

## **ASHRAE Hong Kong Chapter Technology Award 2020**

### **Program Overview**

The ASHRAE Technology Awards program recognizes, on an international scale, successful applications of innovation design, which incorporate ASHRAE standards for effective energy management, indoor air quality, and good mechanical design.

### **Purpose**

- 1) Recognize ASHRAE members who design and/or conceive innovative technological concepts that are proven through actual operating data.
- 2) Communicate innovative systems designs to other ASHRAE members.
- 3) Highlight technological achievements of ASHRAE to others, including associated professional and societies worldwide, as well as building and facility owners.

### **Categories**

- 1) Commercial Buildings - (New, Existing, EBCx)
- 2) Institutional Buildings - (New, Existing, EBCx)
  - a. Educational Facilities
  - b. Other Institutional
- 3) Health Care Facilities - (New, Existing, EBCx)
- 4) Industrial Facilities or Processes - (New, Existing, EBCx)
- 5) Public Assembly Facilities- (New, Existing, EBCx)
- 6) Residential

### **Requirements**

- 1) **Entries should be submitted electronically in pdf format.** Entries are to be submitted in the following format with no more than thirteen (13) letter size (8½ x 11 inches or S-I equivalent) pages, typed (font 12 characters per inch or equivalent), 1-inch margins, to include: The Application Form is (3) pages; A maximum of ten (10) double-spaced, typewritten sheets to address the items on page three of the Application Form. (Charts, schematics, graphics are included in the 10-page limit.) ***All pages should be numbered.***
- 2) The entrant (1) must be a member (any grade) of ASHRAE, (2) must have a significant role in the project, and (3) must be willing to supply any additional information if requested by the judging panel.
- 3) The entrant, property owner and engineer of record must sign the entry Application Form where indicated.
- 4) **The entrant must submit one (1) completed application with signatures (electronic signatures are accepted).**
- 5) **The project must have been in successful operation for at least one year at the time of entry.**

## Submission Deadlines

Application deadline for this Chapter Competition is on **31 March 2020**.

## General Instructions/Guidelines

- A system schematic is strongly recommended (color-coded or black and white schematics are acceptable).
- If a "judging criterion" is not applicable to the entry, a brief explanation should be provided.
- Claims that are not sufficiently supported with verifiable technical evidence may receive little or no credit.
- Information should be clear and concise.
- If the project involves technology which is new and innovative, this feature should be clearly identified.
- Commercialized items and notations are to be avoided. Brand names of equipment or processes should not appear in the entry.
- Information may be submitted in S-I units.
- All text must be in English.
- Entries should be legible, uncluttered and attractive. Black font should be used for text (colored text should not be used, but color text for schematics is acceptable). The competition does not require nor encourage the entry be professionally produced.
- Photographs are not necessary but are not discouraged as long as they can be incorporated within the maximum submission page length allowance.

## Judging Criteria

- 1) Energy Efficiency (15 points)
- 2) Indoor Air Quality (IAQ) and Thermal Comfort (15 Points)
- 3) Innovation (15 Points)
- 4) Operation and Maintenance (15 Points)
- 5) Cost Effectiveness (15 Points)
- 6) Environmental Impact (15 Points)
- 7) Quality of Presentation (5 Points)
- 8) Judges' Prerogative (5 Points)

For more details about the judging criteria and Technology Award Program, please visit the ASHRAE website: <https://www.ashrae.org/membership/honors-and-awards/technology-awards-program-overview>.

## Benefits of Winning the Award

ASHRAE Technology Award winners are recognized by peers as being innovative and capable of achieving a high level of competence. Winning projects are highlighted in articles in the Newsletter of ASHRAE Hong Kong Chapter. The winner of each category will be announced at the end of April 2020.

Recipients are honored at the 36<sup>th</sup> Anniversary Dinner of ASHRAE Hong Kong Chapter where the awards are presented. One award plaque will be presented to an entrant representing the design team and another plaque will be presented to the building owner.

The first place winning project from this award will be invited to proceed the submission to the **‘Regional Competition’** and gain the chance to enter **‘Society Competition’** if eligible.

## Application

Interested member please submit your application by complete the **ASHRAE Technology Awards Application Form and relevant document** via e-mail to [jason.ashrae@gmail.com](mailto:jason.ashrae@gmail.com) with the e-mail subject: “ASHRAE-HKC Technology Award 2020\_Your *Building/Project Name*”.

## Enquiry

For enquiry, please contact Mr. Jason Kwok at (+852) 9638 1619 or email to [jason.ashrae@gmail.com](mailto:jason.ashrae@gmail.com).



