Corrugated Cardboard to Shell V1.0

User Manual

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Introduction

Corrugated Cardboard to Shell is a Python script for homogenization of corrugated cardboard running on Abaqus. The program outputs the ABDH matrix of a single-wall/double-wall/Triple-wall corrugated board, witch can be used with the “General Shell Section” of conventional shell in Abaqus.

How to use

1. **Edit the parameter of the script.**

Edit the region as Figure.1 shown. Recommended to edit using code editor or IDE. The meaning of variable names is explained by comments. The name and order of each ply is given by Figure.2. The largest flute defined as Flute 1. Noted that the script can not contain any Chinese or other non-ASCII character.

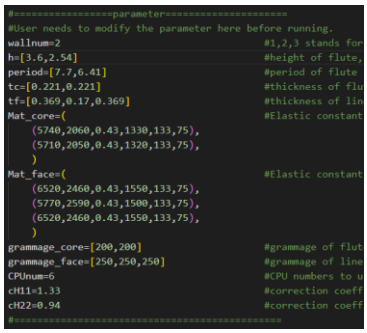

Figure.1 Parameter

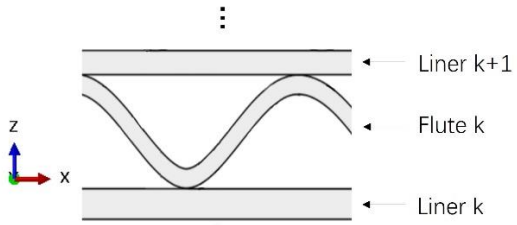

Figure.2 Order of liners and flutes

2. **Open Abaqus CAE and choose a work directory**

All files generated in the program will be in the work directory. An empty directory is recommended for the first run.

3. **Create a new Model Database**

If there has been a model existing or the script has been run for a time, a new Model Database is needed to clear all the operations before(see Figure.3), otherwise errors will be reported. The models generated by the program are not necessary to save as “.cae” files.

4. **Run script**

See Fiure.4 to run the script. It doesn't matter which folder the script is placed in, but it's recommended to place it under the work directory.

5. **Wait for result**

The result is written to file ”ABDH_Matrix.txt”.

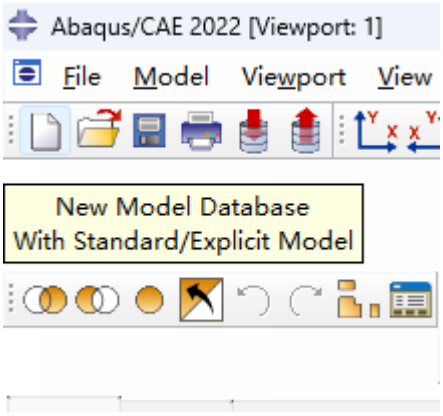

Figure.3 open a new model database

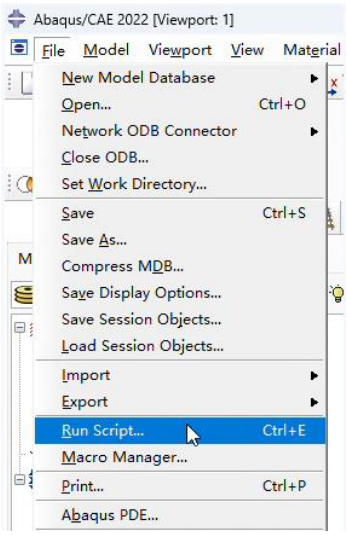

Figure.4 run script

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