

C3b

# Passivhaus Standard

01 EcoCocon: Certified Component

02 PH Details

01

# EcoCocon: Certified Component

# Passivhaus Standard: building physics matters

How a house works is applied physics. Understanding it makes it more comfortable and durable.

## Characteristics

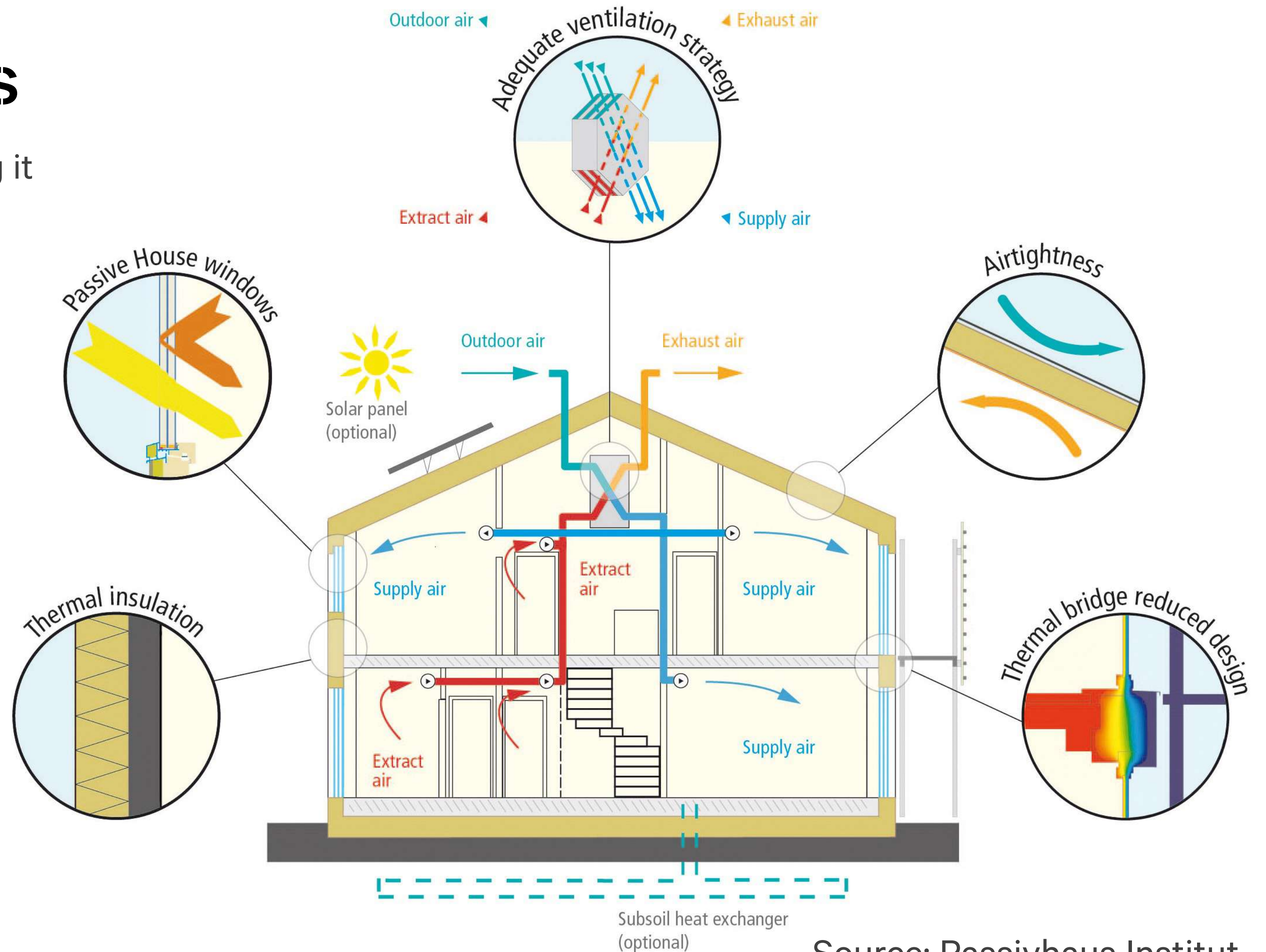
- » Super-insulated
- » Passive house windows
- » Ventilation with heat recovery
- » Airtightness
- » Thermal bridge free design

## Helpful

- » Solar orientation
- » Compact design

## EcoCocon

- » Certified component
- » Pre-calculated thermal bridges
- » Simple airtightness concept



