# World**Skills** Singapore 2025
## Technical Description

## Introduction

Digital Construction using Building Information Modelling (BIM) has revolutionized the construction industry, transforming traditional practices into innovative and collaborative approaches. BIM is a digital representation of the physical and functional characteristics of a building or infrastructure. BIM offers a holistic framework that integrates design, construction, and facility management.

This competition aims to address the increasing trend of BIM in the construction industry, highlighting its potential to streamline processes, improve communication, enhance project outcomes, and drive sustainable and efficient construction practices in the modern era.

## Duration

Competitors will be provided with a full set of detailed instructions covering 22 hours over three (3) days of competition.

## Skill Competition

This competition will be will consist of creation and use of a Test Project, spread out as a series of nine (9) standalone modules.

Skills that may be tested in the different modules could cover :
- BIM Governance
- Project Setup
- Modelling and Collaboration
- Asset Information
- Script Creation and Modification
- Model Coordination & Checking
- Data Extraction & Analysis
- Issue Management
- Documentation & File Export
- Presentation & Communication

A combination of the above skills is allowed in each module, but different competencies will be tested in each module.

### Competencies

Competitors must be able to demonstrate competencies in the following areas

1. **BIM Governance**
   - Understanding and applying the requirements of the BIM Execution Plan (BEP) and ISO19650

2. **Project Setup**
   - Prepare the Revit template before starting to work on the project.
   - Curate object library for the project which includes standard dimensions, annotations, families, and title block
   - Set up gridlines, project coordinates and levels

3. **Modelling and Collaboration**

- Create a parametric family to the correct Level of Information that adheres to the requirement stated in the BIM Execution Plan.
  Before inserting family into project, make sure it is in the correct file format, does not have any warnings, has been assigned the appropriate materials as required

- Model the project according to best practices with groupings, and annotations included.

- Enable collaboration within the project environment

- Run clash detection in ACC to illustrate collaboration and quality control. Create clash report and show resolution status as "Resolved/Pending" for at least 1 clash

4. **Asset Information**

- Inserting data into different elements in the model, including use and manipulation of shared parameters

5. **Script Creation and Modification**

- Create reusable scripts and modify existing ones to adapt to project-specific requirements.

6. **Model Coordination & Checking**

- Ensure created models are free from errors e.g. duplicates, elements not being hosted

7. **Data Extraction & Analysis**

- Extraction of information from model, including schedules & quantities

8. **Issue Management**

- Showcase a systematic approach to identifying, tracking, and resolving issues within BIM models, utilizing a Common Data Environment (CDE) for documentation.

- Use of an issue management tool, detailing how issues are communicated to relevant stakeholders and how resolutions are implemented and tracked.

9. **Documentation and File Export**

- Prepare views like plans, elevations, sections, detailed with clear and accurate information to ensure project execution

- Create and compile a document set consisting of multiple document types including details, schedules, 3D views, coloured plans & elevations

10. **Presentation & Communication**

- Put together a brief presentation of the project to a potential client

## Major Tools & Materials

Competitors will be provided computers at the competition venue loaded with the following :

- Autodesk Revit
- Autodesk Construction Cloud (ACC)

## Marking Scheme

Assessment Criteria and relative weighting of marks are as follows:

| | Criterion | Marks | Comments |
|---|---|---|---|
| A | BIM Governance | INCLUDED IN OTHER SECTIONS | |
| B | Project Setup | 10 | Day 1 |
| C | Modelling and Collaboration | 20 | Day 1 & 2 |
| D | Asset Information | 10 | Day 2 |
| E | Script Creation and Modification | 10 | Day 2 |
| F | Model Coordination & Checking | 10 | Day 2 |
| G | Data Extraction & Analysis | 10 | Day 2 |
| H | Issue Management | 10 | Day 3 |
| I | Documentation and File Export | 10 | Day 3 |
| J | Presentation & Communication | 10 | Day 3 |
| | | **100** | |