Schäden an Gebäuden
Euro Zert Certification
Überwacht durch: SVG office GmbH
Alfred-Herrhausen-Straße 44 in 58455 Witten
Jörg Brandhorst
Sachverständiger
DIN EN ISO/IEC 17024:2012
Zertifizierungs-Nr.:
ZN - 20120928 - 0262
Gültig bis 10/2017
Personen-zertifizierter Sachverständiger

Bjorn Kierulf
Createrra s.r.o.
Hruby Sur 15

90301 Senec
Slovak Republic

Zertifizierter Sachverständiger
nach DIN EN ISO/ISC 17024:2012,
Zertif.-Nr : ZN – 20120928-0262
für Schäden an Gebäuden,
Innenraumschadstoffen,
Bauphysik, Fenstermontagen,
energetische Bewertung von
Gebäuden und Energieeffizienz

Bonn, den 28.08.2013

Straw Bale House

Dear Mr. Bjorn Kierulf,

the calculations with WUFI have been done under the following conditions:

- **climate data: Wien, Hohe Warte**
- humidity of the materials: straw < 17%
- indoor climate: high humidity loads (bathrooms or similar as maximal humidity)
- exterior wall: west (main wheater side)

1) Wall construction with 4mm plaster

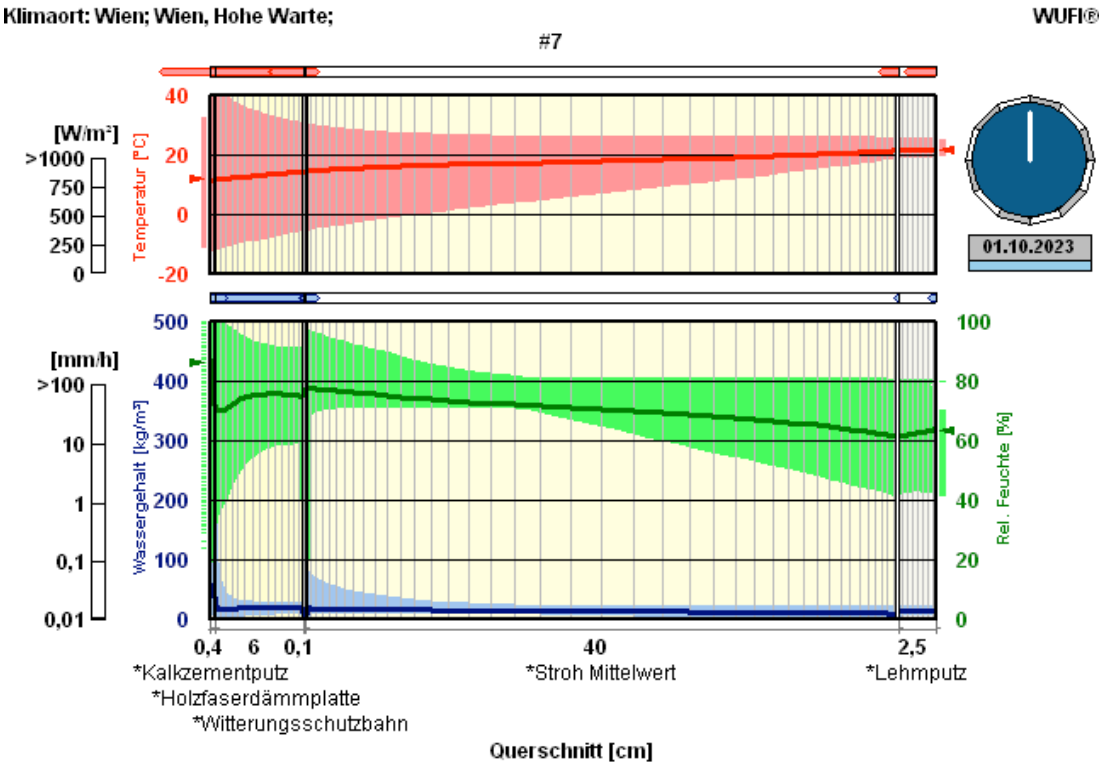
Construction from inside to outside:

clay plaster 25mm
straw 400mm
roofing membrane SD: 0.2 m
wood fibre insulation board 040 60mm
exterior plaster 4mm

