TECHNICAL SPECIFICATION OF DESIGN TOGETHER COMPETITION 2019

ITU Hive: Start-Up Technology Development Center

In the 21st century, social and economic changes sharply transform countries and societies' approaches to economic life and development. The technology-based information economy is the driving force of global and local development in the initialization phase of a new industrial revolution -Industrial 4.0-. Because of this reason, it has obtained critical importance to produce information for industrialized, producing and healthy developing societies and to provide accessible environments for all individuals to reach and innovative designs and new technologies.

In project scope the main objectives of the given center can be summarized as supporting young entrepreneurs and organizations that are active and can develop design-oriented ideas and want to turn them into products, and catalyzing design / technology-oriented socio-economic development through the places to be constructed. The main functions of the structure to be designed are;

• Supporting the culture of design-oriented information economy,

• Dissemination of alternative design and production culture,

• Ensuring accessible, sustainable and low-cost infrastructures for creative individuals,

• Protection and dissemination of emerging know-how and technological capabilities in different forms.

In this context, the project will function as a meeting point for innovative ideas and a focus of social development. The project, which aims to create a new generation of technology and production culture, is objected and expected to reflect the ideals of economic progress, thinking, development and implementation of society and individuals in a global city like Istanbul.

ARCHITECTURAL:

The project includes the design of a technology development and entrepreneurship center to be used by students and young entrepreneurs in the area within the Ayazağa Campus. This center is considered to be the place where all the social and functional areas within the society are shared by supporting the development of techno-entrepreneurial activities by sharing the different ideas of all users. The project will be designed with a perspective on points such as public use, social activities, and interaction in the given area. It is expected that the structure to be designed will be created in a spatial sense, in an obvious and clear fiction, and to be rearranged for different professional and social activities. In this context, the high performance of the spatial and physical functions supporting the functions is an important criterion that is related to the project's BIM methods. The building and its immediate surroundings should be considered as a whole where users can use them intensively, share their designs and ideas, socialize and interact in every sense. For this purpose, there will be multi-purpose spaces, workshops, offices for start-up companies, hackerspace, and social spaces. Moreover, it is also suggested to design open areas and an entry platform / square that allows different outdoor activities around the building. Participants may suggest transition spaces and recreation open platforms between the social areas around the building and the landscape, and the eaves that define them. These areas can also be associated with different functions within the building.

Project area is determined as empty parcel in front of Teknokent building in ITU Ayazağa Campus. The satellite view of the parcel is given below.

Competition Area Satellite Photo

Participants are anticipated to pay attention to daylight and visual comfort, taking into account the interaction and collective activity functions within the social center. In this respect, it is anticipated that simple but effective structural and tectonic systems will be recommended in the building envelope.

The building will be designed as two or three-storied with reinforced concrete construction system. Depending on the flooring system to be used, the floor height will be determined taking into consideration the equipment of the mechanical systems. The spaces where depot and mechanical systems will be located can be considered in the basement. The upper shell / roof of the building can be designed as a steel carcass system that can work integrated with the reinforced concrete system. Decisions on these matters have been left to the contestants.

It is anticipated that the HVAC systems to be selected for the building should be formed in a whole in harmony with the architectural form and the space setup of the building and served to the spaces by passing through appropriate service areas. In addition to this, the performance of the systems to be selected and the technical characteristics of the heating / cooling and ventilation must be considered. Particular attention will be given to sections and shapes when ventilation ducts are visible. Careful attention should be paid to the positions of the selected systems in and around the building.

Requirements

Entrance/Lobby/Exhibition Area	150 m^2
Auditoirum/Multi-purpose Hall (100-person)	200 m^2
Foyer + Social Area (connected to the cafe)	150 m^2
Hackerspace (in accordance with collective activities)	200 m^2
Start-up Company Offices	40 m^2 x 15 =600 m^2
Workshops (divisible)	100 m^2 x 4 m2 =400 m^2
Working / Meeting Rooms	50 m^2 x 4=200 m^2
Executive Office (Open Office for 4-5 Personnels)	50 m^2
Digital Information Center	50 m^2
Cafe	100 m^2
WC	50 m^2
Depots	50 x 2=100 m^2
HVAC Main Unit	50 m^2
Electrical/System Control Room	50 m^2
Landscape and Open-area Activities	Planned on the plot
Open Parking Area (for 10 vehicles)	250 m^2
Circulation	Must be 35-40% of the given area

On the building plan, there can be 10% upsizing and reduction reffering to the design desicions or other suggested functions.

MECHANICAL:

Mechanical installations of the structure will be designed in a coherent way. Each mechanical installation discipline will be coordinated both within itself and other project disciplines. In this context, the installations below will take place:

1. Heating-Cooling Installation
2. Ventilation-Air Conditioning Installation
3. Clean Water Installation
4. Waste Water and Rain Installation
5. Fire Protection Installation

Maximum attention will be paid to maintaining the structure's visual-aesthetic integrity, easy commissioning- operating and operational efficiency subjects on mechanical installation projects.

Within each project discipline, project deliveries that stated below will take place:

a) Floor plans
b) Functional system charts
c) Column diagrams
d) Models created with related 3D program
e) Reports

STRUCTURAL:

The design of the reinforced concrete building will be made according to the regulations of TS500 - Regulation on the Construction and Construction Rules of Reinforced Concrete Structures and Buildings to be Constructed in Earthquake Regions (2007).

