

## **INTRODUCTION**

Today the role of the building independent commissioning specialist (iCxS) has become a central component to the whole building design process as the built environment continues to include more complicated and interdependent systems and owners focus on energy efficiency to keep operational costs down. Various Green Building Rating Systems recognize the need to address typical shortfalls of the building industry where it relates to the need for proper design and commissioning of a building's energy related system.

## **ROLE OF iCxS**

The iCxS can and should play a key role in the whole building design process. The iCxS should become involved during the pre-design phase or be the first person by the side of the owner. Involvement continues through design and construction, providing continuity as the owner's expert, making sure that their requirements are being met. The primary role throughout the project is to understand the OPR, making sure that these are incorporated into the design, installed during construction, and tested with a completely functional building being returned to the owner. During this whole process the iCxS works with the design team to accomplish this.

Designing, constructing, and operating a building is a complex feat that involves input from many different team members. While many of these professionals have high levels of competence they are still prone to the issue of poor coordination and integration due to schedule and budget constraints. This is where the iCxS can assist the project team, not only by leveraging their experience and knowledge, but also through project iteration.

The iCxS is expected to be well-qualified for the managerial and technical aspects of the project and exhibit experience in construction management, design, engineering, hands-on field experience with equipment and troubleshooting, energy efficiency, and operations & maintenance.

In a nutshell, the iCxS must ensure that the building's energy related systems are designed and installed to achieve proper commissioning so as to realise their full potential and intent.

## **INDEPENDENT ROLE OF iCxS**

The iCxS should be an independent, third-party expert who serves as an objective advocate of the owner, directs the commissioning process, and presents final recommendations to the owner regarding the performance of commissioned building systems.

The design reviews and submittal reviews must be performed by a firm other than the design firm. It is the function of the iCxS to introduce standards and strategies early in the design process and ensure implementation of selected design measures by seeing that clearly stated target requirements are included in the construction documents. A knowledgeable iCxS on a team can greatly facilitate the design process through collaborative design reviews. These reviews can help minimize costs and maximize compliance by ensuring that rating requirements can be met.

### **SPECIFIC TASKS OF THE iCxS**

The iCxS should be onboard at the onset of the design process to verify that comprehensive pre-commissioning and commissioning is performed for all the building's energy related systems in accordance with ASHRAE Commissioning Guideline by:

1. Conducting at least one commissioning design review during the detail design stage and back-check the review comments during the tender documentation stage.
2. Developing and incorporating commissioning requirements into the tender documents.
3. Developing and implementing a commissioning plan.
4. Verifying the installation and performance of the systems to be commissioned.
5. Reviewing contractor submittals applicable to systems being commissioned for compliance.
6. Developing a systems manual that provides future operating staff the information needed to understand and optimally operate the commissioned systems.
7. Verifying that the requirements for training operating personnel and building occupants are completed.

### **MASHRAE REGISTRY OF APPROVED iCxS**

MASHRAE will assess and register approved individual iCxS who have passed the MASHRAE iCxS course or other recognized course. A list of iCxS recognized by MASHRAE will be posted on the MASHRAE website. Registration is renewable annually (or as stipulated) upon compliance with CPD requirements.

### **PRE-REQUISITES OF iCxS**

#### **THE INDIVIDUAL iCxS:**

1. Shall be affiliated to a Commissioning Company,
2. Is a current TABB (The Testing, Adjusting and Balancing Bureau) Certified Supervisor who has certified at least 5 (five) buildings/industrial plants on M&E Systems (Note that TABB only certifies a contractor or a supervisor or a technician, and there is no TABB certified engineer); **OR**

Is an Engineer registered with the Board of Engineers, Malaysia and has more than 5 years of testing & commissioning experience in Building Services; **OR**

Is a Competent Electrical or Supervising Engineer registered with Suruhanjaya Tenaga;

#### **THE AFFILIATED COMMISSIONING COMPANY:**

1. Shall be registered with Suruhanjaya Syarikat-Syarikat Malaysia.
2. Have at least in their full-time employment, one Mechanical Engineer and one Electrical/ Electronics Engineer registered with the BEM, each with at least 5 years testing & commissioning experience in Building Services. In lieu of the Electrical/ Electronics Engineer, to have a Competent Supervising Engineer or Competent Electrical Engineer registered with Suruhanjaya Tenaga, or at least two High Tension Chargemen registered with Suruhanjaya Tenaga.