

## **2018 Design Competition Frequently Asked Questions**

**Q:** Are teams allowed to register in more than one category of the competition?

**A:** Yes

**Q:** How many students can participate in a team?

**A:** There is no max for ISBD teams but there are restrictions for other categories. ASHRAE recommends that the project groups consist of at least two members from an undergraduate engineering or architecture curriculum for the HVAC Design Calculations or HVAC System Selection and at least three members (architecture or construction, mechanical & electrical) for the ISBD competition. Team members can be from multiple colleges. All team members must be enrolled during the semester/term in which they contribute to the design. The Applied Engineering Challenge is for a team of 1 to 6 engineering students with a keen interest in sustainable design of equipment.

**Q:** Are graduate students allowed to participate in the competition?

**A:** Projects can be submitted by graduate students in the Integrated Sustainable Building Design category. For the other categories, entries should originate from an undergraduate engineering or architecture curriculum and all team members must be enrolled in an undergraduate program during the semester/term they contribute to the design.

**Q:** Is a university permitted to register more than one team into the competition as a whole? For example, if I were to be a member of a registered team for one of the three team categories, but I'm also interested in the Applied Engineering Challenge while my other teams members aren't, can I partake in both?

**A:** Yes

**Q:** Can we change the orientation of the building to see how it would affect our load calculations?

**A:** For the Design Calculation the building is set in its orientation and will not be judged if the building is rotated. However for your own benefit the team can rotate the building to see how Solar effects the building.

**Q:** Is it possible to get the actual location of the building? We would like to explore the use of nearby waste heat opportunities to supplement our HVAC system.

**A:** The building location is Istanbul, Turkey and the ground information can be obtained through research.

**Q:** Are we allowed to add features to the building? Such as overhanging shades above the windows to control the amount of sun that enters the building?

**A:** For the Design Calculation the building is set in its features and will not be judged if the building has additional features. However for your own benefit the team can add those feature to the building to see how they effects the building loads.

**Q:** In the drawings included with the competition information there is no site plan or information about the terrain. Would it be possible to know any information regarding the building site?

**A:** For the Design Calculations competition the site plan is not needed. The HVAC competition the site is a general site in Istanbul, Turkey and ground information can be obtained through research. For the ISBD competition the design team is required to pick a site location in Istanbul, Turkey and provide documentation why that site was considered.

**Q:** The floor plans do not appear to be fully dimensioned and material composites of the walls and building exterior were not specified. Are these factors given to us or must we design for them?

**A:** The Design Team should provide walls per the latest ASHRAE standard and provide justification about their assumptions.

**Q:** Where can we get the dimensions of the building?

**A:** Teams can get the full dimensions of the building from the provided CAD drawings.

**Q:** In the drawings included with the competition information there is no site plan or information about the terrain. Would it be possible to know any information regarding the building site?

**A:** No site plans will be provided for this competition. For the design calculation part of the competition, the only information they need about the site is the direction the building is facing.

**Q:** Can we put HVAC units on the roof of building?

**A:** Mechanical equipment can be located per the designer's discretion. Please provide justification.

**Q:** Are there any detailed drawings of the roof or windows available?

**A:** There are no detailed drawing of the roof or windows. The Design Team shall choose the glass manufacturer and provide justification.

**Q:** Do we build a new building on an empty field or we can use existing building field?

**A:** The building is a new building on an empty site.

**Q:** Can we change the layout, i mean the interior layout of design at ISBD?

**A:** Yes

**Q:** Do we need to make a detail about printer, vending machine or anything that we need in the office?

**A:** No

**Q:** Do we get the weather data of Istanbul, Turkey?

**A:** Yes ASHRAE provides the IWEC2 Weather Data File for Istanbul, Turkey on the Design Competition website. You can also utilize the ASHRAE Climate Data Center and ASHRAE Fundamentals.

**Q:** Do we need to consider about ducting design?

**A:** Yes

**Q:** Do we get the baseline model to compare our design?

**A:** The base line is the building you see in the drawings plus ASHRAE 90.1

**Q:** I would like to use revit for the design calculations competition, however only AutoCAD drawings are posted. Are there revit drawings I can use?

**A:** No

**Q:** For the Design Calculation category is it required to include recommendations for Energy Conservation Measures.

**A:** Refer to the Judging Criteria and the website requirements for the HVAC Design Calculations regarding how energy considerations will be evaluated.

**Q:** Are we restricted to the use of a single AHU for the entire building, or are we simply restricted to using a system that uses AHU(s) and VAVs to distribute the heating cooling energy around the building? i.e can we have multiple AHUs in the building?

**A:** See the OPR and ASHRAE 90.1

**Q:** Should we consider the embodied energy of the HVAC equipment as well as the monetary life cycle cost? Or should we just focus on the monetary cost of the equipment?

**A:** Provide the monetary cost of the equipment.

**Q:** Can we add supplemental heating and cooling above and beyond the heating and cooling supplied by the VAV system?

**A:** See ASHRAE 90.1

**Q:** Will we be judged on the CO2 emissions that our system generates? Or simply the energy consumption? This will be important when trying to decide between a natural gas powered plant or an electrically powered plant.

**A:** See the judging criteria supplied on the website.

**Q:** In rearranging the floor plan, does the same square footage associated with the rooms in the given floor plan need to be maintained? Or can we adjust the size of the rooms with justification? Also, can we add more rooms (i.e. more office spaces) or remove some rooms (i.e. take away some service stalls)?

