midas Civil Learning

Season 1

Episode 6

**Do You Prefer Writing Over Drawing?**

midas Civil

Why is it important to know the manual way to create a bridge when various wizards are available?

Various wizards will give you quick, easy, and simple guides/templates to model bridges. However, not every bridge fits into the wizards' template. In that case, you need to use other available options that midas Civil provides:

1. Graphic Interface (creating nodes & elements)

2. Importing CAD Files (dxf files)

3. Table Format

4. Text Format

Of course, you can combine multiple different ways to build a model, like using a wizard and graphic interface together. You can create a model that looks similar to the bridge using wizards, and then you can modify nodes/elements for minor differences. Today, we will practice creating a construction sequence using midas Civil Text (MCT) tool, so you can manually build or modify your model using text inputs.
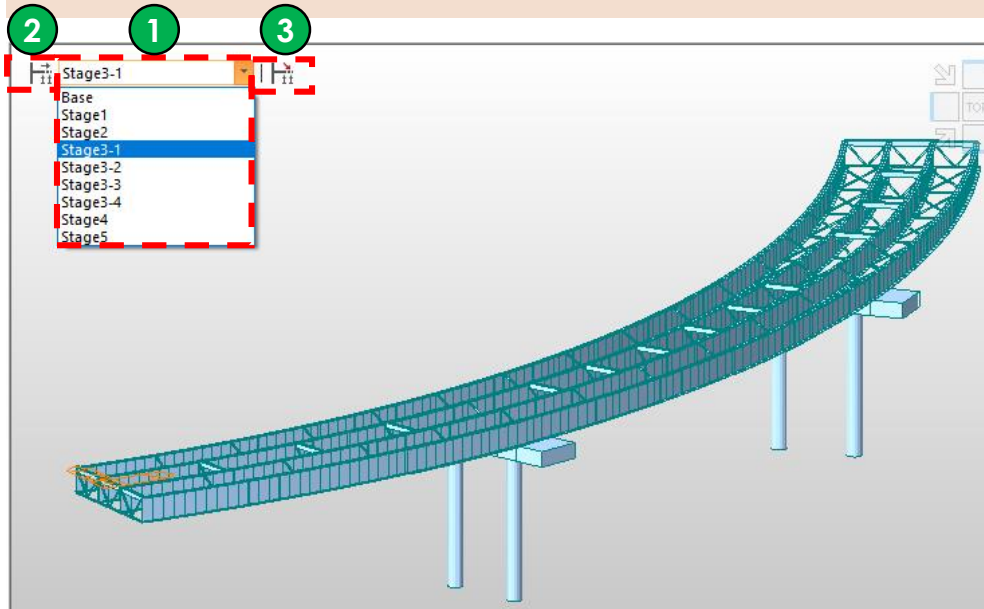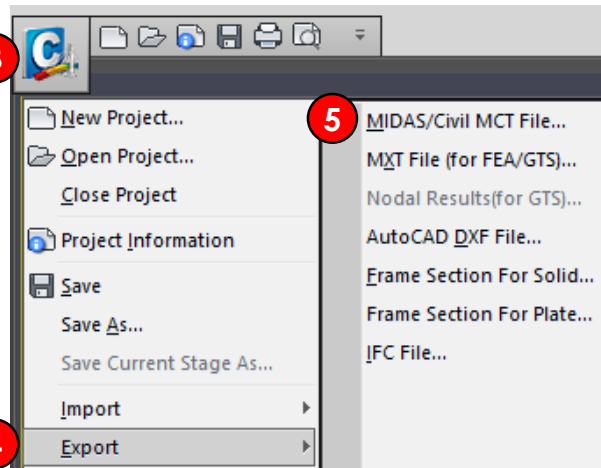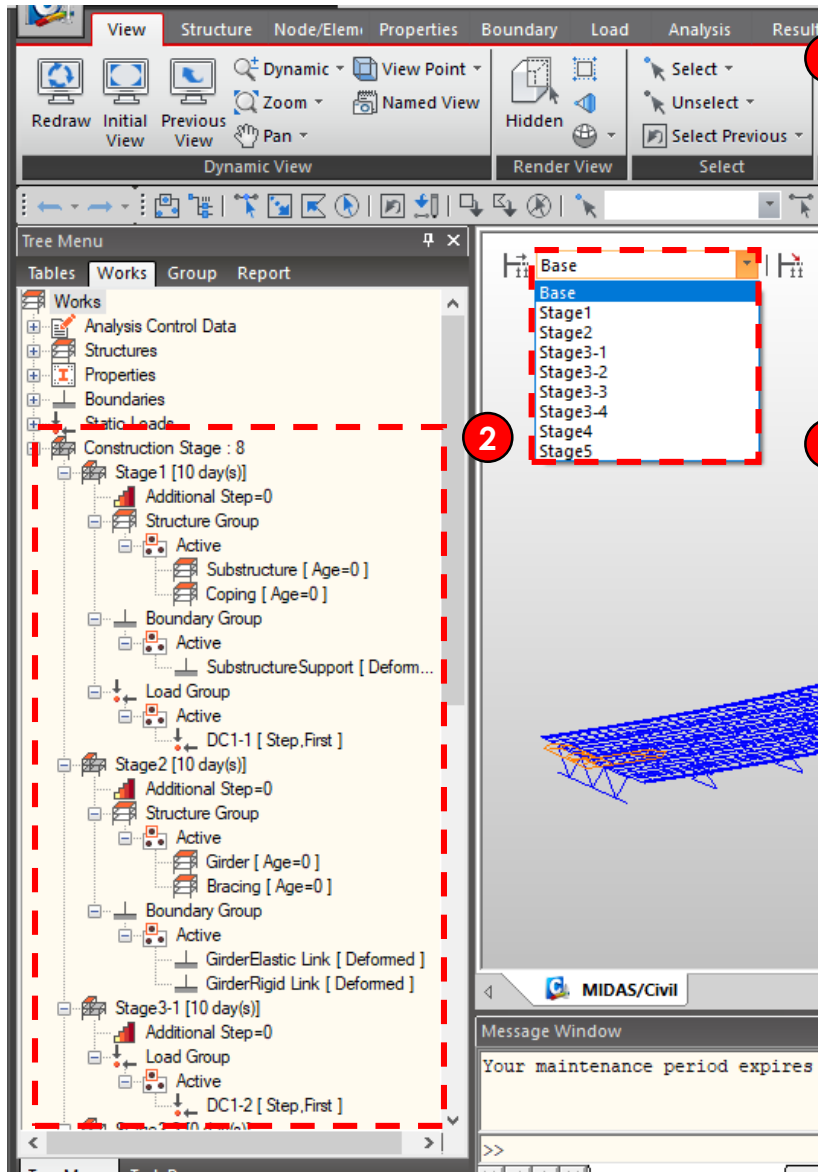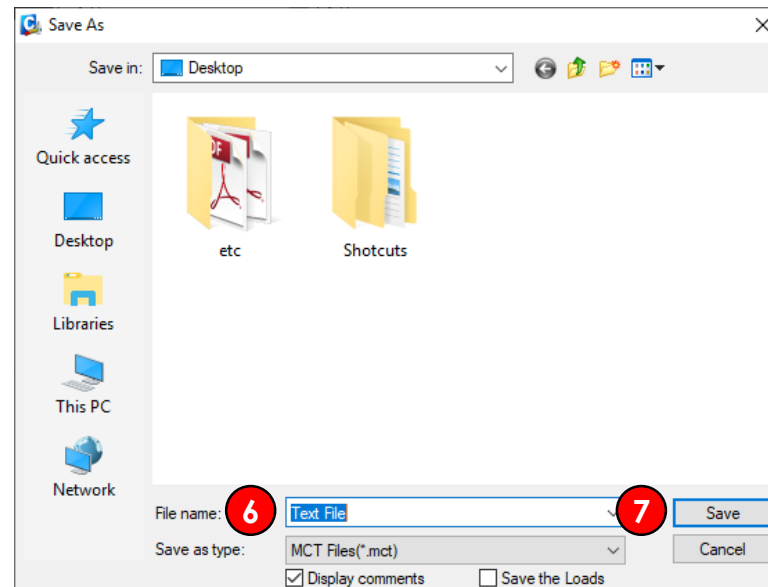

Did you know?

