



Altair

HyperWorks

HM-3650: Creating Shapes Using Record

Model Files

This exercise uses the `floor.hm` file, which can be found in the `hm.zip` file. Copy the file(s) from this directory to your working directory.

Exercise: Recording Shapes

The **Record** panel gives you the flexibility of making changes to the mesh using panels outside the HyperMorph module and saving them as shapes.

In this exercise you will change a bead using the **Node Edit > align node** subpanel and record the shape function. You will then reflect the shape to the other side of the mesh to complete the mesh update.

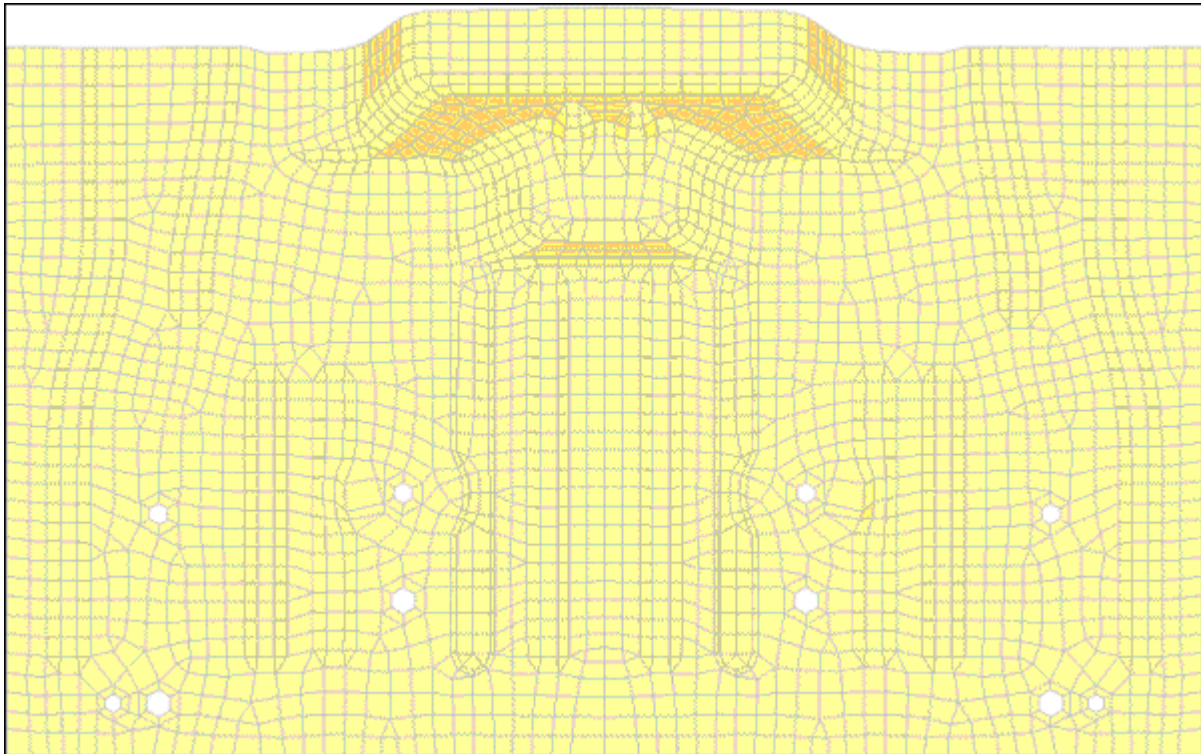


Figure 1: Location to record the nodal movements on and reflect

Step 1: Load and review the model.

Open the HyperMesh file `floor.hm`.

Step 2: Start recording nodal movements.

1. From the menu bar select **Morphing** > **Free Hand**, then select the **record** subpanel.
2. Click **start**.
3. Click **return**.

Step 3: Change the bead profile.

1. From the menu bar, select **Geometry** > **Edit** > **Nodes** > **Align** to enter the **align node** subpanel.
2. Select the nodes shown below for the **1st end** and **2nd end**.

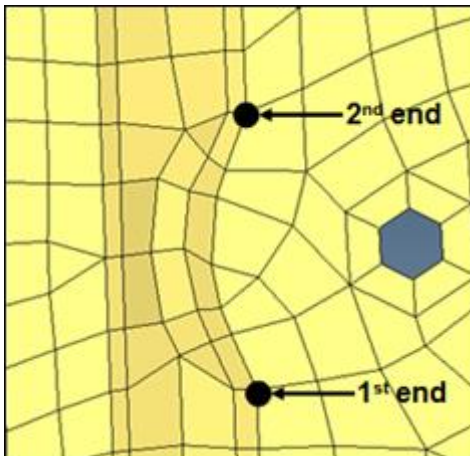


Figure 2: first set of nodes to align

3. Select the nodes between the selected nodes to align the nodes to the **1st end:** and **2nd end:** nodes.
4. Repeat the same process to align the next row of nodes (figure 3).