**A:** Teams are not encouraged to rearrange spaces or modify the floor plans for System Selection and Design Calcs but if your team does decide to do this for ISBD, state your assumptions and justify them in the final report.

**Q:** I noticed that the baseline requirements for the calculation competition are from the ASHRAE 90.1 Standard. I also know that the Standards are expensive. Will I have access to the Standards at a discounted price?

**A:** If you or any member of your team are an ASHRAE student member you can receive discounted rates on publications. We also advise teams to get in touch with a faculty or industry mentor who may have copies of the standards and may be able to provide you with access to them. You can also preview some of the ASHRAE Standards [here](#).

**Q:** Looking at the elevation drawings, it is clear there are three doors on the east side of the building going into the restaurant. However, the floor plan of the first floor shows only one door going into the restaurant. Which drawing is incorrect? I'm guessing the elevation drawing is the one messed up, but I just want to confirm.

**A:** The elevation drawing is incorrect. Please use the number of doors as dictated by the plan drawing.

**Q:** On the Architectural drawings, what do the windows with an "S" on them represent? Also, looking on the South wall of the building in the kitchen of the restaurant, the kitchen floor plan shows a total of (6) window bays, however in the south elevation there are (7) all shown as "S" windows. Furthermore the door connecting the restaurant to the main building doesn't show on the south elevation, but it is shown on the floor plan.

**A:** The façade is made of a curtain wall. The "S" indicates that the material is solid or opaque and not transparent. Follow the plan-view to determine quantity of windows.

**Q:** I noticed in the OPR, the requirements for computer server and data rooms are listed as such: "Environmental Requirements for Computer Server and Data Rooms: Maintain environmental conditions at the Class 1 and 2 Recommended Operating Environment. Maintain rooms under positive pressure relative to surrounding spaces. Design computer room air conditioning units specifically for telecommunications room applications. A complete air handling system shall provide ventilation, air filtration, cooling and dehumidification, humidification, and heating. The system shall be independent of other facility HVAC systems and shall be required year round." Does this apply to the 2018 competition? If so, do we assign a room as the server room since no room is labeled as such? Under the project description, it is stated that the building will feature IT/Computer room areas. What rooms in the competition are these? There are no such rooms labeled on the floor plan.

**A:** The owner intended to use a small, onsite server closet however this was removed at the last minute. Instead, the owner is relying upon a server provided offsite. As a result, there is no server room in the final design of this building.

**Q:** The provided shaft on the floor plan does not have a large enough area to meet the return and supply requirements. Should the area requested for the extra shaft space be within the mechanical room or should it be outside, ie to the east of the mechanical/electrical rooms in the corridor?

**A:** The floor area outside of the mechanical area is too valuable to use for HVAC. Use the mechanical area as necessary.

**Q:** The owner's requirements state that a 7% return on investment is expected. Is this over the 50 year building life cycle or over a different amount of time

**A:** The owner desires a 7% return on investment over 50 years.

**Q:** The rest of the world works in meters, and 70,000 sqfeet is an approximation to 6,500 sq meters. Please confirm that the architectural drawings provided use imperial system with ft for length in scale 1:1. Should we prepare the report with international standard units?

**A:** The drawings provided use the Imperial System for unit of measure. The report can be prepared either in I-P or SI. Please specify within the report.

**Q:** In the entire roof made out of red brick? Is there any room for HVAC equipment up there?

**A:** Please review the OPR again. The roof is made from red tile.

**Q:** Is the building a steel frame or a mass frame. The building has a steel frame even though it has been stated that it should be treated like a mass frame building.

**A:** Exterior walls shall be masonry mass wall construction.

**Q:** What items are being sold in each retail space? For example, what class of air should we design for (i.e. nail salon vs generic space)?

**A:** At the time of design, it was not known what would be sold in each retail space. Make an assumption and justify in your report.

**Q:** What is being held in each closet? Are they janitorial closets (hazardous chemicals) or for generic use?

**A:** Assume each closet is for generic use.

**Q:** Will there be smoking allowed in the restaurant (foreign country)?

**A:** No smoking will be allowed inside the restaurant.

**Q:** I am using Autocad and REVIT version of 2014. I only saw a grid and building axes on 3D isometric, but the drawing did not show a grid in the floor plan (2d). Moreover, the grid does not have numeration; a numerate grid is very useful for the client reference in the architectural design with the proposals of MEP teams: all the teams can refer the same axes in the questions and final report. We ask for a revision of the CAD Files and update.

**A:** The drawings will not be revised for this competition.

**Q:** In the owner requirements document it is stated that we should include 4 typical racks of blade servers and 2 typical racks of networking equipment. This is a little general, because there are many different types with major differences in Wattage. Could you indicate the energy consumption for this equipment?

**A:** Your team should make an assumption and justify in your report.

**Q:** In the scope of work in the project guidelines, it is stated that all air handling units must use variable airflow and doesn't state any information about exhaust fans. Does variable airflow pertain to exhaust fans? Do we use ASHRAE standards for exhaust fans, pertaining to the restrooms and the kitchen? If so, can we add an exhaust shaft in the mechanical room or on the outside of the building?

**A:** The building owner and AHJ require the latest ASHRAE Standards to be used on this project, including Standards 62.1 and 90.1. Standard 62.1 provides guidance for exhaust airflow rates and Standard 90.1 provides variable speed fan requirements. For aesthetic purposes, the architect does not want any ductwork run on the outside of the building