**33\_Assigning properties to lines**

In frame or line property assign we will cover basics of

Frame sections

Releases

End off sets

Stations

Local axis

And modifiers

Line elements are column beams and braces. A brace is an inclined member.

From assign menu or from this shortcut you can assign already defined frame sections to these lines. This action will assign them new section property and remove the previous property.

For example this beam is 200x600 and let's say we want to increase its depth to 800. We already have defined this beam in section properties. If not we can define it first and then assign it from assign menu frame sections.

As discussed in previous lectures you can show beam names or labels from view options.

Similarly you select this column on plan view at this story or at all stories, or in an elevation and assign it column 500x500.

We can also assign none property to this beam by assigning it none from section list.

Next is the moment releases option for frames. You can either directly at the time of drawing lines as we discussed in previous lectures, or you can select that beam or column and assign releases. This is the shortcut for the releases. Here we will make this beam simply supported by releasing its moment in local axis 3. Of course you need to assign supports to beam ends as we discussed in previous lecture.

Local axis 3 is by default the major local axis about which this beam will bend under gravity loading in local axis 2. You can review basics of sign conventions from sign convention lecture in this course or take our more advanced course on analysis to cover in depth discussion and examples on complex topics like releasing partial moments by using these boxes.

From local axis option or from this shortcut you can rotate local axis of a beam or a column.

From this menu you can set end offsets or from this shortcut directly.

End offsets are the offsets from the end nodes of a beam or column where values of moment shear etc are reported. For example if this beam is framed into these 2 columns of 500mm square section, their end offsets will be calculated as 250mm from end i and j. This is the distance from center of 500mm column to face of the column. These offsets are determined automatically for beams framing into columns.

If a beam is resting on another beam ETABS will not consider its end offset. You may enter them manually from here.

We will discuss rigid zone factor in advance analysis course.

Frame output stations are the locations between end offsets of a beam or a column where ETABS designs for reinforcement. You can either put maximum number of stations or their spacing.

By default 3 stations are enough for regular loading and buildings but you might need to change them for example if you have a point load on a beam between end i and mid of the beam.

You can rotate local axis of frames from this option.

And finally the frame modifiers. This window is exactly the same we saw while defining sections.

You have options to either define modifiers here or at the time of defining individual sections but not both.

If you apply modifiers at both locations they will be multiplied together so always make sure you apply modifiers at one location only.

Many people choose to apply modifiers at the time of defining sections, others choose to apply here. It depends on your modeling techniques.

For example if you have not applied modifiers inside individual frame section properties you can select by element time for example select all beams and then click assign and then frame modifiers to apply modifiers to all of the beams instead of applying them individually inside frame section properties.

If you want to replace these modifiers you can replace by going back to assign menu and then frame modifiers and changing the values.

We will discuss what modifiers to apply for each application in advance analysis course.

These modifiers are factors on cross sectional properties of the sections. For example area of this section is 0.25m². If you apply a factor of 0.5 in its area, ETABS will consider only half of the gross area for analysis purposes.

We apply modifiers to change stiffness of various elements to take into account cracking effects.

These modifier concepts are same for shells including slabs and walls.