

## **2019 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 is a max of six students per team for the 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.

**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 only. 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:** Do the page limits include appendices?

**A:** No.

**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 Budapest, Hungary 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 Budapest, Hungary and ground information can be obtained through

research. For the ISBD competition the design team is required to pick a site location in Budapest, Hungary and provide documentation why that site was considered.

**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:** 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 get the weather data of Budapest, Hungary?

**A:** Yes ASHRAE provides the IWEC2 Weather Data File for Budapest, Hungary 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:** 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:** 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 or remove some rooms?

**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.

**Q:** What is the current use of the existing building?

**A:** The existing building is a hospital.

**Q:** Level 2nd has no shaded areas, can we assume that it is all new construction? Similarly for the 3rd level there is only 1 shaded area, can you clarify what that is?

**A:** All walls and areas shown light line weights on Level 2 and 3 is part of the existing building. The hatching is the extent of the new building space for level 3 and matches the hatched areas on the other drawings.

**Q:** Are the plans facing true north/south or are they facing north based on the project?

**A:** North has already been indicated on the drawings.

**Q:** Is it necessary to find actual location of the existing building to co-locate the site based on the existing attached structure in the provided AutoCAD files?

**A:** No.

**Q:** Is it required that we build on the existing structure or can we build on a new site?

**A:** The new facility is connected to the existing facility. Refer to the Owner's Project Requirements. A stand-alone building on a new site is not acceptable.

**Q:** We think a possible site is the location of the new Semmelweis Hospital, are we correct in this assumption?

**A:** The subcommittee declines to respond.

**Q:** One of our potential sites is the location of the addition to the Semmelweiss University Hospital (the Korányi project). It meets a lot of the design parameters in terms of orientation, footprint, scale, and site access; however the new addition is in place of where our ISBD design would be. Are we allowed to use this site for our design, and if so, can we treat the site as it was before the addition was constructed in 2017?

**A:** You may use this site.

**Q:** 1) While looking through the competition files we wanted to know the description and usage of the acronyms you all provided.

The Rooms are as followed:

- Bottle Hold- SS0.906
- Vendor Wk Vendor- SS0.311
- Electrical (E.) & Electrical (N.)- SS0.903 & SS0.904
- Stryker Office- SS0.306
- Soiled Holding- SS0.303
- Detergent- SS0.321
- OR Supply Breakdown- SS0.407
- Sterrad- SS0.413
- Cool DN- SS0.411

- EQ- SS0.414
- System 1E
- Shell Space
- Scale AI Core

- 2) Do we only service the annotated and yellow rooms on the AutoCAD files provided?
- 3) Are the rooms E-46 Flex and E-45 Flex included in our HVAC Calculations?

**A:** 1. See below. Make and document assumptions as needed.

- Bottle Hold – sterile storage area
- Vendor Wk Vendor- vendor conference room
- Electrical (E.) & Electrical (N.) – electrical equipment closets
- Stryker Office – private office for visitors
- Soiled Holding – soiled linen sorting and storage area
- Detergent – cleaning chemical storage/janitor's closet
- OR Supply Breakdown – staging area for operating rooms
- Sterrad – sterile clean workroom
- Cool DN – sterile clean workroom
- EQ – sterile clean workroom
- System 1E – sterile clean workroom
- Shell Space
- Scale AI Core

2. Yes, the area of work is limited to the rooms shown in yellow with room names listed.

3. Yes, rooms E-46 Flex and E-45 Flex should be included in your HVAC Calculations.

**Q:** Within the "Space Specific Loading" section of the "Owner's Project Requirements" document, it states that "personnel loads for each space are based on the actual expected occupancy provided by the installation. Where occupancy loads are not provided, assume people densities are estimated per ASHRAE Standard. 62.1." It's just that I couldn't locate any given expected occupancy in any of the provided information. Are we to calculate and use the personnel loads using Standard 62.1 for all of the spaces?

**A:** Use Standard 62.1, Standard 170, or similar occupant-based densities where no specification exists. Use engineering judgement and assume densities as needed then list and justify in your report.

**Q:** One of the documents says that the total square footage is 70k ft<sup>2</sup>, but after our calculations we found that it's roughly closer to 145k ft<sup>2</sup>. Is the 70k ft<sup>2</sup> a mistake, or is there something that we're missing? We wanted to confirm the details as we get into the bigger calculations.

**A:** please review the online FAQs, Owner's Project Requirements, and building drawings again to determine which areas are within the project scope.