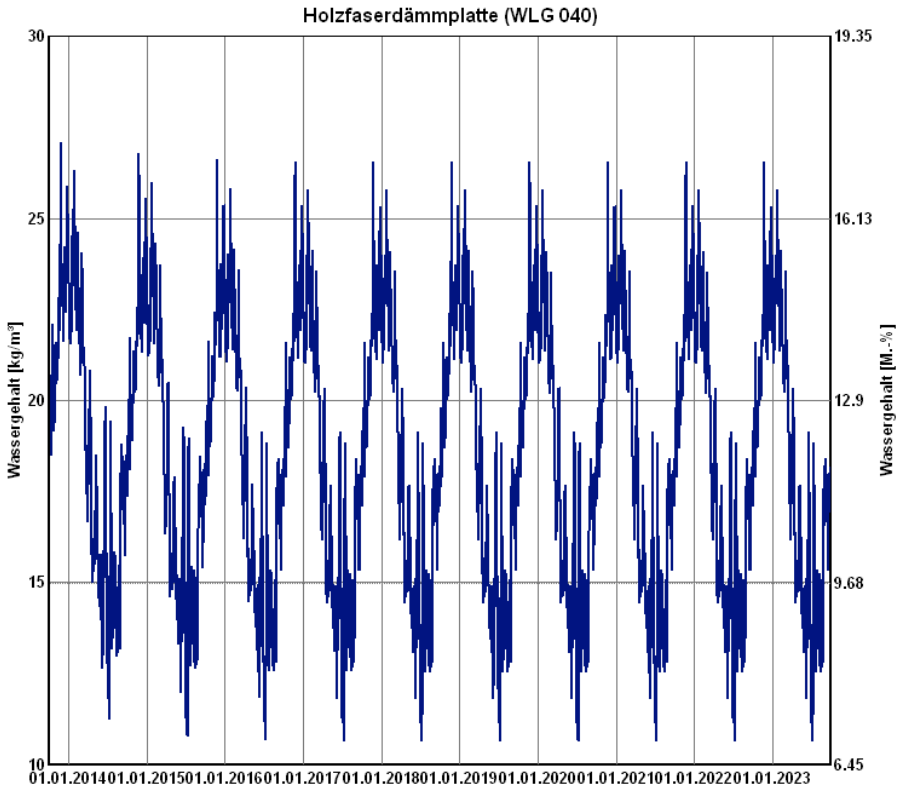
The exterior plaster with a w-value (coefficient of water absorption) of <0.1 kg/m2 * h.

Under these conditions, the calculations for the relevant components have revealed the following:

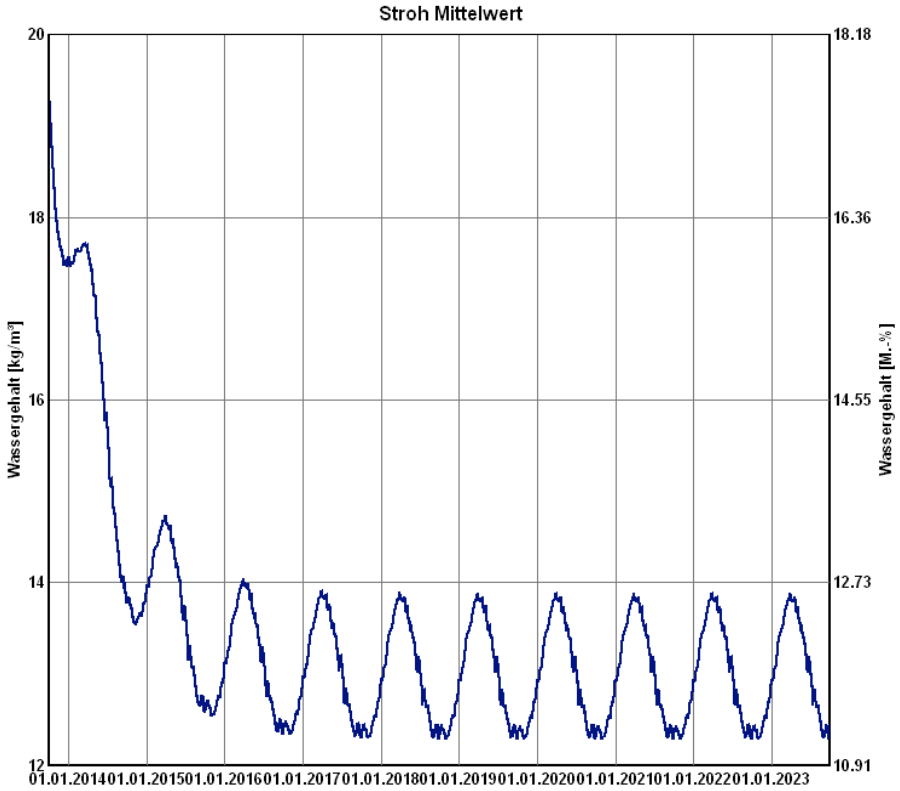
Whole construction:



