

<Update record>

From v4.02 onwards, the Appendix 1 concerned with cancellation of unbalanced force vector is added.

From v4.03 onwards, an elastoplastic incremental analysis of a frame containing brittle members can be performed.

From v4.05 onwards, specification of how to estimate the internal force vector of a frame is possible (Appendix 2).

From v5.00 onwards, input of the post-yield non-dimensional strain hardening coefficient of the steel fiber is possible (the form of input data is slightly changed).

From v5.10 onwards, output data increase and the relative additional input data are required.

1. The computation begins by double-clicking 'frame-s-2d.bat'. Simultaneously, a command prompt window opens to show the status of computation. When the computation is completed or any error is detected during the computation, the command prompt window closes and four output files, 's6.txt', 's7.txt', 's8.txt' and 's9.txt', are created. The contents of each output file are as follows:

s6.txt: confirmation of input data and the results for the initial loads

s7.txt: load-displacement relationships (four pairs of load and displacement)

s8.txt: yielded elements, and yielded nodes and connections

s9.txt: resultant forces of each element at important points of loading

Input data file can be changed by editing the batch file 'frame-s-2d.bat'.

2. The following are attached: the input data files for quasi-static analysis of the plane frame in Fig. 3 in Chapter 4, a quasi-static analysis of the PC beam with the cross section in Fig. 9-2. These files help the user to understand how to create the input data file and can be used as template. The names of the attached files with notes are as follows:

(1) Quasi-static analysis of the plane frame in Fig. 3 in Chapter 4

frame-s-2d-e.txt: one element approximation with the standard model.

frame-s-2d-sr-e.txt: same as the above except that the bending strength 200kNm is set to both beam-ends by using a semi-rigid function.

frame-s-2d-4div-e.txt: four element approximation with the standard model.
frame-s-2d-4div-sr-e.txt: same as the above except that the bending strength 200kNm is set to both beam-ends by using a semi-rigid function.
frame-s-2d-mod-e.txt: one element approximation with the modified model.
frame-s-2d-mod-sr-e.txt: same as the above except that the bending strength 200kNm is set to both beam-ends by using a semi-rigid function.

- (2) Quasi-static analysis of the PC beam of length 2.4m with the cross section in Fig. 9-2 in Chapter 5

pc-beam-s-2d-e.txt: beam is modeled by 6 elements using the standard model.

- (3) Quasi-static analysis of the two-bay two-story frame in Fig.a1 in Appendix 1

frame-s-2d-frac-4div-e.txt: four element approximation with the standard model.

- (4) Input data file for a quasi-static analysis of the 3D frame used in dynamic analysis by d64.exe (see FPHM-D folder) was added on March 22, 2023 (v5.02). The computation begins by double-clicking 'frame-s-3d.bat'.

frame-s-3d-mod-e.txt: one element approximation with the modified model

The meanings of characters in file name are as follows.

's': static, '2d': two-dimensional, '3d': three-dimensional, '4div': four element approximation for a member with the standard model, 'mod': 'modified model', 'sr': semi-rigid, 'frac': fracture, 'e': English version

3. The executable files 's64.exe' and 'ms64.exe' are capable of analyzing a frame model with 1200 nodes and 600 nodes, respectively.

4. The author shall not be responsible for any loss, damages and troubles caused by the use of FPHM program.

March 5, 2024