**Q:** The plans are unclear and not very consistent with hatching (especially for Level 3), May you provide more information on the drawings such as general notes, a key/legend, color-coded hatching for existing and new construction and room types/labels for each space? Would it also be possible to receive 3-D drawings for better visualization?

**A:** ASHRAE and Student Activities cannot endorse a specific software program for the competition. There are a variety of software programs available to perform load design

calculations. You may wish to consult with your faculty advisor, student branch advisor, consultant, and/or Student Activities chapter chair for recommendations.

**Q:** May you provide more information on the drawings such as general notes, a key/legend, color-coded hatching for existing and new construction and room types/labels for each space? Would it also be possible to receive 3-D drawings for better visualization?

**A:** Please review the FAQs online for questions regarding the drawings and project scope.

**Q:** Where are the sample reports for the heating and cooling load that was mentioned in the project description?

**A:** Sample reports are no longer provided. Please disregard that statement on the website.

**Q:** The ground level floor plan is unclear in defining boundaries between sterile and soiled areas. Particularly, in the south area of the addition. In what space number is the sterilization equipment located?

**A:** The sterilizers are located within the EQ SS0.414 space. The soiled side includes areas north of the sterilizers, such as Sterilize SS0.412, Sterrad SS0.413, Prep/Pack SS0.403, and Decontam SS0.422. The clean side is Cool Dn SS0.411. Clean and sterile storage is within Sterilize Stor SS0.415. Alternatively, if assumptions have already been made and are similar to those above, document them and any needed justifications within your report.

**Q:** For the evaluation of the mechanical systems we found two contradicting statements. One found on the 2019 HVAC Design Calculations web page stating that "The use of alternate systems or comparison with alternate systems is not required by this competition and will not be taken into consideration during the judging.", and the other on the Owner Project Requirements stating that "Evaluation shall include a comparison of two or more system types based on the region, specific building design features and available energy sources." If you could clarify this and let us know if we need to compare two or more systems for our design that would be great.

**A:** Those competing in the Design Calculations category need to evaluate a VAV system as described online. Those competing in System Selection and/or Integrated Sustainable Building Design are required to evaluate other system types based upon the specific competition rules.

**Q:** Is any land outside of the 5 square miles allowed to be used in the community design? This could be agricultural land, but also water. Are we allowed to consider the ocean as a resource outside of the area that can be utilized?

**A:** The land available for the challenge is limited to 13 square kilometers (5 square miles). Additional land outside of this area is not available for development to preserve the natural beauty of the island. You may consider the ocean a resource.

**Q:** On the 2nd floor the rooms labelled supposed to be included in our scope? the room names are: E1, E2, E3, E42, E43, E44, E47, E48, E15, E34, E33, E32, E31. If we are to include these in our report what are the purpose of these rooms?

**A:** No, the rooms you have listed are existing rooms and should not be included in your scope.

**Q:** Are we able to state that we are using force flow heaters in stair cases and mechanical rooms (that require no FA) or will this violate the rules?

**A:** Yes, you may use other devices in stairwells and mechanical rooms. Justify and explain as necessary in your report.

**Q:** According to chapter 8 in the 2015 handbook, it is shown that for operating rooms there exists a return plenum. Can we return this air to the space through a RTU since the operating rooms are not required to have 100% fresh air(please confirm ), if it is not acceptable to use OR RA, can we use return air from a Class 1 space for example?

**A:** Ventilation and exhaust requirements should be determined by your team. The ability to use return air from Class 1 spaces should also be determined by your team.

**Q:** Are the Prep/ Recovery rooms on the operating room schedule (24hrs)?

**A:** These spaces are always available given the hospital and patient needs.

**Q:** To clarify, we are able to use VAV boxes with localized coils and fans inside?

**A:** Yes, you may use fan powered VAV boxes.

**Q:** What purpose or activity should we assume for the Flex room that is located on the ground floor?

**A:** Any flex rooms allow flexibility for future space. They will not be used for operating rooms.

**Q:** In regards to the ventilation of the OR, is it acceptable to use an Economizer?

**A:** An airside economizer is permissible.

**Q:** Also I read in the project deliverables that we will need to provide pipe sizing. For example in the case we are using localized coils in the VAV boxes, are we to provide the diameter of the pipe that travels through the building to each individual VAV?

**A:** Please review the "Design Calculations Competition Submittal Requirements" portion of the HVAC Design Calculations website. Duct and pipe sizes are required.

