



**Andhra Pradesh State Skill
Development Corporation**



Extended Three-Dimensional Analysis of Building System

ETABS

Edit Tools Part - IV

EDIT TOOL-4

Objective

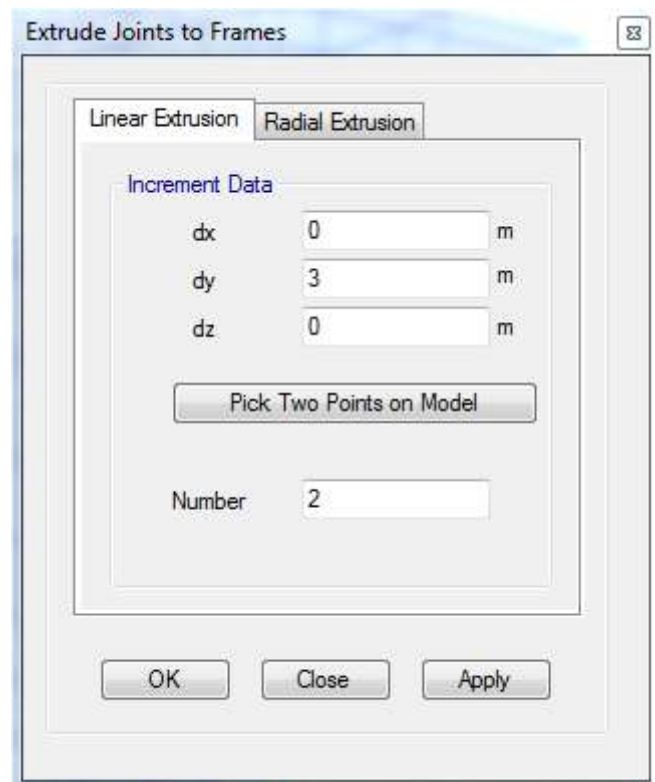
This chapter contains an explanation on Tools in EDIT Menu.

The EDIT menu contains various editing tools among those some of the edit tools are as listed below.

Extrude Joints to Frames

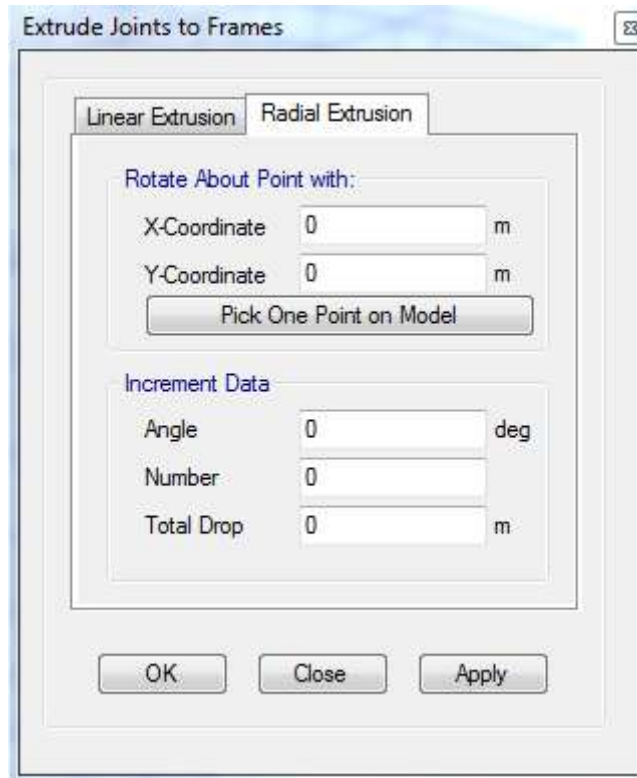
Use the **Extrude Joints to Frames** form to create a frame object from a joint object.