On the left top corner of the model view, there is a quick toolbar for the construction sequence.

1. Using the drop box, you can easily change the model view to the specific construction stage.

2. Using the icon, you can add, delete, and modify construction sequence inputs

3. Using the icon, you can add, delete, and modify composite section reactions for each different construction stages

1. Open **Base Model** file
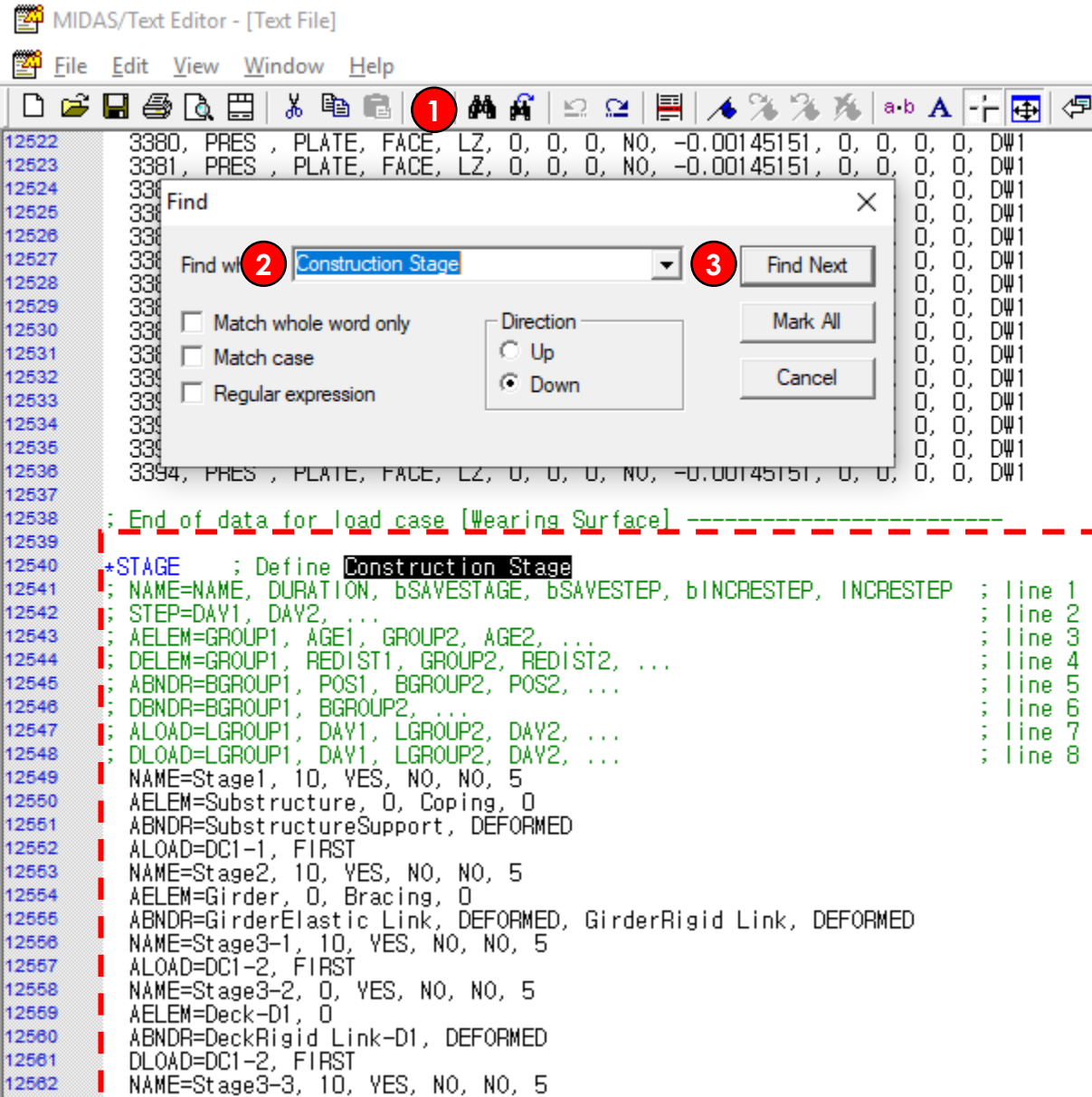
2. Review construction sequences of this file before we import the sequence to the other file