**Q:** We are using Trane trace 700 to calculate the heat/cooling load but the file provided by ASHRAE which is IWC2 is not compatible with TRACE can you please let me know where can we find the suitable formats like TMY, TM2, WYEC,WYEC2

**A:** We believe TRACE 700 supports IWEC weather. You may need to double check with the software provider.

**Q:** What are the "terminal Units" and the "registers" outlined in the Design Calculations Competition Submittal Requirements?

**A:** Terminal units may include things like unit heaters, unit ventilators, etc. Registers would be air distribution devices, such as diffusers, grilles etc.

**Q:** The Owner Project Requirements state that the building is 70,000 square feet. Based on our rough takeoff calculations from the CAD drawings, the new work is roughly 130,00 square feet. Based on the large difference we are curious as to whether we are misunderstanding the conditioned work or if the 70,000 square feet is an error.

**A:** Please review the FAQs to ensure you've selected the portions of the building that are in scope.

**Q:** Are there specified software packages that must be used or can we choose anything we can get our hands on?

**A:** The owner does not require that specific software be used.

**Q:** Can we have access to the existing building square footage, the MEP systems implemented in it, and the location of these systems in relation to the expansion?

**A:** No.

**Q:** The Owner's Project Requirements list that the operating rooms require 20 air changes of supply air and 4 air changes of outdoor air. How is the air being exhausted/returned? The values seem to contradict each other.

**A:** Operating rooms require 20 air changes of supply airflow, which is a mixture of outdoor air and return air. They also require 4 air changes worth of outdoor air. Air leaving the surgical suites is exhausted and not recirculated to other space types.

**Q:** We have closely reviewed the FAQ, OPR, drawings, and judging criteria, and have calculated a significant discrepancy with the 70,000 sqft quoted on the OPR (like other teams in the FAQ). Will our team be penalized for having a different square footage than what is quoted on the OPR if we clearly state our engineering assumptions? Or will such a discrepancy be considered a violation of the Owner Requirements (Judging Criterion 3)?

**A:** The total square footage is not 70,000 square feet. That value is misstated and low. You will not be penalized for using a different value.

**Q:** I have read through the Q&A and there is one answer showing that "The hatching is the extent of the new building space for level 3 and matches the hatched areas on the other drawings".

Can you clarify what is the meaning of "matches the hatched area on the other drawings"? Does it mean that we do not have to calculate the cooling load of the hatched area on 3/F? Since the hatched areas in the other drawings are excluded in the cooling load calculation.

**A:** The hatched area on floor 3 is in the project scope. Rooms with designated names (also inside the hatched area) are within the project scope.

**Q:** On the floor plan for the third level provided, there are three rooms in the middle of the floor that have no names or numbering. Are we to include these rooms in our calculations? Two of these rooms are located south of orthopedic surgery (SS3.117) and north of the passage (SS3.112). The third room is located a little bit south, located South of clean Linen (SS3.112) and West of sleep room (SS3.109)

**A:** Yes, they should be included. If you need to make assumptions about the space functions, clearly document in your report.

**Q:** Third floor rooms SS3.117 & SS3.120 Ortho Surgery and Gen surgery are these considered to be surgery rooms or resident rooms?

**A:** Yes, they should be included. If you need to make assumptions about the space functions, clearly document in your report.

**Q:** We are referring to ASHRAE handbook 2017 Chapter 18 as well as 2015 chapter 8 are these permitted to be used?

**A:** Yes, those are permitted.

**Q:** According to page 8.10 in the 2015 handbook. A comment about administration including main lobby, admitting & business offices. Is this permissible to be utilized in this project?

**A:** Yes.

**Q:** Will we face penalization or a disadvantage to other teams if we are using standard 170-2008? Will we be judged accordingly to which version of the standard we reference in our report?

**A:** The OPR states to use the current version of standards. If you use a different version, reference and justify it accordingly.

**Q:** The OPR states that ceiling heights must be as high as possible. Will a ceiling height of 10' suffice for all spaces except in Operating rooms where we have selected 12'.

**A:** Yes, those heights are acceptable to the owner.

**Q:** The specified 70000 sqft found in the OPR includes conditioned and non-conditioned spaces? Should our measured square footage vary from this value?

**A:** Yes, that value includes conditioned and unconditioned space, your value may deviate.

**Q:** Is it permissible to utilize a FPMB with recirculation in the ceiling plenum?

**A:** Yes, that is permissible however fan-powered mixing boxes aren't typically installed in hospitals unless serving administration or "back of house" spaces. They should not be used for patient or procedure rooms.