1. Select the joint to be transformed into a frame.
2. Click the **Edit menu > Extrude > Extrude Joints to Frames** command to bring up the Extrude Joints to Frames form.
3. On the **Extrude Joints to Frames** form, enter values on the Linear Extrusion or Radial Extrusion tab to create a frame from a joint. The process of extrusion increases the dimensional space of an existing object by one. In other words, frame objects are of one dimension that can be generated from a dimensionless object, the joint object. This feature is especially suited to creating beams/columns from joint/nodes.
 - **Linear Extrusion.** For linear extrusion, specify the increment distance along the X-axis (dx), the increment distance along the Y-axis (dy), the increment distance along the Z-axis (dz), or click the Pick Two Points on Model button and then click on the model; note that values full the dx, dy, and dz edit boxes reflecting the points clicked on the model. Specify the number of times the object is to be extruded. The object is then extruded the specified number of times, each time incrementing the global X, Y, and Z coordinates by the specified dx, dy, and dz.



- **Radial Extrusion.** A typical use of this type of extrusion is to generate a cylindrical surface from radial extrusion of a single line about the central axis of the cylinder. For radial extrusion, specify a point to rotate about (the rotation is in

the global X-Y plane about the global Z-axis), or click the Point One Point on Model button and then click on the model; note that values will fill the X-Coordinate and Y-Coordinate edit boxes on the form reflecting the points clicked. Then specify a rotation angle and a number of times the object is to be extruded. The object is then extruded the specified number of times, each time incrementing the location of the objects by the specified rotation angle. The rotation angle is input in degrees. Angles are measured from the positive global X-axis. Positive angles appear counter clockwise when viewed from above. The **Total Drop** is the difference between the Z elevations of the first and last joints of the extruded line.



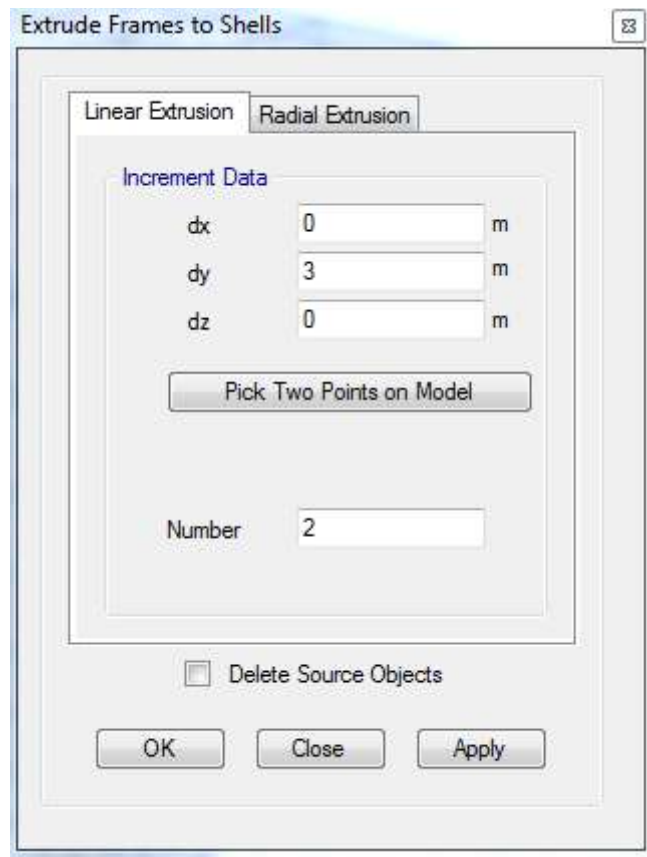
The dialog box titled "Extrude Joints to Frames" has two tabs: "Linear Extrusion" and "Radial Extrusion". The "Radial Extrusion" tab is selected. Inside the dialog, there is a section "Rotate About Point with:" containing "X-Coordinate" and "Y-Coordinate" fields, both set to "0" with a unit of "m". Below this is a button "Pick One Point on Model". Another section "Increment Data" contains "Angle" (set to "0" with a unit of "deg"), "Number" (set to "0"), and "Total Drop" (set to "0" with a unit of "m"). At the bottom are "OK", "Close", and "Apply" buttons.

