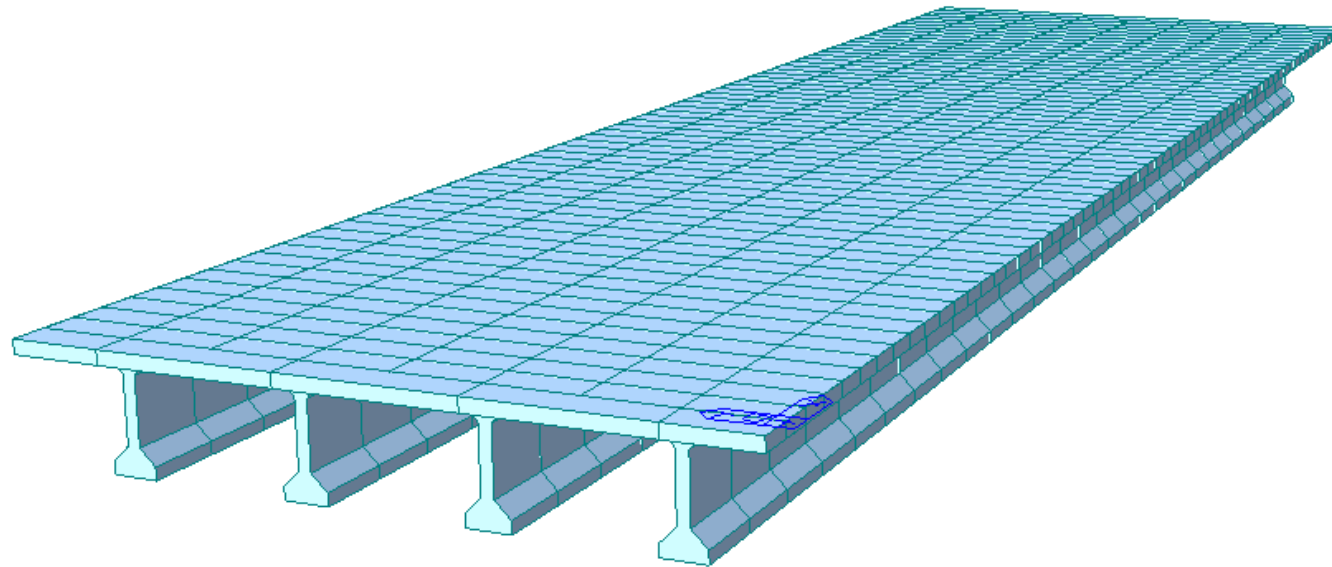# midas Civil Learning

Season 1

Episode 4

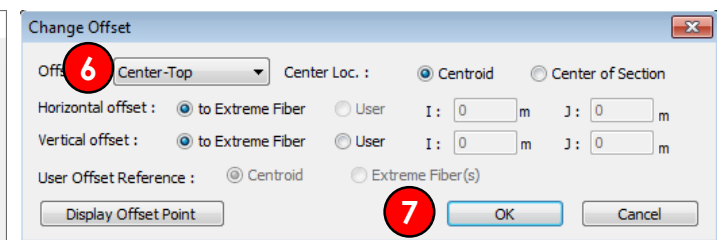**Does Section Offset Matter?**