# ASHRAE Technology Awards

## Application Form and Instructions

(Revised March 2019)

- I. Commercial Buildings (New, Existing, EBCx)
- II. Institutional Buildings
  - Educational Facilities (New, Existing, EBCx)
  - Other Institutional (New, Existing, EBCx)
- III. Health Care Facilities (New, Existing, EBCx)
- IV. Industrial Facilities or Processes (New, Existing, EBCx)
- V. Public Assembly (New, Existing, EBCx)
- VI. Residential

**NOTE:** ASHRAE Technology Awards are the HVAC&R industry's most prestigious honor for efficient energy use in building and environmental system performance. While the awards do not certify responsible charge or professional license status, they do recognize outstanding design innovation and successful implementation.

# ASHRAE TECHNOLOGY AWARDS - PROGRAM OVERVIEW

Effective energy utilization is just one of several aspects of facility and building design. The ASHRAE Technology Awards program recognizes, on an international scale, successful applications of innovative design, which incorporate ASHRAE standards for effective energy management, indoor air quality, and good mechanical design.

The purpose of the ASHRAE Technology Awards is threefold:

1. To recognize ASHRAE members who design and/or conceive innovative technological concepts that are proven through actual operating data.
2. To communicate innovative systems design to other ASHRAE members.
3. To highlight technological achievements of ASHRAE to others, including associated professionals and societies worldwide, as well as building and facility owners.

All current members of ASHRAE and its Associate Societies may submit entries. Entrants must have had a significant role in the design or development of the project.

ASHRAE Technology Award applications are accepted in each of the following categories:

- |   |  |
|---|--|
| I. Commercial Buildings (New, Existing, EBCx)     | III. Health Care Facilities (New, Existing, EBCx)            |
| II. Institutional Buildings (New, Existing, EBCx) | IV. Industrial Facilities or Processes (New, Existing, EBCx) |
| o Educational Facilities                          | V. Public Assembly Facilities (New, Existing, EBCx)          |
| o Other Institutional                             | VI. Residential Buildings                                    |

Awards are given at the judges' discretion. All first-place awards in each category are automatically eligible for consideration for the "ASHRAE Award of Engineering Excellence." Second-place and Honorable Mention may also be awarded. At the discretion of the judging panel at the chapter and regional level, more than one first place winner may be awarded in any category.

ASHRAE honors only buildings and industrial facilities or processes that are outstanding in design innovation. An award in a category is not given if entries do not meet the highest standards. The "ASHRAE Award of Engineering Excellence" is given at the judges' discretion. The first-place Society Technology Awards and the "ASHRAE Award of Engineering Excellence" are presented during the Plenary Session at ASHRAE's Winter Meeting.

## Requirements

1. **Entries should be submitted electronically in pdf format.** Entries are to be submitted in the following format with no more than thirteen (13) letter size (8.5 x 11 inches or S-I equivalent) pages, typed (font 12 characters per inch or equivalent), 1-inch margins, to include: The Application Form is (3) pages; A maximum of ten (10) double-spaced, typewritten sheets to address the items on page three of the Application Form. (Charts, schematics, graphics are included in the 10-page limit. **All pages should be numbered.**
2. The entrant (1) must be a member (any grade) of ASHRAE or of an Associate Society, (2) must have a significant role in the project, and (3) must be willing to supply any additional information if requested by the judging panel.
3. The entrant, property owner and engineer of record must sign the entry Application Form where indicated.
4. **The entrant must submit one (1) completed application with signatures (electronic signatures are accepted).**
5. **The project must have been in successful operation for at least one year at the time of entry.**
6. In order for an entry to be judged at the Society level, it must have received a first-place award at the regional level. Interested applicants should contact the CTTC Regional Vice- Chair (RVC) for deadlines for the regional competition.
7. The Society-level competition requirements are not necessarily identical to the requirements that may apply in chapter competitions. A chapter may use whatever criteria it chooses. The entry must use the criteria listed, herein, when submitted by the region for Society competition. The number of entries a chapter may submit per category to the regional competition is at the region's discretion.