Source: Passivhaus Institut

# U-values calculation: based on Passivhaus Certificate

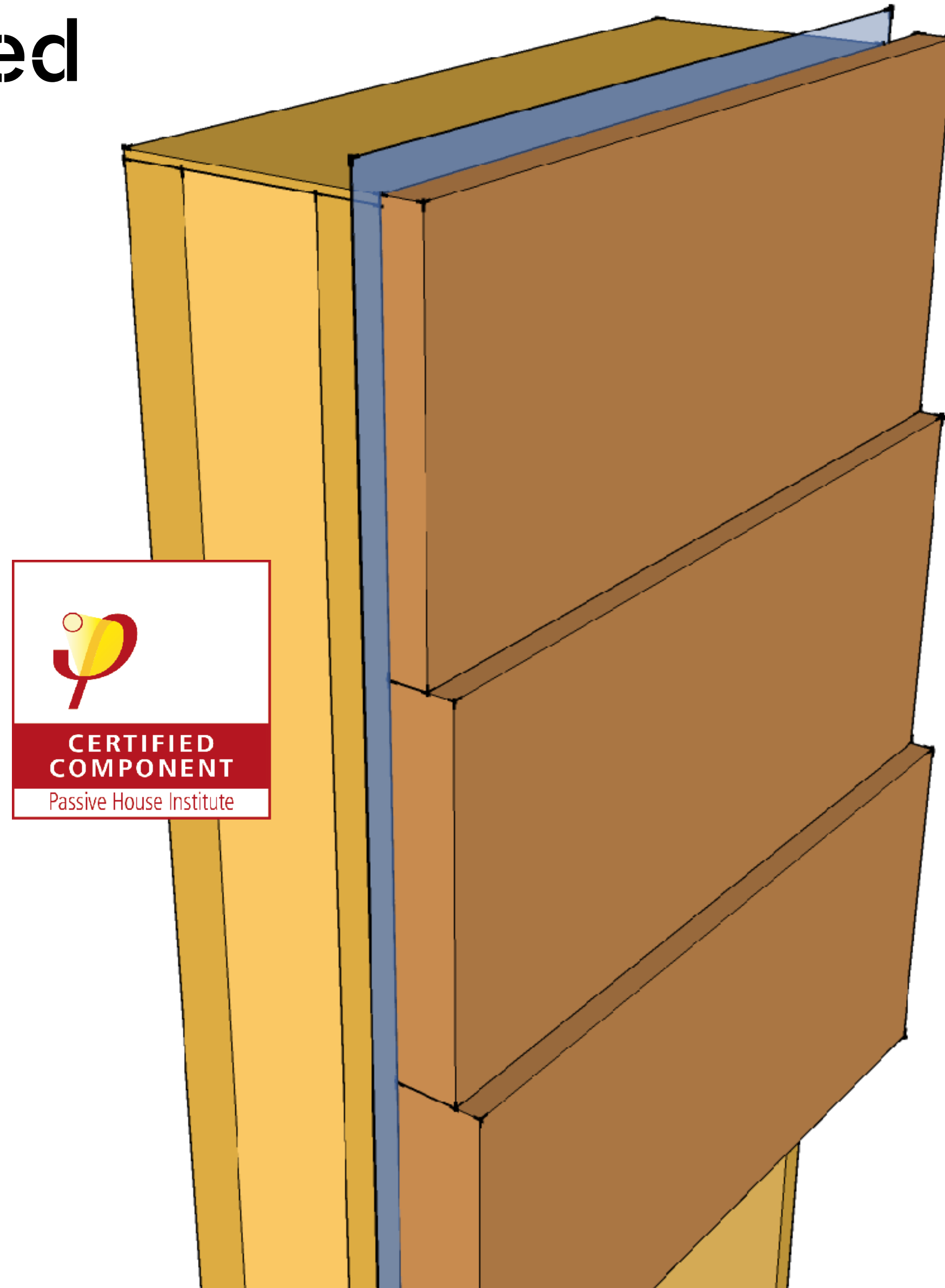
For PH certification, the lambda value of the complete straw/wood structure was set conservatively at 0.0645 W/mK.

## Characteristics

- » Lambda of Straw/Wood panel (400 mm) is 0.0645 W/mK
- » The U-value for straw panels without clay plaster or wood fibre board:
- »  $U = 0.157 \text{ W/m}^2\text{K}$  or  $R = 6.37 \text{ m}^2/\text{WK}$
- » PH Certification is achieved by using at least 60 mm thick wood fibre board

## Download available

- » Excel calculation tool for separate U-value calculation



## U-values with wood fibre board:

**60 mm** -  $U = 0.131 \text{ W/m}^2\text{K}$

**100 mm** -  $U = 0.119 \text{ W/m}^2\text{K}$

**140 mm** -  $U = 0.109 \text{ W/m}^2\text{K}$

## Calculated layer values:

0.910 W/mK for clay (30 mm)  
0.0645 W/mK for Straw/Wood (400 mm)  
0.050 W/mK for wood fibre board  
1.400 W/mK for plaster (7 mm)

