Mixed models

Mixed Models

This section describes the procedure for setting up mixed models, in which SAP2000/Bridge objects and "regular" SAP2000 model co-exist in a single file. The most important thing to remember is that anything that was created by the bridge modeler will get updated when the linked model is updated. For certain types of updating operations, this may cause unexpected results related to the connectivity between the SAP2000/Bridge object and SAP2000 model. For example, changing a location of bent within the SAP2000/Bridge object by providing new station for the bent, may move the bent to a location where it no longer correctly meshes with the SAP2000 model of the substructure that was created manually.

Therefore, for mixed models, we typically recommend to update the linked model only after the modeling has been fully finalized. For certain types of models, you may also consider developing the SAP2000/Bridge object and the SAP2000 model in **separate files** and merge them prior to the final analysis. This way you do not need to worry about the connectivity problems each time the SAP2000/Bridge object is updated.

One example would be modeling a special type of bent that is not available in SAP2000/Bridge. In this case, you could define the SAP2000/Bridge object to use one of the available bent types such that it will have similar properties to the bents or substructure you define manually. This will enable you to run the analysis and obtain preliminary results. Once you are ready to merge the SAP2000/Bridge object file and the SAP2000 file, you would simply remove the bents in the SAP2000/Bridge object that would get replaced by the SAP2000 model bents. Once the models are merged into a single file, the final step would be to manually define the connectivity between the SAP2000/Bridge object and the SAP2000 model.

Obviously, you do not want to be repeatedly manually creating this connectivity each time you merge the files. Therefore, as suggested earlier, we would recommend to merge the files only for final analysis, after the modeling is as complete as possible.

Why Mixed Models

Mixed models are typically used to apply model features that is currently not available in the SAP2000 bridge object. Typical examples include (as of V14.2.0):

- Modeling a special type of bent.
- Modeling custom bearing layout (by default, the program places one bearing under each web).
- Applying special types of loads to the bridge object - breaking forces, settlement of support, etc.

We gradually plan to enhance the parametric bridge model definition so that the need for "manual interventions" is minimized as much as possible.