## Submission Deadlines

The CTTC RVC establishes schedules, as applicable, for each region. Chapter entries are usually due in late February - early March (contact CTTC Chapter Chair). Regional entries must be submitted by chapters to the RVC by approximately May 15 (exact time set by RVC). The RVC must submit entries from the regional competition to ASHRAE Headquarters by **September 1.**

## General Instructions/Guidelines

1. A system schematic is strongly recommended (color-coded or black and white schematics are acceptable).
2. If a "judging criterion" is not applicable to the entry, a brief explanation should be provided.
3. Claims that are not sufficiently supported with verifiable technical evidence may receive little or no credit.
4. Information should be clear and concise.
5. If the project involves technology which is new and innovative, this feature should be clearly identified.
6. Commercialized items and notations are to be avoided. **Brand names of equipment or processes should not appear in the entry.**
7. Information may be submitted in I-P or S-I units or a combination of both.
8. All text must be in English.
9. Entries should be legible, uncluttered and attractive. Black font should be used for text (colored text should not be used, but color text for schematics is acceptable). The competition does not require nor encourage the entry be professionally produced.
10. **Photographs are not necessary but are not discouraged as long as they can be incorporated within the maximum submission page length allowance.**

## Judging Criteria

### General

If any of the scoring topics (listed below) are not applicable to the project, the entrant should state why. In such cases, judges are instructed to assign a "plug" score on the non-applicable topics so that the overall project score is on an equivalent basis with other entries.

### Energy Efficiency (15 points)

This is a major criterion. Entries, where applicable, must comply with the latest ASHRAE Standard 90.1 for new construction and Standard 100 series for existing buildings. The applicant is encouraged to use the computer modeling programs in Standard 90.1 and include summarized results to substantiate compliance. The entrant should list the type of energy modeling software used (i.e. DOE2, EQuest, etc.) Innovative ways to control, reuse or reduce energy consumption should be discussed. The entrant should specifically list the version of ASHRAE Standard 90.1 or ASHRAE Standard 100 that was used.

One year's energy consumption data should be included. Actual measured energy use for the building "In Operation" shall be stipulated in the entry report in CBECS EUI format (kBtu/ft<sup>2</sup>/yr or S-I equivalent) or in ASHRAE Building Energy Quotient (bEQ) in operation format. In an industrial process, past energy usage may be compared to new, improved energy consumption.

### Indoor Air Quality (IAQ) and Thermal Comfort (15 Points)

This is a major criterion. IAQ encompasses indoor environmental quality, thereby including thermal comfort and, if appropriate to the project, other factors as well. Judges are interested in pertinent topics such as operating procedures (where, for example, pre-occupancy ventilation is a significant factor), source control of contaminants, system commissioning and evidence that design objectives have been achieved. Ventilation effectiveness could be an important aspect of the project (e.g., air distribution in auditoriums or with landscape office partitioning).

While carbon dioxide, air velocity and other field measurements are impressive, they are not essential for making an award. Judges realize that such data may not be available and do not want to discourage a worthy entry. Descriptions of means of compliance with ASHRAE Standards 55 and Standard 62 are of value. Merely stating that ventilation and thermal comfort comply with these standards is superficial treatment.

The information should show that the entrant has indeed addressed these standards in the design. For example:

#### Standard 55

- Assumed activity levels
- Clothing thermal resistance values assumed
- Air velocities measured
- Space air temperatures
- Radiant thermal control
- Humidity/condensation
- Version of Standard used

#### Standard 62

- Ventilation rate or IAQ criteria specified
- Ventilation effectiveness assumptions
- Methods of handling special pollutant sources
- Version of Standard Used

Innovative approaches assuring good IAQ and thermal comfort in an efficient manner are of interest to judges. Support data or evidence of building performance claims might include:

- The rate of occupant complaints, if any
- Objective measurements of ventilation, air pollution, and thermal comfort parameters (Carbon dioxide levels, measured outside air ventilation rates, pollutant concentrations measured)
- Improvements in human performance such as decreased absenteeism
- Building pressure relationships for odor or IAQ control

### Innovation (15 Points)

The innovative aspect of the project design must be clearly described—especially innovative application of technologies (both old and new) to a particular situation. New technology or innovation itself is not sufficient unless the needs of the facility are truly met. The uniqueness of the application is the basis of judgment. It should be indicated, for example, how the innovations are key to overall building performance.

### Operation and Maintenance (15 Points)

The intensity of required maintenance for the installed system should be addressed as compared to those non-selected options and/or previous systems. The building commissioning process, if thought to be innovative, shall be included in this category.

### Cost Effectiveness (15 Points)

One-year's data demonstrating the performance of the design or process should be provided. Data from prior years should be included if the project is a retrofit situation. Payback periods (in years) should be established. Entrant shall fully explain the basis for all cost savings, including utility rate schedules (off-peak rates and other charges).