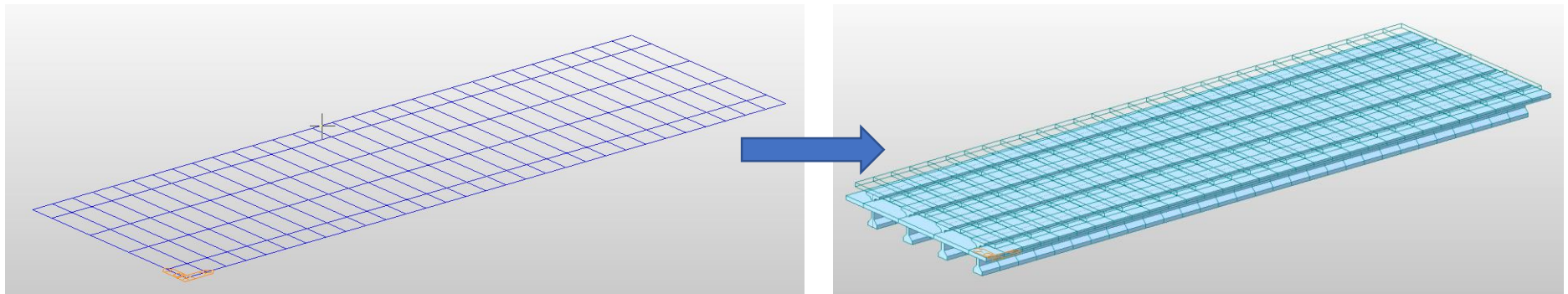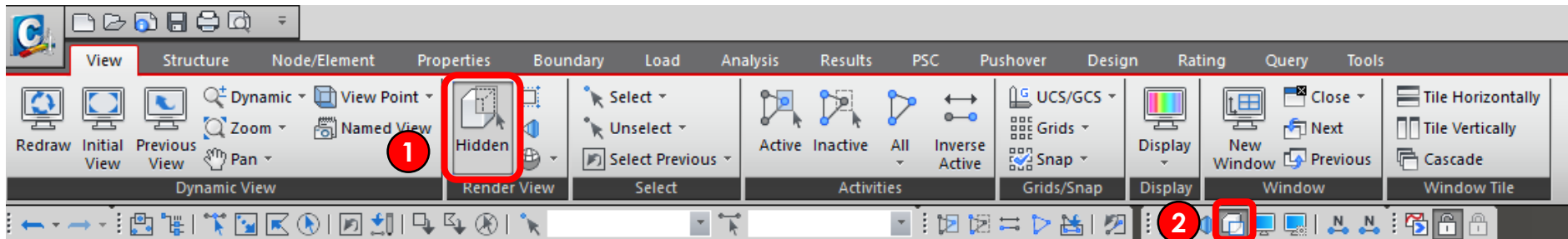
1. Click **Hidden** from main menu
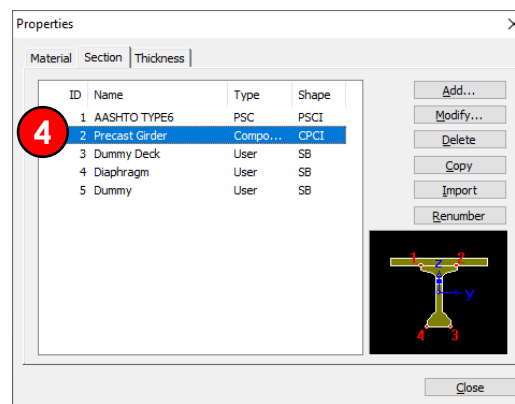