Wood fibre insulation board:



Straw bale:



This construction can be realised under the following conditions:

- The exterior plaster must have permanently a w-value of <0.1 kg/m2 * h.
- The w-value must be frequently controlled. If the value increases over 0.3 kg/m2 * h the construction is not longer realisable

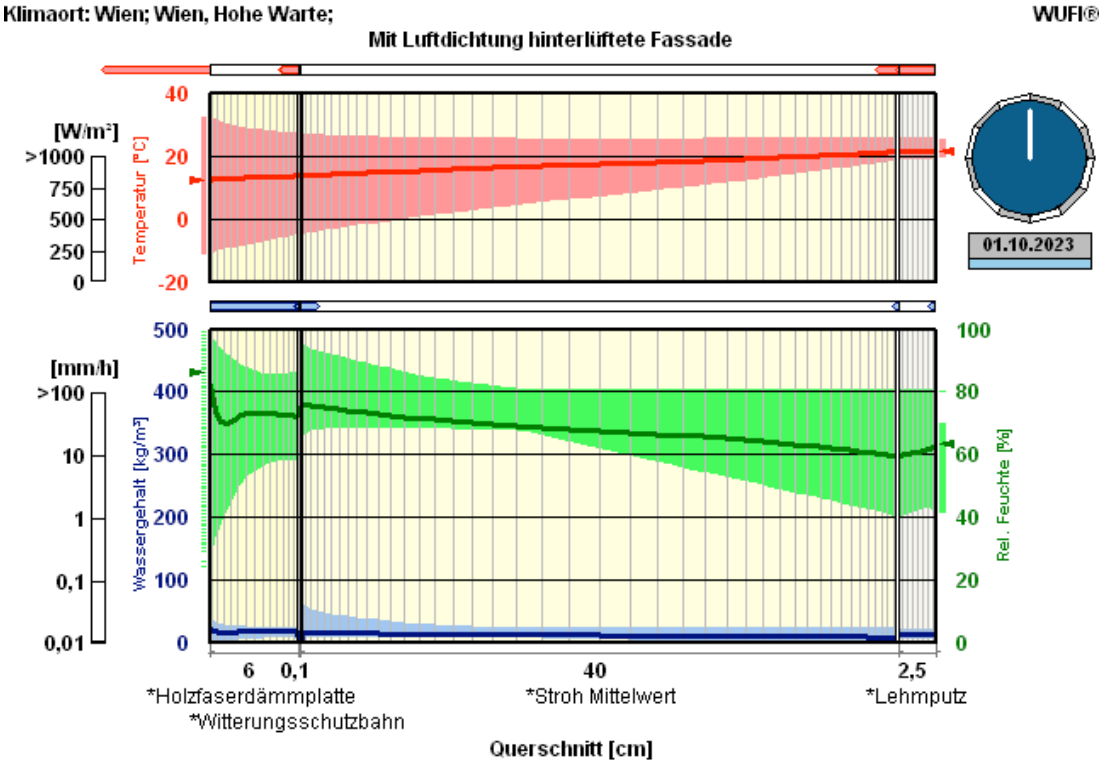
2) Construction with ventilated facade:

The construction with the ventilated facade, without rainfall on the wood fibre insulation board, has the following results:

