient number, but a minimum 2 pcs of sections perpendicular to each other necessary to facilitate an understanding of the building should be submitted. Load bearing structures should be indicated on the drawing details according to 100 scales, with their estimated dimensions. The space requirement of the main engineering cables should also be considered.

Elevations 1:200

All the building elevations showing the building mass and its relation to the surrounding buildings.

The level of detailing of the elevation drawings should be according to 1:100 scale.

Perspective views

A minimum of 6 pcs of outside visual design of which min. 2 pcs should have a night view. Min. 2 pcs of indoor views should be made.

Supporting structural designs

In order to supplement the architectural drawings a supporting structural work part at a scale of 1:200 is required that presents the load bearing and frame structure of the building. The drawings should show the material type and level 200 dimensioning. If the Entrant designs a specific supporting structure, the static model should also be presented.

Building engineering and electrical work parts

The 1:200 scale drawings should present the engineering concept, the main equipment and the scheme of the main pipeline.

Explanatory drawings, info graphics

A minimum of the following should be submitted:

- a drawing showing the visitor's route inside the building
- a drawing showing the route of artefacts

- a drawing showing the water management and energy concept of the building, including the passive and natural systems.

3.4.1.2 TECHNICAL DESCRIPTION

The technical description shall contain the following work parts, and special technical descriptions:

- an architectural technical description that contains the designer's vision and the
- engineer description
- technical description of the supporting structure
- building engineering description
- an electrical description
- a sustainability section
- garden and landscape design
- road and public utilities
- description of the design process
- presentation of the project team (organigram)

Furthermore, the Entrant's ideas about the design work process and about the joint work in the BIM design system should be detailed.

An organization organigram and the setup of the project team should be submitted to support the competence of the designer in respect to the anonymity clause.

3.4.1.3 COST ESTIMATION

The Table containing the order of layers should be submitted.

3.4.1.4 ENERGY MODELING

Pursuant to the content of point 2.1 the final results of the energy modeling, the output report of the modeling tool containing all the required measurement data and used settings should be submitted.

3.5 SUBMISSION PROCESS

Before the submission of the entry the Entrant should download the address sheet from the homepage in the same way as in the case of stage one that contains the ID code of the competition work. The ID code is the same in the two stages. Only this sheet may be indicated on the envelope that contains the competition material.

The Promoters allow for the use of other envelopes for the sending of packages / posting, if the posting cannot be carried out by using the original address sheet. If further envelopes are used the following rules are mandatory:

- The competition package determined by point 3.3 of the competition documentation can be placed into a bigger envelope/box provided by the courier service.
- The competition package should in every respect meet the specifications of the competition documentation.
- The external package can only contain the competition material.
- Neither the name, nor the address indicated on the outside package should identify the party registered for the competition. (The name and address of the sender should be different from the one given during the registration. This is valid for the company name and for the co-designers, too).
- We call the attention to the content of the Competition Documentation according to which the Promoters reserve the right to check the sender's data indicated on the outside envelope. If identity (sameness) can be found, the submitted work will be disqualified.
- The competition package (the top envelope and the one containing the competition material) should be sent to the address indicated in point 3.5 of the Competition programme. Besides the sender and the addressee only the "Liget Budapest International Design Competition" title should be indicated.

The competition packages meeting the above requirements will be accepted by the Jury, otherwise the Jury may disqualify the received entries.

Competition entries can only be submitted by post as specified in point 0 in accordance with the anonymity rules to the address below indicated on the address sheet.

The entry should arrive by the deadline indicated in point 3.1.1.

Szépművészeti Múzeum
Expedíciós porta
Dózsa György út 41.
Budapest
H-1146
Hungary

Entries received (i.e. delivered to the address indicated above) after the submission deadline will be excluded from the competition by the Jury without opening the envelope.

3.6 ASSESSMENT CRITERIA

The Jury will assess the entries received in the first and second stages according to the five groups of criteria below:

- Dialogue with the environment
- Architecture and building mass
- Technology and function
- Sustainability
- Costs

3.6.1 DIALOGUE WITH THE ENVIRONMENT

- Integration into the cityscape
- Dialogue with nearby buildings
- Dialogue with the Park
- Access to the building
- Orientation
- Parking and transportation system
- Bicycle and pedestrian routes

3.6.2 ARCHITECTURE AND BUILDING MASS

- General architectural impression of the building, mass proportions
- Unique, innovative external and internal appearance, character of the building
- Space relations of the building
- Architectural quality of spaces

3.6.3 TECHNOLOGY AND FUNCTION

- Visitor experience
- Museum technology solutions
- Functional contacts
- Transportation systems

3.6.4 SUSTAINABILITY

- Energy efficiency
- Health and comfort
- Water management
- Environmental impact of building materials
- Innovation
- Ecology

3.6.5 COSTS

- Predicted cost of building implementation
- Predicted cost of building maintenance

3.7 POST-COMPETITION PROCESSES

3.7.1 ANNOUNCEMENT OF RESULTS

The public announcement of the competition results will take place after the closing of Stage II. All information about the place and date of the public announcement will be published in due time on the website.

3.7.2 NEGOTIATED PROCEDURE

Following the design competition the Promoters will conduct a 'negotiated procedure without prior publication of a contract notice' (public procurement process) in the Hungarian language according to the Hungarian legal regulations, the subject of which is the preparation of the designs of the relevant buildings in line with the project's schedule, including the delivery of designs most likely in 2016.

The subject of the public procurement procedure is the general design services of the buildings down to at least the construction drawings level.