### Environmental Impact (15 Points)

Design shall address items on reduction of global climate change gases (i.e. carbon dioxide emissions), elimination of CFCs, reduction in waste discharge and other environmentally favorable items, if applicable.

### Quality of Presentation (5 Points)

Entries are judged for logical presentation with good features clearly highlighted. Simple-to-read system schematics, charts and graphs are advantageous and are encouraged as the most effective tool in concise presentation of a system and its performance. Points may be deducted for failure to follow type size, spacing and format instructions. Photographs are not encouraged since judges work with black-and-white duplicated copies of all entries. All pages should be numbered.

### Judges' Prerogative (5 Points)

Judges may award up to five (5) additional discretionary points.

## Helpful Hints

Entries which fail to receive recognition frequently do not address important items relative to the project. The following items are among those cited by the judges. Not all the items shown would necessarily apply to all entries.

### Energy Efficiency Category

- No actual or projected energy use data
- Efficiency not addressed
- Project, *as presented*, not feasible

### Indoor Air Quality

- Claims unsubstantiated with any supporting evidence
- Ventilation rate not in compliance with current ASHRAE standard at time project designed; indicate time frame of design process
- No discussion of occupant comfort or IAQ complaints or lack of complaints
- No discussion of ventilation effectiveness

### Cost Effectiveness

- No cost payback figures
- Incorrect calculations
- Unsubstantiated payback claims

### Presentation

- Type size too small
- Spacing or margins not per instructions
- Flow charts unreadable or unclear
- Schematics vague or incorrect
- Excessive pages (10 pages plus the three-page application form)

### Innovation

- Innovative aspect of project not discussed or explained

### General

- Project description too general
- Excessive use of brand names giving the appearance of a sales brochure
- Old project with no new work performed

### Maintenance and Operation

- Maintenance and operation not discussed

## Frequently Asked Questions

### If not all the scoring topics apply to the project, can the entry be considered in the competition?

Yes. Judges are instructed to use a "plug" score for a project that is innovative and good in most respects, but does not lend itself to all criteria. For example, a wood-drying operation may not have an impact on indoor air quality. However, points will be deducted from the scoring where the topic definitely applies to the project but was ignored.

### Do Society competition rules apply to chapter or regional competitions?

Chapter competitions may develop their own criteria, as long as it *clearly* states that the recognition is an ASHRAE *Chapter* Award. Regions are encouraged to follow the Society criteria to facilitate easy "clean-up" and entry for Society competition.

### Can changes be made to an entry after the regional competition prior to submitting to Society judging?

Yes. A regional winner may make changes to the entry to incorporate comments from regional judges or to improve the submittal.

### Can an entry be considered if one year's operating data are not obtainable?

Yes. A reasonable explanation must be included as to why the data are not available. The results of a nationally recognized computer modeling program showing one year's energy use must be provided. However, the project must still have been in operation for at least one year.

### Is professional registration required to be an entrant?

No. Entrants must simply be a member (any grade) of ASHRAE.

### What is the difference between an Existing Building project and an Existing Building Commissioning (EBCx) Project?

Existing Building Commissioning (EBCx) is a process for investigating, analyzing, and optimizing the performance of building systems through the identification and implementation of low/no cost facility improvement measures and ensuring their continued performance. EBCx is intended to be a comprehensive term defining a process that encompasses the more narrowly focused process variations such as retro-commissioning, re-commissioning and ongoing commissioning commonly

used in the industry. Entrants should check the EBCx box on their applications instead of the Existing box if the scope of the project did not include significant upgrades of the existing systems.

### **Benefits of Winning a Society Award**

ASHRAE Technology Award winners are recognized by peers as being innovative and capable of achieving a high level of competence. Winning projects are highlighted in articles in the *ASHRAE Journal*. The Society provides press releases to industry publications and *ASHRAE Insights*.

Recipients are honored at the Plenary Session of the Society's Winter Meeting where the first-place awards as well as the "Engineering Award of Excellence" are presented. One award plaque will be presented to an entrant representing the design team and another plaque will be presented to the building owner. The winning design firm may purchase additional plaques.



