AUTODESK

Challenge exercise: Model by face

Place a mass family and then create mass floors. Use the model by face tools to create floors, curtain systems, walls, and roofs.
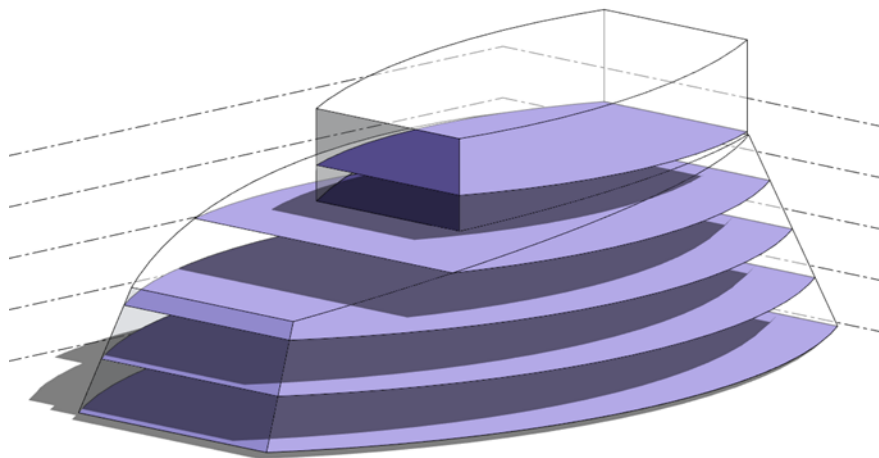
Learning Objectives:

- Edit mass families.
- Apply model by face tools.

Complete the required activities:

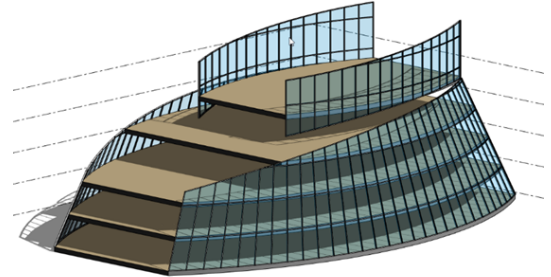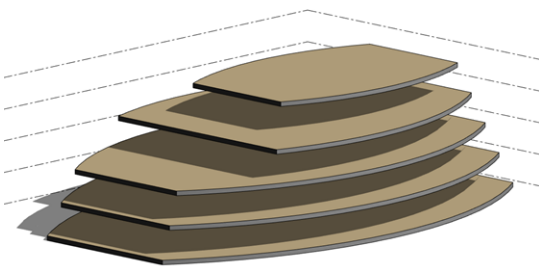Open the accompanying file *Model by Face.rvt*.

Task 1: Place mass and create mass floors

1. Place the family Building Mass near the center of the project.
2. Create mass floors through the family using all the levels in the project.
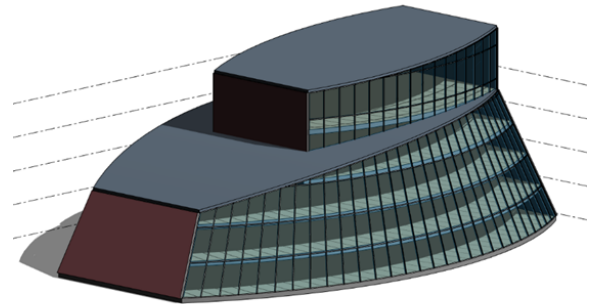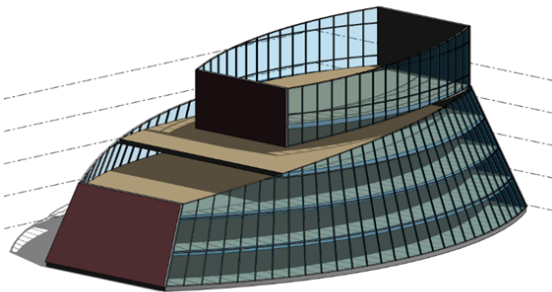
Task 2: Apply Model By Face objects

1. Use the Model by Face tools to create floors, curtain systems, walls and roofs as per the following images.

Floors and curtain systems

Walls and roofs

The following types must be used:

- Floors: Steel Bar Joist 14" – VCT on Concrete
- Curtain Systems: 5 x 10
- Walls: Basic Wall: Exterior Brick on Mtl. Stud with the Location Line set to Wall Centerline when placed.
- Roofs: Basic Roof: Generic - 9" with the Picked Faces Location set to be Faces at Bottom of Roof

2. Add mullions to all the curtain systems using the 2.5 x 5 Rectangular mullion type.
3. Save a copy of the project at the end of this task and name it **Model by Face-Task 2 Complete.rvt**.

Task 3: Update mass and model objects

1. Select and edit the mass family instance parameters.

   o Set parameter H1 to 35 ft.
   o Set parameter H2 to 12 ft.

2. Update the model by face objects to match the mass family.
3. Save the project as **Model by Face-Task 3 Complete.rvt**.

This exercise should be completed in 25 minutes

Assessment Criteria

The completed exercise is available for comparison in the file **Model by Face Task 2 Finished.rvt** for tasks 1 and 2. For task 3 see file **Model by Face-Task 3 Finished.rvt**.

Task 1: Place mass and create mass floors (20% - 10% for each point below)

- The mass family is already loaded into the project, so the student must use the place mass tool to place the family. It should be located withing the elevation markers in the plan view and be visible in the Exterior Ortho and Exterior perspective views.
- Mass floors should be created at Levels 1, 2, 3, 4, and 5.

Task 2: Apply Model by Face objects (60% - 12% for each point below, 8% for the object placement, 4% for the correct type)

- Floors must be created using the Floor by Face tool applied to the mass floors and be the Steel Bar Joist 14" – VCT on Concrete floor type.
- Curtain Systems must be on the 4 curved faces as shown in the image above. The 5 x 10 curtain system type must be used.
- Mullions must be assigned to the curtain systems. They must be the 2.5 x 5 Rectangular mullion type. It has not been specified whether the mullions are assigned via the curtain system type properties or using the mullion tool. Either method is acceptable.
- Walls must be created using the Wall by Face tool and must be the Brick on Mtl. Stud wall type. The Location Line must be set to Wall Centerline when placed. This can be checked by

looking at the position of the mass faces relative to the wall, which should be in the center of the wall. If the location line has been changed after placement, the mass face will not be at the center of the wall.

- Generic 9" roof types must be created using the Roof by Face tool with the Picked Faces Location set to be Faces at Bottom of Roof. This can be changed after placement.

Task 3: Update mass and model objects (20% – 10% for each point below)

- The mass family has instance parameters to change the height of the family.

  o Parameter H1 must be set to 35 ft.
  o Parameter H2 must be set to 12 ft.

- The Model by Face objects must be updated to match the faces on the edited mass.