The designs shall be submitted in the Hungarian language according to the Hungarian design procedure. It is recommended that foreign designers cooperate with Hungarian partner offices.

3.8 ANNEXES

More detailed information can be found on the website on the system and available Annexes of the Liget Budapest International Design Competition and on the downloadable documents of the three competitions. For information purposes only the following list of Annexes mentions the materials issued for the competition. The exact list of Annexes of the various competitions, as well as the documents for download are available after registration on the competition website.

3.8.1 MUSEUM DESIGN PROGRAMMES

- Museum of Ethnography
- FotoMuseum Budapest and Hungarian Museum of Architecture
- House of Hungarian Music

3.8.2 ANNEXES TO CONTENT REQUIREMENTS

- Overview map of the site
- Basic design maps
- Site plan of City Park
- Space lists
- Term sheet

The term sheet issued as an Annex for the design competition is not mandatory and is for information purposes only.

3.8.3 TECHNICAL INFORMATION MATERIALS

- Geodetic surveys and tree registers
- Geology reports
- Technology and functional scheme
- General photos about the City Park
- Other maps (e.g. public utility)
- Weather file

An aerial photograph of a city, likely New York City, showing Central Park, the Empire State Building, and various other urban features. The image is overlaid with a semi-transparent teal color. Centered on the image is white text that reads "Annex 1 Building Simulation Parameters (optional)".

Annex 1 Building Simulation Parameters (optional)

In this competition stage you are requested to keep in mind the reduction of the energy demands of the building, and the purpose of this part of the work to be submitted is to prove that the highest possible reduction can be achieved. During the competition the meeting of energy demands should be simulated with the assumption of a uniform building mechanical system, the details of which are given below.

If solar building equipment is used we request that you prove the estimated energy gain with all-the-year-round sun exposure tests.

If the use of local renewable energy is assumed the impact of the orientation and shading and the taking of the estimated energy amount on the demand side should also be proved in addition to proving the architectural consequences of the assumed system.

ENERGY SIMULATION

General information

In order to determine the heating and cooling needs, the risks of overheating dynamic building simulation should be made using the issued weather file for the estimation of the energy consumption of the planned building for the whole year. The weather file will be sent only to the authors of the qualified competition works.

The building simulation should be made with EnergyPlus 8.1 software version. We propose the use of Design Builder 4.1 interface of which a 30 days trial version can be downloaded from the following website:

<http://www.designbuilder.co.uk/content/view/149/228/>

When using active solar devices calculations must be made using the following data:

- Incident solar radiation: 1300 kWh/m²/year
- Solar panel efficiency: 20%
- Typical solar cell efficiency: 60%
(with 800 W/m² radiation 60°C water temperature and 20°C ambient temperature)

The simulation should meet the specifications of Section 11 of AHSRAE 90.1-2013 standard, disregarding the specifications concerning the basic building.

Input simulation data

Assuming the opening hours below and a specific number of visitors we have to assume an even distribution and constant number of visitors

- Opening hours: T-S 10:00-18:00

- Specific number of visitors according to ASHRAE 62-1 6-1 Table:
- Exhibition areas: 0.4 persons/m²
- Retail spaces: 0.15 prs/m²
- Lobbies, meeting places: 0.3 prs/m²
- Offices: 0.1 prs/m²
- Corridors, other spaces: 0 prs/m²
- Conference room: 1,5 prs/ m²

In respect to the air supply the basic values of IDA 1 category of A.10 and A.11 tables of EN 13779:2007 standard should be taken into account (Default value, Non-smoking area).

Operative temperatures: requirements of standard EN 15251:2007 Annex A, Table A.2., category I should be taken into account (for the exhibition halls: 'Auditorium' can be used).



Annex 2 BIM

The designer shall submit in each phase of the project a design documentation which complies with the Design Programme and the current regulations as well as a 3D digital Building Information Model (BIM). BIM is a virtual, object based design using objects with properties and relationships containing descriptive information based on the use of open BIM standards and formats.

The geometry and the properties of the BIM objects shall fully comply with the architectural, structural and MEP design documentation, a direct relationship shall be established between the model and the design documentation.

The BIM authoring tool used by the Designer must support an efficient data exchange (export, import) with the Clients' system, using the open Industry Foundation Classes (IFC) standards.

The BIM shall be submitted to the client (promoter) in IFC 2x3 format.

Provided all relevant designing disciplines are capable of efficiently supporting a newer IFC version than 2x3 the Client may opt to accept it.

In addition to the IFC format a copy of the BIM model shall be submitted to the Client in the original modelling format e.g. ***.pla** files from ArchiCAD or ***.rvt** files from Revit, inclusive of library objects actively used in the model.

During the design process start-up Designers shall inform the Client which BIM authoring tool(s) they are intending to use (commercial product name, version)

The BIM authoring tool used shall be compatible with the Clients' operation system, MS-Windows 7 or newer version.

The Designer using open BIM authoring tools (architectural, structural and MEP merged model), shall perform clash detection analysis in the phases of the designing process. The analysis shall include at least the following models: Architecture, Structure, MEP and Interior Design.

The model submitted shall meet the Clients' requirement to have the capacity to perform clash detection analysis using the Clients' clash detection tools during project execution phases.

Clients' BIM requirements including the Level of Development to be used in each phase of the project will be presented in detail in the BIM requirements document annexed to the designing contract.

The system used by the Client should be ArchiCAD. The software tools needed to support special BIM tasks (e.g. clash detection) will be defined in a later phase.

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