

## FAQ – How to calculate with **SandStat** the allowable loads for a defined system?

***SandStat has the ability to calculate the allowable loads for a defined system. This module is not included in the basic version of SandStat and must be activated in the licence file.***

### Standard procedure



Definition of design procedure (depending on the licence)



Selection of sandwich panel



Definition of static system




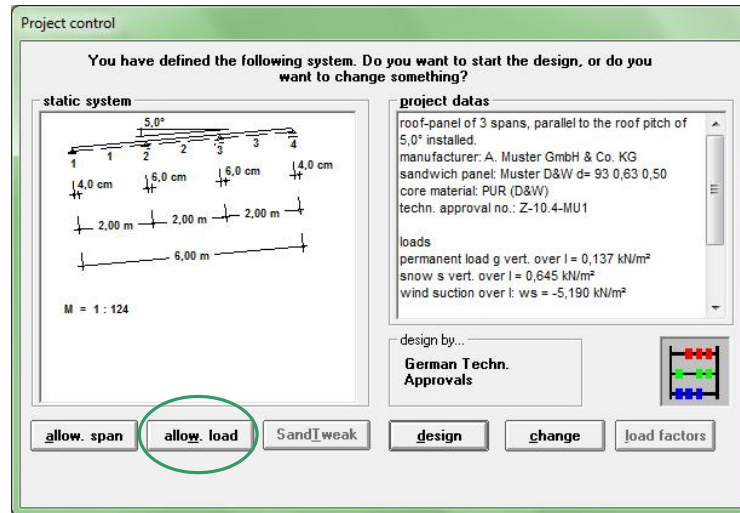
Determination of loads



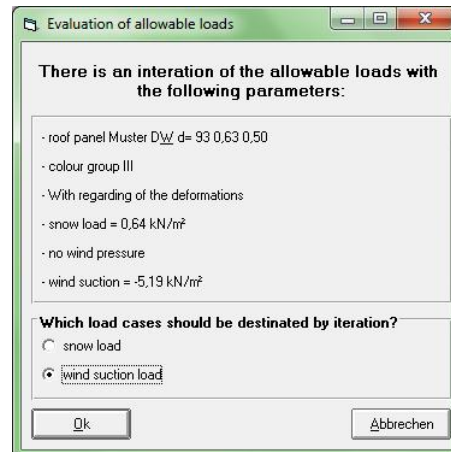
Starting iteration in menu „design“

## Comment

After choosing the sandwich panel and definition of the static system and loads, you can choose at the menu  „design“ the iteration menu with button „allow. load“ (perhaps after definition of the load factors at design procedure EN 14509).



In the following template, you can see the parameters of this iteration, e.g. the selected sandwich panel. Supplementary you can choose the load type for iteration here. They are at roof panels snow loads or wind suction loads, at wall panels wind pressure loads or wind suction loads.

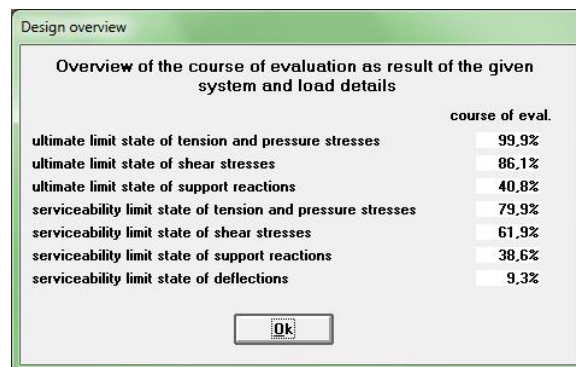


After confirmation by „Ok“, the iteration starts.

SandStat starts the load iteration with a load of  $q = 0,01 \text{ kN/m}^2$  respectively  $q = -0,01 \text{ kN/m}^2$ . This load will be increased depending on the maximum evaluation. When the maximum utilisation reaches 99% to 101%, the iteration will stop.

When this condition (max. utilisation between 99% and 101%) was not reached after 100 iteration steps, a corresponding information comes. You can choose to continue or to cancel the iteration.

After ending iteration, the design overview and the result is shown.

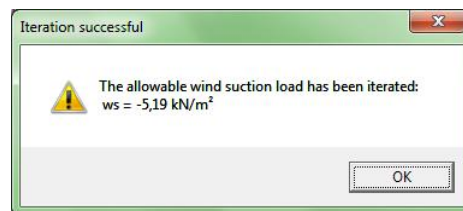


Design overview

Overview of the course of evaluation as result of the given system and load details



	course of eval.
ultimate limit state of tension and pressure stresses	99,9%
ultimate limit state of shear stresses	86,1%
ultimate limit state of support reactions	40,8%
serviceability limit state of tension and pressure stresses	79,9%
serviceability limit state of shear stresses	61,9%
serviceability limit state of support reactions	38,6%
serviceability limit state of deflections	9,3%

Ok



If you want to make a new iteration run, please adjust the corresponding changes (e.g. the loads in the mask "load generation") and start the iteration as described above.

## Notes

- Static systems with unequal spans can be calculated.
- Concerning the limit state of the support reactions, there are two possibilities. They depend on the input of support width at  system input:
  - When there are real support width (so  $\neq$  „-1“), limit states of support reaction will be regarded at iteration and aboard criterion (max. utilisation between 99% and 101%).
  - If support width is defined as = „-1“, the limit states of support reactions will not be considered at iteration and maximal utilisation. The required support width is calculated after iteration and can be seen by clicking on the icon  „required support width“ or under the menu “visual inspection – required support width”. In this case, the utilisation of limit states of support reactions will be 100%.
- The following load cases must be defined:
  - roof panel: self-weight, snow, wind suction, temperature summer at serviceability limit state, temperature summer at ultimate limit state, temperature winter, temperature winter with snow
  - wall panel: wind suction, wind pressure, temperature summer at serviceability limit state, temperature at summer at ultimate limit state, temperature winter

This load cases must include only one load. This load must be defined constant over the panel length.
- The following load cases are not allowed:
  - roof panel: man load
  - wall panel: self-weight, additional self weight  $\Delta g$ , snow, temperature winter with snow, man load, further live load
- The roof pitch must be in the constraints  $0^\circ \geq \alpha \geq 85^\circ$ .