The slab system, the vertical and longitudinal bearing elements, the projects of foundation system must be worked on and drawn. It is suggested to get the analysis done with the program Autodesk Robot Structural Analysis and to draw with the help of another program Autodesk Structural Detailing interactively.

In structural analysis, the values below will be taken as the basis.

1. The building is in a second-degree seismic zone.
2. Local ground class is Z3.
3. Allowable bearing stress of the ground is 300 kN/m2
4. The other needed values must be determined based on the system established and the codes.

*Coordinates of the project area: 41.107495, 29.027019

EDMS-Global Document Management System Usage:

1. **Purpose**

Describing the technical requirements of the EDMS document management system to be used for the Design Together 2019 Competition. EDMS is a document and project management system developed by ENKA Systems (www.enkasystems.com) for large-scale construction projects. The BIM Suite module in EDMS provides a Common Data Environment (CDE) which is in BIM standards, for EDMS.

2. **Scope**
It is valid for Design Together 2019 Competition projects.

3. **Competition Requirements**
- Application address to be used: designtogether19.enkasystems.com
- A cabinet will be opened for each team within the application. Each cabinet will have folders named 'Work' and 'Final'. The 'Work' folder is the studying environment for teams. Teams should copy the final version of their work under the 'Final' folder for jury evaluation.

- The reports in PDF format will be used as "Standard Document Type" for promotional documents.
  In Forms:
  - Project Code (Unique for each team),
  - Discipline Code (Architectural, Structural, Mechanical, Planning, Coordination),
  - Document Type (REP-Report, PRT-Presentation, Regulation, Standard, Planning, Strategy, Coordination),
  - Sequence code,
  - Document History
    fields will be mandatory field.

- For the RVT, DWG & Model PDF format documents "Engineering Design Document Type" form should be used. At the form:
  - Project code
  - Discipline code (HV-HVAC, MC-Mechanical, CW-Civil ve AR-Architectural)
  - Drawing Number
  - Document date (The date when the 0A version is produced)
    will be obligatory. Revision Date, revision reason and first version will be optional fields.

- For the JPG and AVI format documents "Photos & Videos Document Type" will be used.
  - Project code
  - Discipline code (Animation, Render, Simulation and etc.)
  - Sequence code
  - Document date
    will be obligatory.

- For the IFC format modelling documents IFC Model Document will be used.
  - Project code
  - Document type
  - Discipline code
  - Sequence code
  - Document data
    will be obligatory. Revision Date and Action status are optional sections.

- For all document types, Document Title and Revision Section will be used.
- Into a document can be uploaded more than one file. If there will be used more than one file , the document type of main file must be used for all files.(for example, for DWG file and pdf kinds of this file, just one document are used in type of Engineering Design Document for jury rating, last status of file has to be in "Final" folder.
- Names of documents and folders have to be in English.

DESIRED FILES AND CRITERIAS

- **Revit model (.rvt) (quantities, family, smart materials)**
- **IFC2x3 IFC model (.ifc) created in TC1 format**
- **2D Project Production(.dwg)**

  *Structural, Architectural, MEP
- **Quantities file (pdf/excel)**

  *Structural, Architectural, MEP
- **4D Navisworks (.nwd) can be uploaded but cannot be previewed.**

  *Clash test included

  *4D Simulation

- **Clash Test Report (.pdf)**
- **4D Simulation (.avi)**
- **Animation video (.avi)**
- **Renders (.jpg)**
- **Sustainability Strategy Report (.pdf)**
- **BIM Execution Plan**
- **Presentation of the project (.pdf) (according to the draft)**

On BIM design, detail level must be LOD400.

DESIGN TOGETHER DRAFT PRESENTATION

1. Cover
2. Contents
3. Architectural Design *(Design Decisions, Architectural Features, Materials)*
4. Structural Design *(Structural Modelling Decisions, Structural Analyzes, Materials)*
5. Mechanical Design *Design Decisions, Mechanical Properties, Materials)*
6. Planning *(project planning by time)*
7. Work Coordination (*Task distributions, collaboration steps*)
8. Sustainability Strategy Studies and Energy Analysis
9. 9. Regulations and Standards Used
10. References

SCORING

Modeling and ➡ **Design**   %25

- Arcitectural modeling and design decisions
- Structural modeling,structural modeling decisions and structural analyzes
- MEP modeling and design decisions

BIM Execution ➡ **Plan**   %10

- - It is expected to observe the BIM Execution Plan prepared during the project processes.

Preliminary ➡   %5

- Creation of families
- Creation of smart materials (loading data into elements)

Interference Checking ➡   %5

- - It is requested that there should not be incompatible interferences in the project.

Shop Drawing ➡   %10

- Section views
- Floor plans

Planning ➡   %15

- Quantity survey (pdf/excel)

    - Time Lapse

    ➡ 4D Navisworks video (.nwd and .avi)

Animation and Renders ➡   %5

    - Animasyon video (.avi)

        *max 2 min.

        *max 300 mb

    - Renders

        *15 renders

Sustainability Strategy ➡   %10

- Basic energy analysis

Presentation ➡   %10

- Design objectives
- Project properties
- 10 min. jury presentation

Public Voting ➡   %5

- It will be online for 7 days.