**42\_Reading frame results**

Frame results can be read after analysis from display menu and then clicking on show member forces and then click on frames or by directly click on this small arrow and then clicking on frame forces.

From this list you can select the appropriate load case or combination on which to read frame forces. Then select the type of force to display.

For example axial force, torsion, moments or shear.

There are then shear and moments in different directions for example in 2 or 3 local asis. One of them is called minor shear and the other one called major shear. Similar is the case for moments.

To review basic sign convention please see lecture in this course on sign convention.

You can also view inplane shear and moment by going to elevation view.

For example this view XZ and this window shows YZ elevation

Turn on local axis of lines. This is white color axis is the major axis for shear and shear force in 2 direction is called shear 2-2. This cyan color axis is 3-3 axis which is minor axis for shear. You can view them separately or by going to elevation view you can check the inplane shear in that plane directly.

You can show the force diagram either as filled or values on screen but not both at the same time.

Make sure you frame box is ticked here to show frame forces. We will talk about piers and spandrels in wall design lecture.

After clicking ok button you right click on frame diagrams to view more detailed information for example axial load in this column varies with distance. You can input any distance within element length to check value of axial force here.

For beam diagrams right clicking will bring up even more detailed diagrams.

For example this is the diagram of all the loads transferred to this beam. This should be same as we get from display menu by clicking on display loads and then on frames and then clicking on show tributary loads.

Next diagram is for major shear that is v2 or shear in 2 local axis, next is major moment or moment about 3 local axis.

These results are always in local axis and not in global axis. Next is the deflection diagram. Here you can change deflection relative to different references. For example relative to beam ends will give the net deflection at mid span.

From here you can select units in which you want to view the results.

This is the load case or combination in which you are viewing these results. You can change them from this list.

These are buttons to jump to ends of this beam. We discussed end offsets in previous lectures. I end is in this case is at the face of supporting column and j end is at the face of this column. Location of these ends are also reported.

Then you have options to either read the maximum values or scroll along the length of the beam.

Maximum values can be at different location for shear, moment and deflections. If you scroll for values you can either use this scrolling bar or put the location directly here.