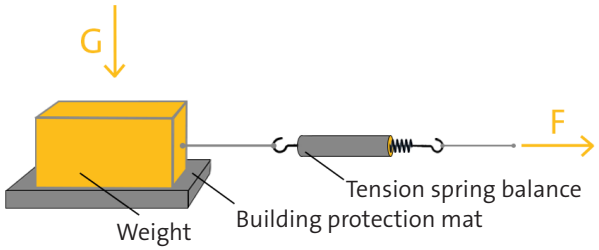
Record
for the determination of the static friction coefficient

Instructions

The static equilibrium of a ballasted mounting system is achieved by net weight, module weight and additional ballast. A prevailing influence on the static equilibrium of this type of construction is the interaction between roof covering and building protection mat of the mounting system, which is described by the static friction condition as per Coulomb's friction law. The static friction coefficient is incorporated in the static calculation. Therefore it is necessary to determine or to verify it on site!

Test arrangement



Static friction coefficient:
The static friction coefficient (formula sign μ) is a dimensionless measure for the friction force relative to the pressing force between two bodies.

Static friction coefficient μ = F : G (F = [kg]; G = [kg])

Example
The test body (test weight + building protection mat) weighs 10 kg.
The spring balance indicates 6 kg before the test body is moving.

F : G = μ
6 kg : 10 kg = 0.6
μ = 0.6

Note:
For each measurement, pay attention to the zero position of the unloaded balance.
Use the specified building protection mat for the test. Determine the test weight prior to the test.
The test instructions are based on the instruction sheet issued by BSW solar "Determination of the coefficient of static friction on flat roofs" - issued in July 2014

You need:

- Renusol building protection mat (R500412, R500411, R500410)
- Test weight
- Tension spring balance

Test:
The tests are performed on the basis of DIN EN ISO 8295 Plastics - Film and sheeting - Determination of the coefficients of friction, edition October 2004.

Ten tests have to be performed, 5 under dry conditions and 5 under wet conditions. The test surfaces are homogeneously distributed on the roof surface.

Optically different roof areas shall be examined separately from each other. The tests must be repeated accordingly.
To obtain utilisable test results, clean the roof surface in the measured positions in the same way as it is planned for the overall design of the solar system.

The test body is laid on the roofing in accordance with the planned design including possibly existing separating or protective layers and ballasted, if necessary. After a defined waiting time of 30 seconds, force is applied on the test body by a tension spring, centrally and parallel, and measured by a spring balance. With this, apply the force evenly and without vibration. For determining the friction coefficient that force prevails that occurs before test body starts moving.

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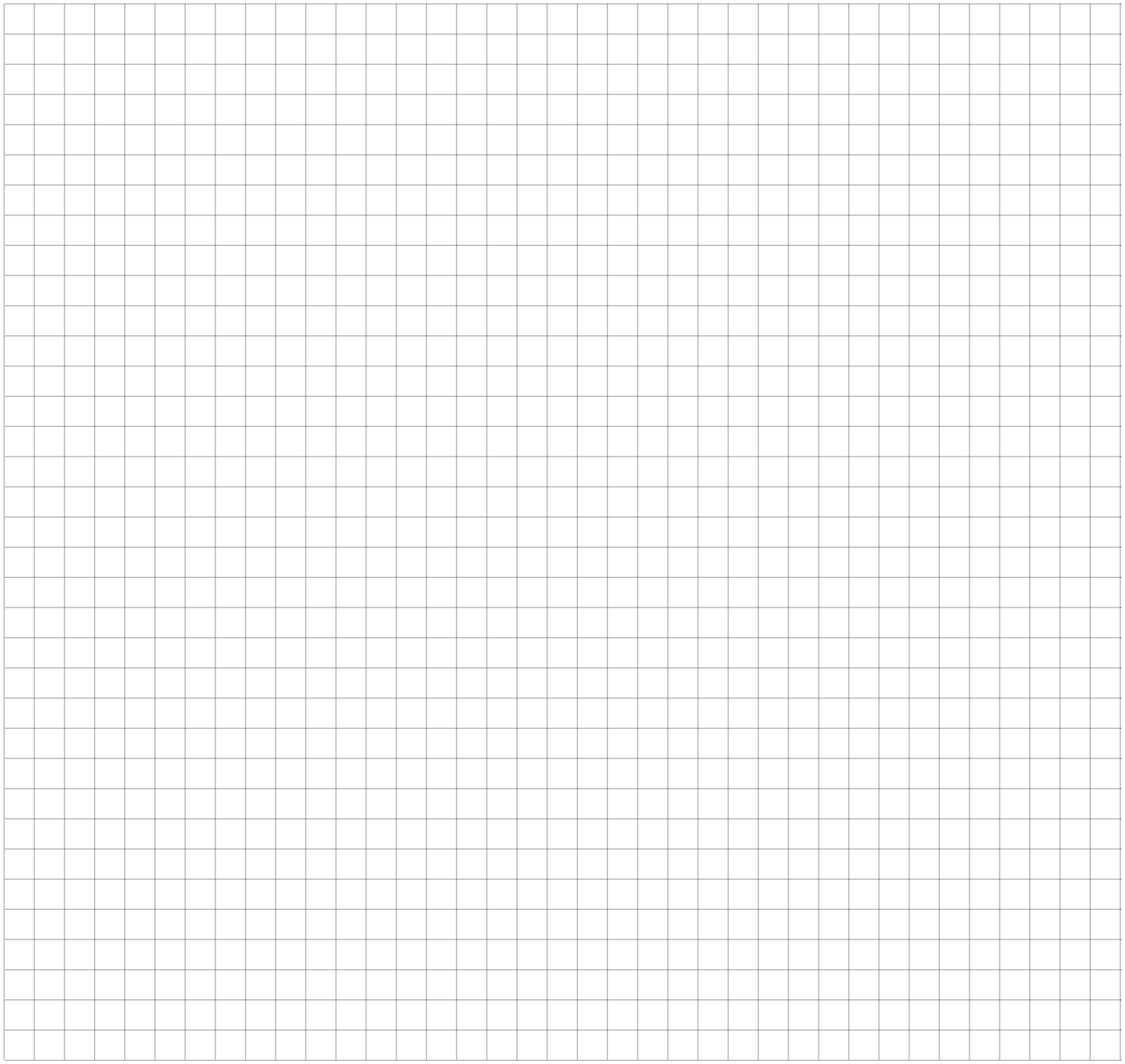
Roof sketch

Please, outline the roof here and mark the positions of the 5 measuring points.



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Basic values	
Manufacturer roofing:	
Type of roofing:	
Age of roofing:	
Weight of test body (G):	

Measured values*:	Pulling force (F) [kg]
Measuring point 1 (dry)	
Measuring point 1 (wet)	
Measuring point 2 (dry)	
Measuring point 2 (wet)	
Measuring point 3 (dry)	
Measuring point 3 (wet)	
Measuring point 4 (dry)	
Measuring point 4 (wet)	
Measuring point 5 (dry)	
Measuring point 5 (wet)	

**In case of larger roof surfaces we recommend increasing the number of measuring points.*

For the determination of the static friction coefficient μ use the lowest measured value of all measuring points.

Result for μ

μ =

Company/customer

Date

Examiner (name)

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