3. Click **midas Civil icon**

4. Go to **Export**

5. Click **MIDAS/Civil MCT File…**

6. Write File name as **Text File**

7. Click **Save**

You should have a text file that looks like the picture

1. Click **Find** icon

2. Type **Construction Stage** for Find what

3. Click **Find** Next

In what situation does using MCT command become more handy? (1)

Anyone familiar with creating the node/element information in an excel or text format and importing the data to an analysis program would find MCT beneficial. MCT is particularly more useful for big projects such as cable bridges and segmental bridges, which require a lot of repetitive tasks for defining numerous construction stages and cable optimization. GUI is handy, too; however, MCT can save time and increase productivity by allowing the definition of multiple construction stages, groups, and other associated components at once.

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```
12534      3392, PRES , PLATE, FACE, LZ, 0, 0, 0, NO, -0.00145151, 0, 0, 0, 0, DW1
12535      3393, PRES , PLATE, FACE, LZ, 0, 0, 0, NO, -0.00145151, 0, 0, 0, 0, DW1
12536      3394, PRES , PLATE, FACE, LZ, 0, 0, 0, NO, -0.00145151, 0, 0, 0, 0, DW1
12537
12538    ; End of data for load case [Wearing Surface] ------------------------
12539
12540    *STAGE     ; Define Construction Stage
12541    ; NAME=NAME, DURATION, bSAVESTAGE, bSAVESTEP, bINCRESTEP, INCRESTEP   ; line 1
12542    ; STEP=DAY1, DAY2, ...                                               ; line 2
12543    ; AELEM=GROUP1, AGE1, GROUP2, AGE2, ...                              ; line 3