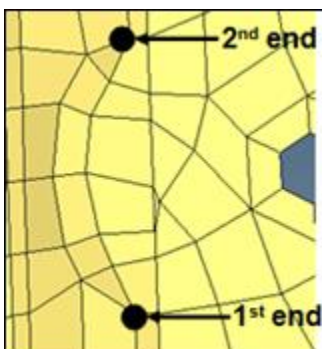


Figure 3: Second set of nodes to align

5. Select the nodes between the selected nodes to align the nodes to the 1st end and 2nd end nodes.

- Repeat the same process to align the next row of nodes (figure 4).

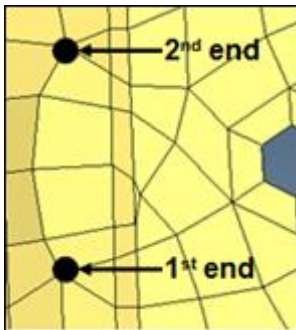


Figure 4: Third set of nodes to align

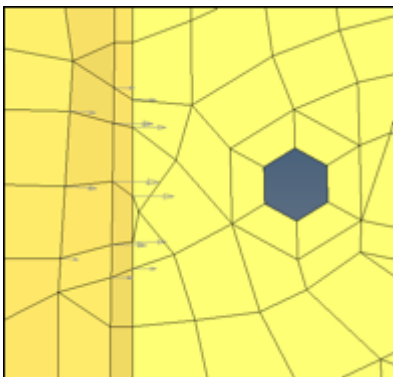
- Click **return** to exit the panel.

Step 4: Stop the recording.

- From the menu bar select **Morphing > Free Hand**, then select the **record** subpanel.
- Click **finish**.
This stops the record process.

Step 5: Save the morphed shape.

- Go to the **save shape** subpanel.
- Set name= Morph1.
- Toggle save option to **as node perturbations**.
- Click **save**.



- Click **undo all** to bring the model to its original position before morphing.

Step 6: Create coordinate system.

1. From the menu bar select **Geometry > Create > Systems > Axis Direction**.

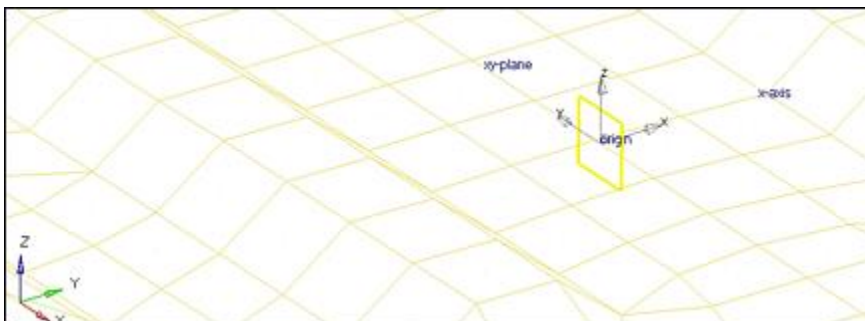


2. For **origin** select the node with tag `origin`.
 - For **x-axis** select the node with tag `x-axis`.
 - For **xy-plane** select the node with tag `xy-plane`.
3. Click **create**.
4. Click **return** to exit the panel.

Step 7: Create symmetry.

1. From the menu bar select **Morphing > Create > Symmetries**.
2. Set **name** = `symm1`.
3. For symmetry type use **1 plane**.
4. For **align with** use **x-axis**.
5. Select the **syst** created in step 6.
6. Click **create**.

Note that **1 plane** symmetry is created with a square symbol.
7. Click **return** to exit the panel.



Step 8: Reflect shape.

1. From the menu bar select **Morphing > Create > Shapes**, then select the **apply shapes** subpanel.
2. Under **shape** change the option to **reflect shapes**.
3. Under **reflect shapes** change the option to **apply & create**.
4. For **shape**, select **Morph1**.
5. For **symmetries**, select **symm1**.
6. Click **reflect**.

Summary

The shape (**Morph1**) is reflected to the other side. Also, the reflected shape has the same name with the suffix 1. The changes that you made on one side are thus transferred to the other side.