

# Module A: Structural Professional Modeling

## Task description:

1. Use ALLPLAN 2023 software to create a project file named "Office Building\_Structure". Based on the structural professional construction drawings and the requirements of the exam questions, complete the BIM model and design outcomes for the structural profession. In case of any conflict between the drawing requirements and the exam requirements, the exam requirements shall prevail; if there is a discrepancy between the drawing annotations and the actual dimensions, the drawing annotations shall take precedence. When no specific software commands are required, you may choose to use them as needed. Components should be allocated to the corresponding floor's different drawing files. (40 points)

## Detailed steps:

1. Create elevation and axis network (2 points): Participants need to create floor elevation and F1 layer axis network according to the drawings.

2. Creation of structural model (18 points): Participants are required to draw a professional structural model according to the drawings. The professional structural model includes the following components:

- (1) Foundation (3 points)
- (2) F1 structural column (3 points)
- (3) F1 structural wall (1 points)
- (4) F1 structural top beam (5 points)
- (5) F1 structure roof slab and slab opening (2 points)
- (6) F1 staircase-including beam, column and stair slab (4points)

3. Fill in the attribute characteristics of the model (2 point): The contestant needs to fill in the attribute information of the structure model created (the structure model created in question 1). The required attribute information is as follows:

Structure type	(Surface (animation))	Materials
structural wall	Exp_Concrete_Detail_01.surf Transparency 50%	Cast-in-place concrete-C40
Structural beams	Exp_Concrete_Detail_01.surf Transparency 50%	Cast-in-place concrete-C30
structural slab	Exp_Concrete_Detail_01.surf Transparency 50%	Cast-in-place concrete-C30
Structural columns	Exp_Concrete_Detail_01.surf Transparency 50%	Cast-in-place concrete-C40
Other components	User-defined, 50% transparency	user-defined

4. Reinforcement deepening (11 points): The participants need to create the reinforcement model of the corresponding structural components according to the given structural professional construction drawings, which should include the following structures:

- (1) F1 structural beam LY-204 (7) (3 points)
- (2) F1 frame columns KZ1-KZ3 (3 points)
- (3) F1 edge components YJZ-1 to YJZ-3 (3 points)
- (4) F1 shear walls Q1 and Q2 (2 points)

5. Drawing (5 points): The participants need to create the garage ramp drawing according to the detailed drawing and the requirements of the test questions. The drawing requirements are as follows:

(1) The drawing content shall include the axis network (including dimension marking, refers to the detailed drawing), garage ramp plan and section drawing (only including components), various parts of the annotation (elevation, the slope change point of the car ramp, size of each part, etc.), and drawing label (dimensional detail drawing label).

(2) The output content should be saved in the plane layout and the page layout should be named "Garage Ramp Detail".

(3) The output content shall not be overlapped, crossed, unclear font, or exceed the layout page.

(4) The drawing scope and annotation refer to the garage ramp details.

6. Output of results:(2 points)

(1) Components need to be allocated to different drawing files on the corresponding floors.

(2) The naming rule of drawing file is "floor + component name", such as "F1 structural column" and "F1 structural column reinforcement".

(3) All names and attributes should be filled in strictly according to the requirements of the test.

(4) According to the requirements of the test, rename the NativeFormat files (i.e., files with the.inf and.zip extensions) to "Office Building Structure". Upload these files to the designated folder and copy the results to the USB drive provided by the competition for backup. Ensure that only the NativeFormat file, after the mold is closed and backed up, remains on the USB drive. If the files are not saved and submitted as required, this section will receive a zero score.