**ASHRAE TECHNOLOGY AWARDS APPLICATION FORM (Page 1)**  
**APPLICATION MUST BE COMPLETE TO BE CONSIDERED FOR JUDGING**  
**(Required for Society-Level Competition)**

(For ASHRAE Staff Use Only)

**I. Identification (0 Points)**

Name of building or project: \_\_\_\_\_

**II. Category - Check one and indicate New, Existing, or Existing Building Commissioning (EBCx)**

- |  |                              |                                   |                               |
|--|------------------------------|-----------------------------------|-------------------------------|
| <input type="checkbox"/> Commercial Buildings                  | <input type="checkbox"/> New | <input type="checkbox"/> Existing | <input type="checkbox"/> EBCx |
| Institutional Buildings:                                       |                              |                                   |                               |
| <input type="checkbox"/> Educational Facilities                | <input type="checkbox"/> New | <input type="checkbox"/> Existing | <input type="checkbox"/> EBCx |
| <input type="checkbox"/> Other Institutional                   | <input type="checkbox"/> New | <input type="checkbox"/> Existing | <input type="checkbox"/> EBCx |
| <input type="checkbox"/> Health Care Facilities                | <input type="checkbox"/> New | <input type="checkbox"/> Existing | <input type="checkbox"/> EBCx |
| <input type="checkbox"/> Industrial Facilities or Processes    | <input type="checkbox"/> New | <input type="checkbox"/> Existing | <input type="checkbox"/> EBCx |
| <input type="checkbox"/> Public Assembly                       | <input type="checkbox"/> New | <input type="checkbox"/> Existing | <input type="checkbox"/> EBCx |
| <input type="checkbox"/> Residential (Single and Multi-Family) |                              |                                   |                               |

**III. Project Description (0 Points)**

1. Type of building or process: \_\_\_\_\_

2. Size – gross floor area of building (ft. sq. or m. sq.): \_\_\_\_\_

3. Function of major areas (such as offices, retail, food services, laboratories, guest/patient rooms, laundry, operating rooms, warehouse/storage, computer rooms, parking, manufacturing, process, etc., or industrial process description:

\_\_\_\_\_

4. Project Design Period: \_\_\_\_\_ to \_\_\_\_\_  
Begin date (mm/yyyy) End date (mm/yyyy)

5. Project Occupancy and Operation Period: \_\_\_\_\_ to \_\_\_\_\_  
Begin date (mm/yyyy) End date (mm/yyyy)

6. ASHRAE Standards referenced during design (this information will not be shared with the Judging Panel):

\_\_\_\_\_

**APPLICATION MUST BE COMPLETE TO BE CONSIDERED FOR JUDGING  
(Required for Society-Level Competition)**

**1. Name of Building or Project:** \_\_\_\_\_

**2. Entrant (Required to be an ASHRAE member with significant role in project):**

a. Name: \_\_\_\_\_  
Last First Middle

Membership Number: \_\_\_\_\_

Chapter: \_\_\_\_\_

Region: \_\_\_\_\_

b. Entrant's Design Firm/Company: \_\_\_\_\_

c. Address (including country): \_\_\_\_\_

City State Zip Country

d. Telephone: (O) \_\_\_\_\_ Email: \_\_\_\_\_

f. Entrant's Role in Project: \_\_\_\_\_

g. List the names of Design Team Members (A maximum of three may be listed; only ASHRAE members will be recognized as team members)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**3. Certification of entrant (0 Points) (If multiple entrants, all must be listed on this form)**

I certify the information submitted is correct, and that this entry satisfies the requirements of the ASHRAE Technology Award competition.

Typed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**4. Building Owner's release (0 Points) (Building Owner cannot be the same person as the Entrant)**

I certify that I am the owner or the authorized representative of this project, and hereby grant permission to ASHRAE to use all the enclosed data and information in the judging and subsequent publicity of this project.

Typed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*(Signatures must be on form submitted to ASHRAE)*

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City State Zip Country

Telephone: (O) \_\_\_\_\_ Email: \_\_\_\_\_

**APPLICATION MUST BE COMPLETE TO BE CONSIDERED FOR JUDGING  
(Required for Society-Level Competition)**

- 5. Engineer of record:** Required unless a written explanation is provided why the engineer of record will not grant his/her consent.

I consent to the presentation of this project for consideration in the ASHRAE Technology Awards Program.

Typed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*(Signatures must be on form submitted to ASHRAE)*

Company: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

City

State

Zip

Country

Telephone: (O) \_\_\_\_\_ Email: \_\_\_\_\_

**The topics below should be addressed on separate pages and formatted according to the requirements listed in the overview.**

- 1. Energy Efficiency (15 Points)**
- 2. Indoor Air Quality (15 Points)**
- 3. Innovation (15 Points)**
- 4. Maintenance & Operation (15 Points)**
- 5. Cost Effectiveness (15 Points)**
- 6. Environmental Impact (15 Points)**
- 7. Quality of Presentation (5 Points) (No response required)**