12544    ; DELEM=GROUP1, REDIST1, GROUP2, REDIST2, ...                        ; line 4
12545    ; ABNDR=BGROUP1, POS1, BGROUP2, POS2, ...                            ; line 5
12546    ; DBNDR=BGROUP1, BGROUP2, ...                                        ; line 6
12547    ; ALOAD=LGROUP1, DAY1, LGROUP2, DAY2, ...                            ; line 7
12548    ; DLOAD=LGROUP1, DAY1, LGROUP2, DAY2, ...                            ; 8
12549      NAME=Stage1, 10, YES, NO, NO, 5
12550      AELEM=Substructure, 0, Coping, 0
12551      ABNDR=SubstructureSupport, DEFORMED
12552      ALOAD=DC1-1, FIRST
12553      NAME=Stage2, 10, YES, NO, NO, 5
12554      AELEM=Girder, 0, Bracing, 0
12555      ABNDR=GirderElastic Link, DEFORMED, GirderRigid L
12556      NAME=Stage3-1, 10, YES, NO, NO, 5
12557      ALOAD=DC1-2, FIRST
12558      NAME=Stage3-2, 0, YES, NO, NO, 5
12559      AELEM=Deck-D1, 0
12560      ABNDR=DeckRigid Link-D1, DEFORMED
12561      DLOAD=DC1-2, FIRST
12562      NAME=Stage3-3, 10, YES, NO, NO, 5
12563      ALOAD=DC1-3, FIRST
12564      NAME=Stage3-4, 0, YES, NO, NO, 5
12565      AELEM=Deck-D2, 0
12566      ABNDR=DeckRigid Link-D2, DEFORMED
12567      DLOAD=DC1-3, FIRST
12568      NAME=Stage4, 10, YES, NO, NO, 5
12569      ALOAD=DC2-1, FIRST, DW1, FIRST
12570      NAME=Stage5, 10000, YES, NO, NO, 5
12571
12572
12573    *STAGE-COLOR    ; Diagram Color for Construction Stage
12574    ; STAGENAME, iR(COLOR), iG(COLOR), iB(COLOR)
```

Context menu:
| Undo | Ctrl+Z |
Redo	Ctrl+Y
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Select All	Ctrl+A

1. Copy the parts that are highlighted in black in the picture
   (from line 12540 to 12570)