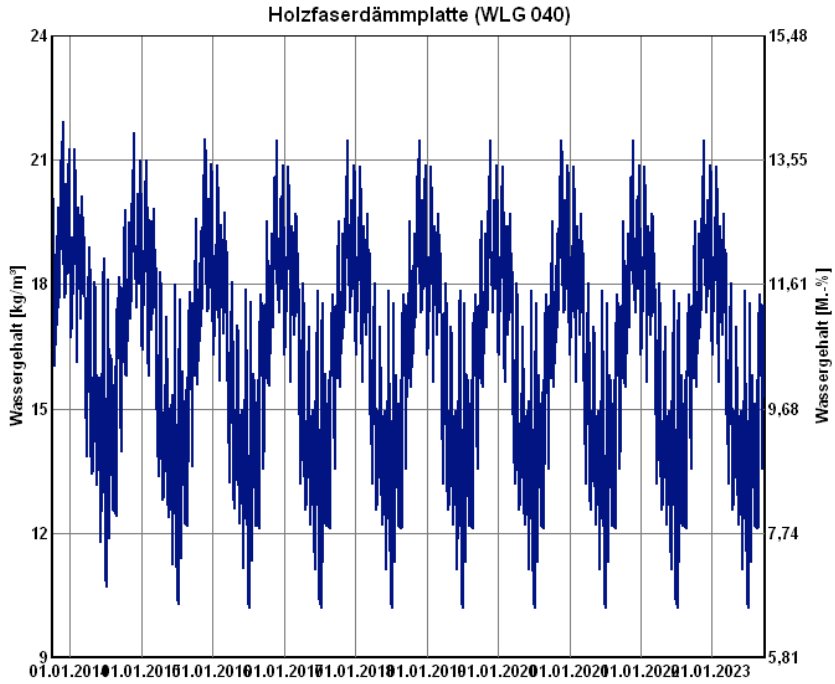
Construction from inside to outside:

clay plaster 25mm
straw 400mm
roofing membrane SD: 0.2 m
wood fibre insulation board 040 60mm
ventilated facade

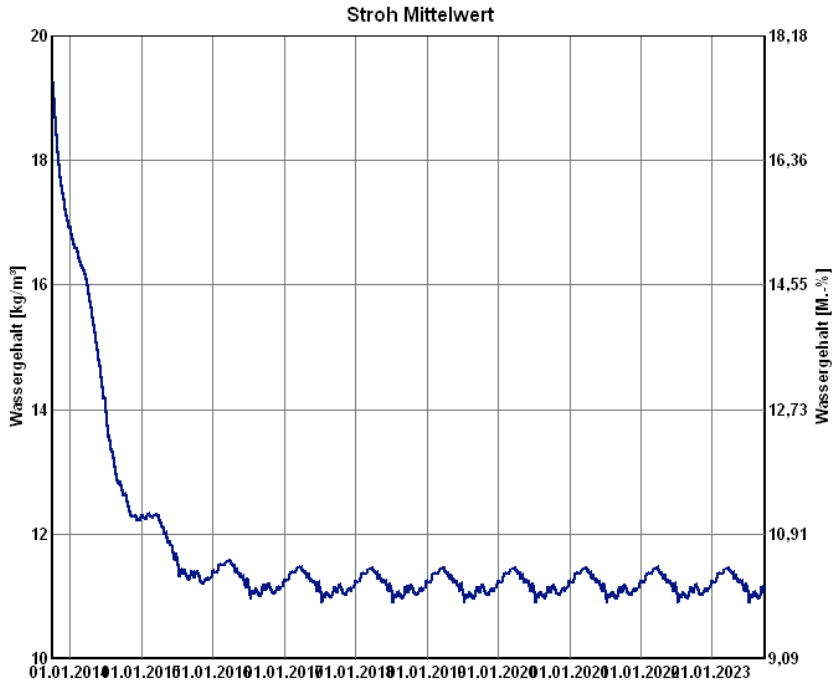
Whole construction:



Wood fibre insulation board:



Straw bale:



The construction can be realised.

The same construction could also be realised without the roofing membrane, if the vapor tightness is ensured on the inside.

Kind regards

Michael Brandhorst

Annotation:

The values for the Straw bale are average values, of all existent analysis. The following values has been used for the calculations:

raw density	100,0	kg/m^3
porosity	0,9	m^3/m^3
thermal capacity	2000	J/kgK
thermal conductivity	0,045	W/mK
diffusion resistance coefficent	1,3	-

Due to their inhomogeneity exact values for straw bales are not definable. The above-mentioned calculations present only refenrence values.