worldskills Singapore 2023
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 30 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
- Model Coordination & Checking
- Data Extraction & Analysis
- 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 elevation

3. **Modelling and Collaboration**

- Create a parametric family to the correct Level of Development 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. **Model Coordination & Checking**

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

6. **Model Analysis**

- Extraction of information from model, including schedules & quantities

7. **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

8. **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	Model Coordination & Checking	20	Day 2
F	Data Extraction & Analysis	10	Day 2
G	Documentation and File Export	20	Day 3
H	Presentation & Communication	10	Day 3
		100	