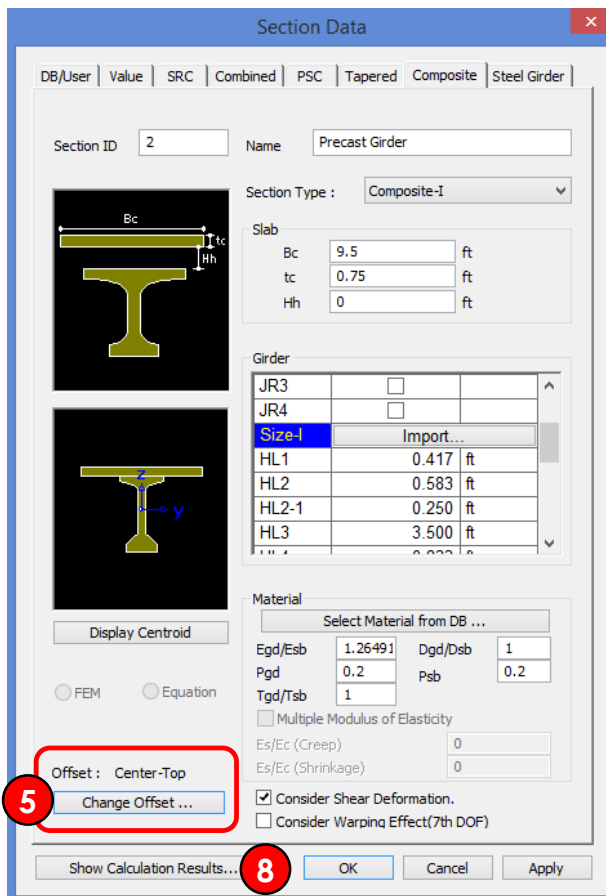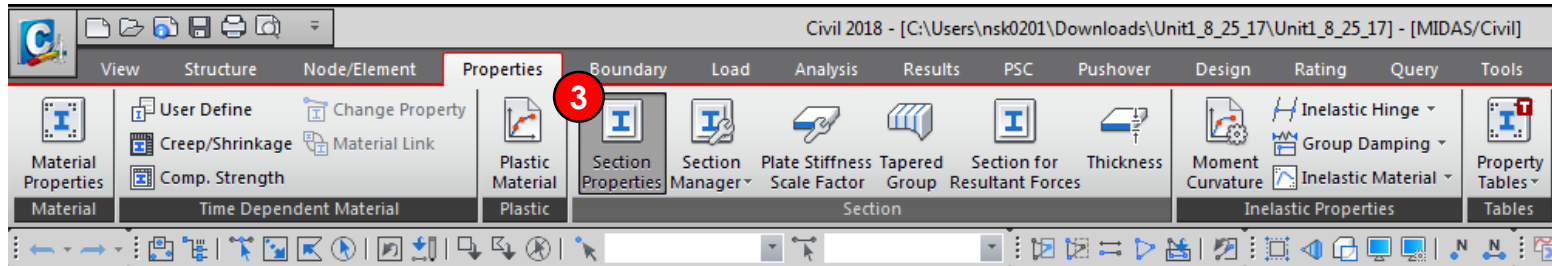2. Or click **Hidden icon** from quick access tab