2. Right click and click **Copy**

3. Close the text file

In what situation does using MCT command become more handy? (2)

For example, boundary groups are easy to set up using the GUI since the table definition is possible. However, a basic group setting is challenging and can be time-consuming since an element and node can belong to multiple structural groups and, therefore, cannot be specified in a table format. Another example is when elements are linearly defined; it is easy to form a group or traffic lanes; however, when elements are not linearly defined, it is not easy to define groups, traffic lanes, or other modeling components associated with the geometry.
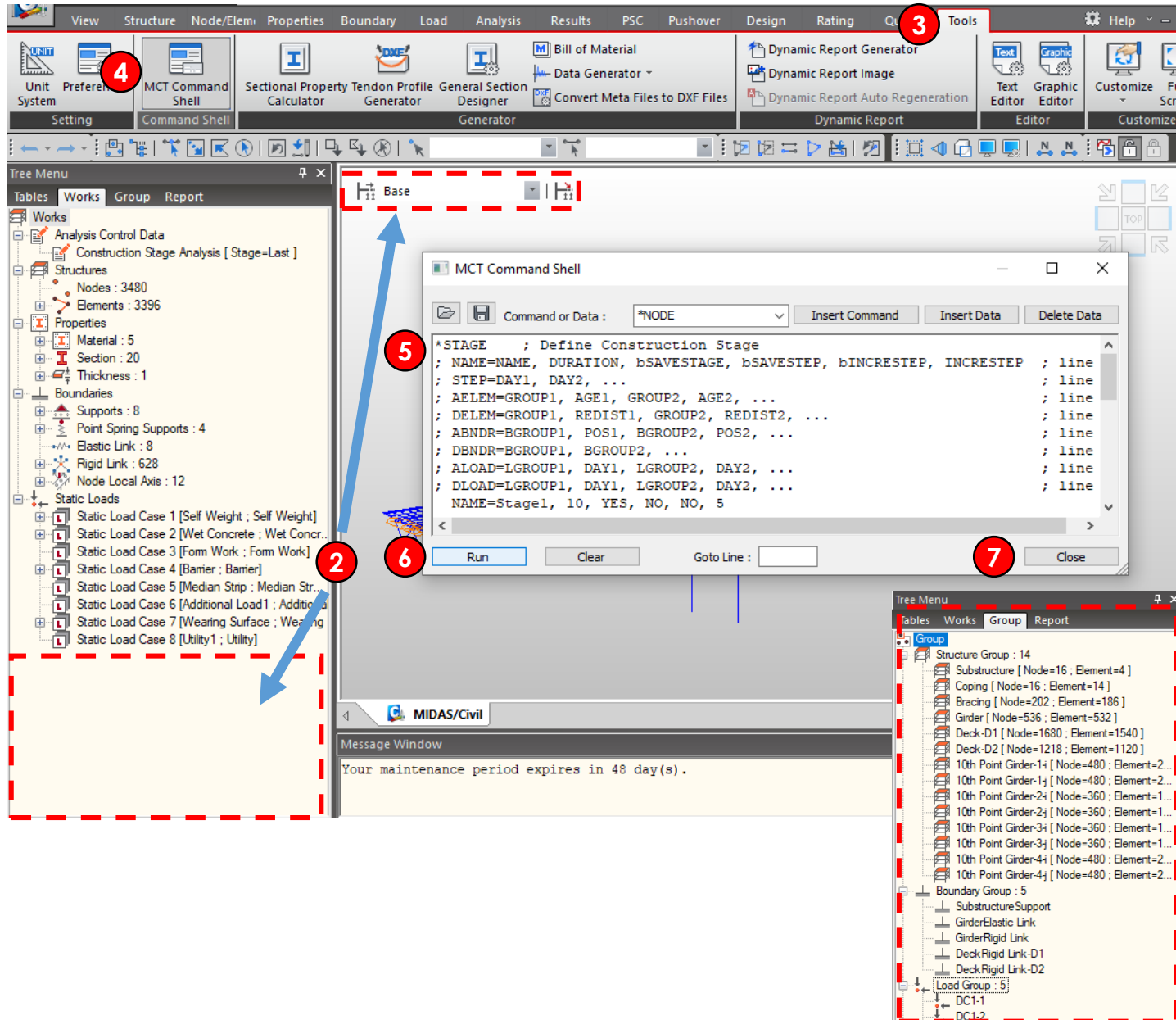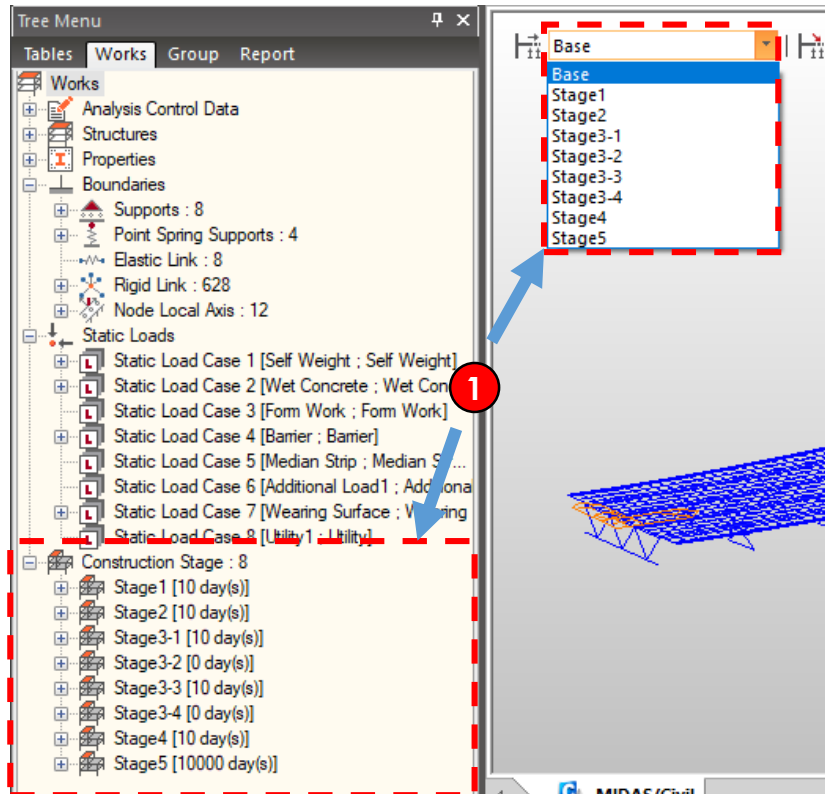
1. Open the file **Base Model No CS**

2. Check make sure you do not have any construction sequence by reviewing **tree menu** and **Construction Sequence quick bar**

3. Go to **Tools** tab

4. Click **MCT Command Shell**

5. Paste the copied information into the blank page

6. Click **Run**

7. Click **Close**

Please check before you input construction sequence using MCT Command Shell!

To run the construction sequence using MCT Command Shell, you need to check groups first because the construction sequence can be activated and deactivated based on groups you define.

Therefore, if you copy sequences from other files, you also need to copy groups

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1. Check **tree menu** and **Construction Sequence quick bar** to make sure all stages are inputted successfully

2. Save the file and submit the file (**Base Model No CS**)