



### API 4F 3RD EDITION, ONE-THIRD

#### 1- Question : June 26, 2009

How can we import API 4F 3rd edition 8.1.2 refer to one-third in the software?

#### Answer

The version that you have at present will require that you reduce the combined loads factors to 0.75 (for the basic loads in question) to reduce the stresses by the one third required (it is similar). However soon we will send you a new version PSE 6.50 were the AMOD hs been automated to account for the one-third reduction API 4F 3rd edition 8.1.2.

### ACCELERATIONS, INERTIAL FORCES, WEIGHT OF STRUCTURE

#### 2- Question : July 31, 2009

How do you input accelerations without taking into account the weight of the structure? In other words, I would like to get the horizontal loads due to accelerations only on certain weight conditions, but not the vertical loads due to gravity.

#### Answer

If you don't want the effect of static weight to be added to the inertial forces, set the "Ratio of static weight effect" to zero. Then add the loads you need to be added to the inertial load in the load combination.

### VESSEL MOTIONS FORCES, Fx, Fz, EQUIVALENT

#### 3- Question : July 28, 2009

I am trying to find the equivalent input in SAFI to get +Fx and +Fz forces due to vessel motions. I would like to get separate Fx and Fz forces to combine them with the wind every 45 degrees.

Questions:

1. What is the input in SAFI to get the maximum "+ Fx" or "+ Fz" separately, due to Roll or Pitch?
2. How do you get the maximum "-Fx" or "-Fz" separately?

In StruCad, we can input the following to get positive Fx forces (pitching motions):

1. - X translational acceleration combined with -Y rotational acceleration
2. - Sin (Y rotational angle)
3. - Y rotational acceleration, or
4. + Y rotational angle and period

If we want negative Fx forces we input:

1. + X translational acceleration combined with + Y rotational acceleration
2. + Sin (Y rotational angle)
3. + Y rotational acceleration
4. - Y rotational angle and period
5. We can also use the negative basic load cases of +Fx above.

To get +Fy forces in StruCad (rolling motions) we would input:

1. - Y translational acceleration combined with + X rotational acceleration
2. - Sin (X rotational angle)
3. +X rotational acceleration
4. - X rotational angle and period
5. The opposite for -Fy forces

In SAFI you cannot use negative amplitudes or negative periods. The program will not run.

#### Answer

The SAFI sign convention about vessel motion loading is the same than StruCad convention except that in SAFI the "Y" axis is vertical, so it change some signs compare to StruCAD. The following apply to translational and rotational accelerations.

In SAFI, we can input the following to get positive Fx forces (pitching motions):

1. - X translational acceleration combined with +Z rotational acceleration
2. -/+ Sin (Z rotational angle) (Not sure of the sign, we need more precision on what you mean?)
3. + Z rotational acceleration, or



4. - Z rotational angle and period (correspond to a positive value of angle with evaluate at equal to -100%)

If we want negative Fx forces we input:

1. + X translational acceleration combined with -Z rotational acceleration
2. +/- Sin (Z rotational angle) (Not sure of the sign, we need more precision on what you mean?)
3. - Z rotational acceleration
4. + Z rotational angle and period (correspond to a positive value of angle with evaluate at equal to 100%)
5. We can also use the negative basic load cases of +Fx above.

To get +Fz forces in SAFI (rolling motions) we would input:

1. - Z translational acceleration combined with - X rotational acceleration
2. -/+Sin (X rotational angle) (Not sure of the sign, we need more precision on what you mean?)
3. - X rotational acceleration
4. + X rotational angle and period (correspond to a positive value of angle with evaluate at equal to 100%)
5. The opposite for -Fz forces

1. You need to create different basic load for each separately
2. To get the negative forces, you can change the sign of the basic load case or for cases where there is an input called "Evaluate at" you should change the sign. To be able to combine these cases in combination you should specify "Ratio of static Weight effect" to zero. So the inclined self weight will not be included in the vessel motion. But you will need to add the inclination component of the self weight to the corresponding combination.