WHY are we clicking Hidden icons?

Hidden icons will allow you to switch between views of the model that reflects section properties and the model with plain nodes and elements.

In Episode 4, we will work on section offsets. Therefore, we need to see the section properties reflected model to understand the section offset change in the model.
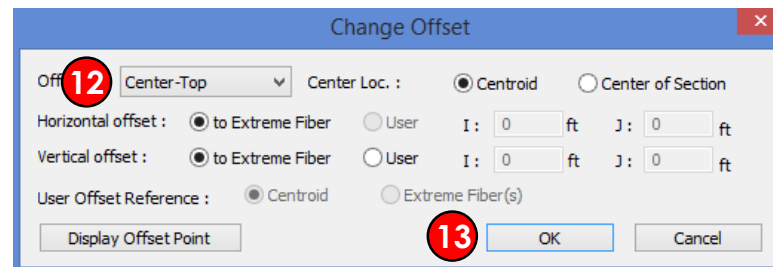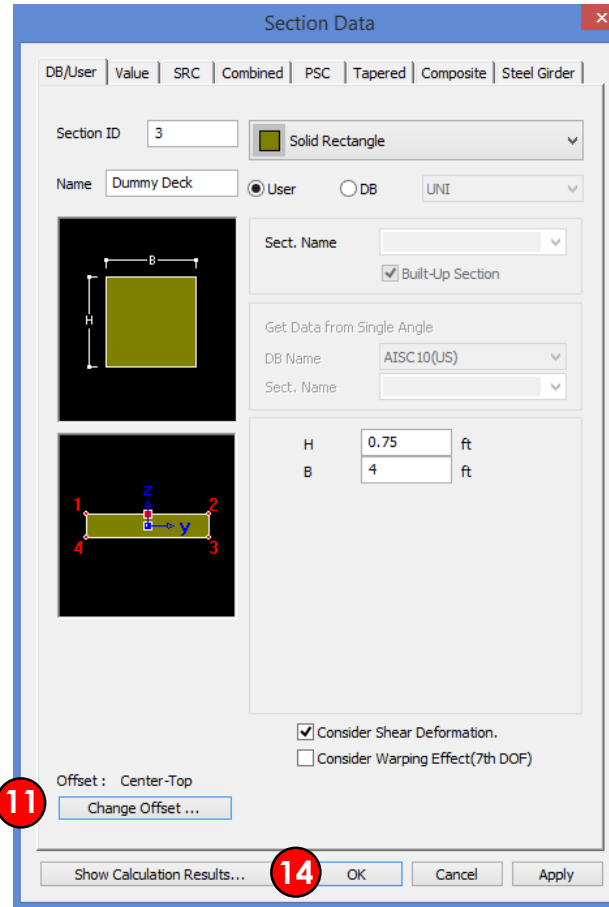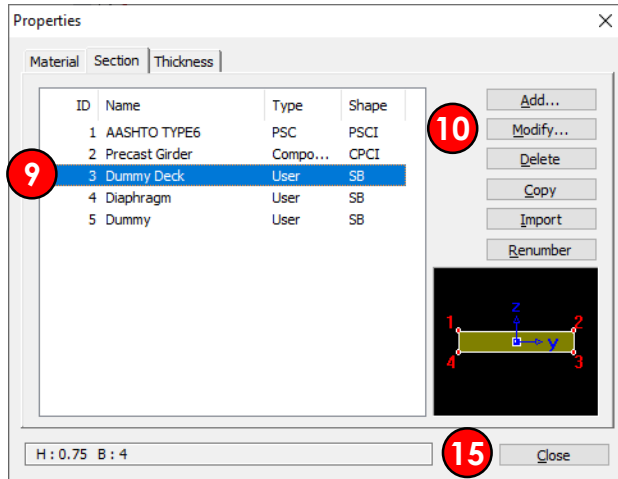
3. Click **Section Properties** from main menu

4. Double click **2: Precast Girder**

5. Click **Change Offset…**

6. Choose **Center-Top** from drop box menu

7. Click **Okay**

8. Click **Okay**

WHEN do we usually need to consider section offset?

Especially when you work on:

- Diaphragm Modeling

- Segmental Bridges (Tapered Section)

- Composite Girders

9. Click **2: Precast Girder**

10. Click **Modify**

11. Click **Change Offset…**

12. Choose **Center-Top** from drop box menu

13. Click **Okay**

14. Click **Okay**

15. Click **Close**

Does change in section offset alter results?

Yes. If you change section offsets, the visual presentation will be changed as well as the analysis/design results. However, the location of the centroid of the section will remain as a default.

Changing in section offset will affect how the loading is applied in the section or to the beam element itself.

Check our Q&A Forum for more about section offset!

http://globalsupport.midasuser.com/helpdesk/KB/View/20438996-section-offset-in-midas-civil

http://globalsupport.midasuser.com/helpdesk/KB/View/13248320-composite-section-beam-diagram

16. Right click **4: Diaphragm** from Tree menu
17. Click **Properties**
18. Click **Change Offset…**
19. Choose **Center-Top** from drop box menu
20. Click **Okay**
21. Click **Okay**

WHY do we select section from Tree menu this time?

It will give you the same result. But we are trying it in a different way to provide you with more options to access section properties.

WHAT is midas Civil's internal process of section offset?

A beam element is defined by two nodes and a line connecting the two nodes. This line becomes a reference line representing the beam element, which usually coincides with the neutral axis of the beam element.

If a section offset is assigned to a section, the neutral axis of the member shifts by the specified offset distance, and the element reference line is placed at the offset location. The reference line is used for selecting the element, assigning loads, displaying member forces, etc. The offset of the neutral axis of the member relative to the reference line in turn is reflected in analysis as shown in the figure below.

Node — representative line — (a) Frame view

Node — representative line — Node — Neutral axis — Offset distance — Section offset: Center-Top — (b) Hidden View

rigid link — rigid link — Neutral axis of the element — (c) Analysis Model