

NOTES ON StruCAD*3D TO SACS CONVERTER

1. Introduction

The StruCAD*3D TO SACS CONVERTER program can convert most common StruCAD*3D statements to SACS input lines. Some special StruCAD*3D statements may need to be converted manually.

The converter supplied is suitable for converting linear static and pile soil interaction (known as SSI in StruCAD*3D) models for general offshore steel structures.

2. Running the Converter

In the SACS executive under the Icon Bar area choose “Utilities”. Locate the Icon “Convert StruCAD*3D to SACS” and double click on this icon. A dialog window will be displayed to request the StruCAD*3D file name to be converted. Choose the StruCAD*3D file name then click “Open” and the program will be automatically executes the requested conversion.

3. Main files Generated During Conversion

Two (2) or three (3) files will be generated depending on if StruCAD*3D model file contains soil data or not. The converter will generate:

- I. **StruCADCConvert.Output**, this file will contain all the important messages during the process of conversion.
- II. **Sacinp.xxx**, assuming the original StruCAD*3D file name as file extension, this file is the corresponding SACS converted model file.
- III. **Psiinp.xxx** (if there is soil data in StruCAD*3D file), using the original StruCAD*3D file name as file extension, this file contains all the soil data information extracted from StruCAD*3D model file.

4. Before Conversion

With the available conversion capabilities a well-prepared StruCAD*3D model file can be easily converted into a fully compatible SACS input file. A well-prepared StruCAD*3D model file requires the following:

- I. If USER DEFINED UNITS are used then run the StruCAD*3D Beta module and save the file in corresponding standard default units for the default systems. The converter only supports standard default units;

- II. Any non-structural elements, groups etc, must be converted to normal structural elements;
- III. Surface load definition input must be first converted to weight conditions and then the acceleration line must be entered to specify the original load case from StruCAD*3D;
- IV. The ENCASE material specification and the ANODE zone specification are currently not supported. The ENCASE material definition and the ANODE zone definition must be changed to GRPOV and/or MEMOV lines in the SACS model.

5. After Conversion

After converting the StruCAD*3D model file to SACS, be sure to check the **StruCADConvert.Output** file first. This file may contain important information. Attention should be paid to the following areas:

- I. If P-Delta effects are included in the StruCAD*3D model, the converter will put a load case selection (LCSEL) line with P-Delta option and leave the load cases blank for the user to input the appropriate load cases to be included;
- II. Currently the converter can recognize most AISC steel table conversions from StruCAD*3D to SACS, but this should be checked;
- III. StruCAD*3D wind line contains an elevation for “Still Water Elevation” (ref. for ABS wind height variation) at col. 33-40. After conversion to SACS additional modifications should be made to the Still Water Depth override on the WIND line, mud-line elevation and/or water depth on LDOPT line as appropriate;
- IV. Soil data converted into the PSIINP file needs attention on the following:
 - a) Torsional spring rate may be required to constrain pile in torsional rotation;
 - b) The SACS program does not allow two soil strata to have the same depth (this is “the depth from the mud-line” in StruCAD*3D). You must add a small value to the second stratum depth such as 0.001 to eliminate this problem.
- V. Another very productive tool to check the model is the SACS PRECEDE module. Read the converted file into the SACS PRECEDE module, and save the model from PRECEDE. This will eliminate all data that is not compatible with SACS.