4. Click the Apply button to modify the model as specified on this form.

Extrude Frames to Shells

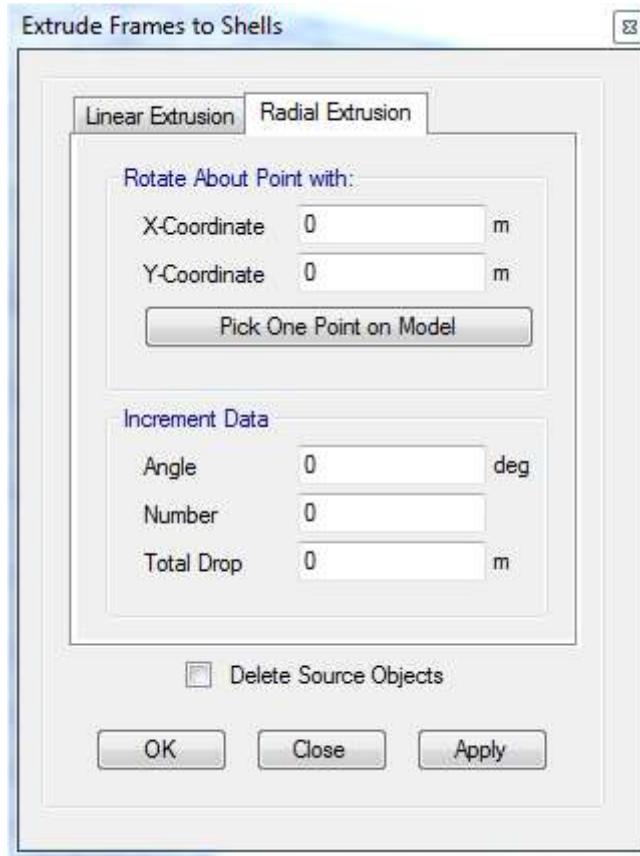
Use the **Extrude Frames to Shells** form to create a shell object from a frame object.

1. Select the frame to be transformed into a shell.
2. Click the **Edit menu > Extrude > Extrude Frames to Shells** command to bring up the **Extrude Frames to Shells** form.
3. On the **Extrude Frames to Shells** form, enter values on the **Linear Extrusion or Radial Extrusion tab**. The process of extrusion increases the dimensional space of an existing object by one. In other words, a two-dimensional object, shell, can be generated from a one-dimensional object, the frame object. This feature is especially suited to creating shell elements from beams.
 - o **Linear Extrusion.** Specify the increment distance along the X-axis (dx), the increment distance along the Y-axis (dy), the increment distance along the Z-axis (dz), or click the Pick Two Points on Model button and then click on the model; note that values fill the dx, dy, and dz edit boxes reflecting the points clicked on the model. Specify the number of times the object is to be extruded. The object is then extruded the specified number of times, each time incrementing the global X, Y, and Z coordinates by the specified dx, dy, and dz.



1. **Radial Extrusion.** A typical use of this type of extrusion is to generate a cylindrical surface from radial extrusion of a single line about the central axis of the cylinder. For radial extrusion, specify a point to rotate about (the rotation is in the global X-Y plane about the global Z-axis), or click the Point One Point on Model button and then click on the model; note that values will fill the *X-Coordinate* and *Y-Coordinate* edit boxes on the form reflecting the points clicked. Then specify a rotation angle and a number of times the object is to be extruded. The object is then extruded the specified number of times, each time incrementing the location of the objects by the specified rotation angle. The rotation angle is input in degrees. Angles are measured from the positive global X-axis. Positive angles appear counter clockwise when you view them from above.

The **total drop** is the difference between the Z elevations of the frame and the extruded shell.



The image shows a software dialog box titled "Extrude Frames to Shells". It has two tabs: "Linear Extrusion" and "Radial Extrusion". The "Radial Extrusion" tab is selected. Inside the dialog, there is a section "Rotate About Point with:" containing input fields for "X-Coordinate" (0 m) and "Y-Coordinate" (0 m), and a button "Pick One Point on Model". Below this is a section "Increment Data" with input fields for "Angle" (0 deg), "Number" (0), and "Total Drop" (0 m). At the bottom, there is a checkbox labeled "Delete Source Objects" which is currently unchecked. At the very bottom are three buttons: "OK", "Close", and "Apply".

A *Delete Source Objects* check box is provided on the **Extrude Frames to Shells** form. Checking this check box will delete the frame used to create the shell. Leaving the check box unchecked will keep the frame as well as the newly created shell.

4. Click the **Apply** button to modify the model as specified in form.