# Certification report

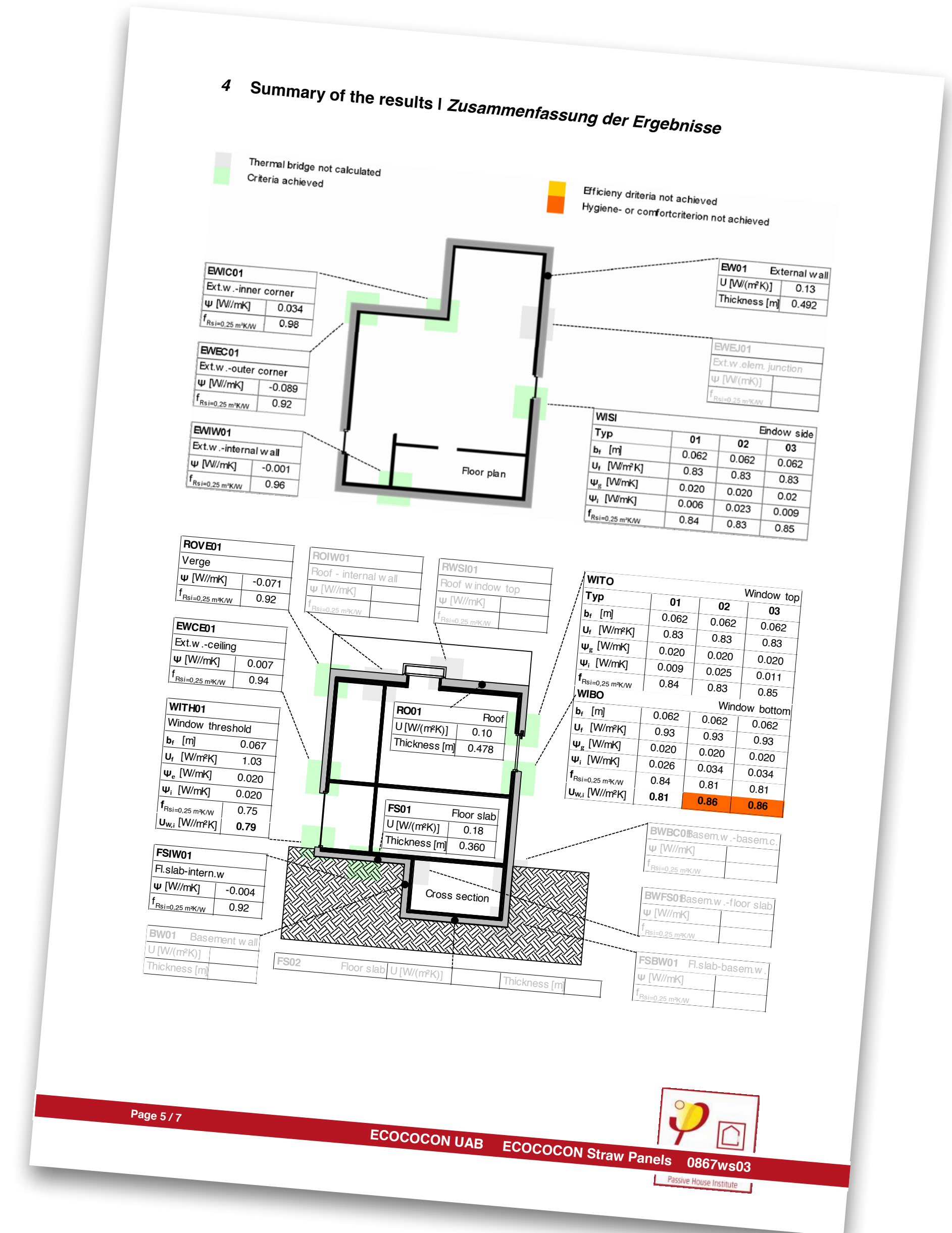
The Certification report has all thermal bridge values for typical details needed by the passivhaus designer.

## Note

- » The report is made for cold, temperate climate, but the construction can be used also in cold and warm climates.
- » The values for the windows in the report were calculated with a special window SmartWin Solar.
- » This window is not normally in production
- » Separately from the report other, more standard window connections, have been calculated.

## Downloads:

- » The report and other thermal bridge calculations are possible to download at [www.ecococon.eu/downloads](http://www.ecococon.eu/downloads)
- » Updated details in PDF and DWG format



02

# PH Details

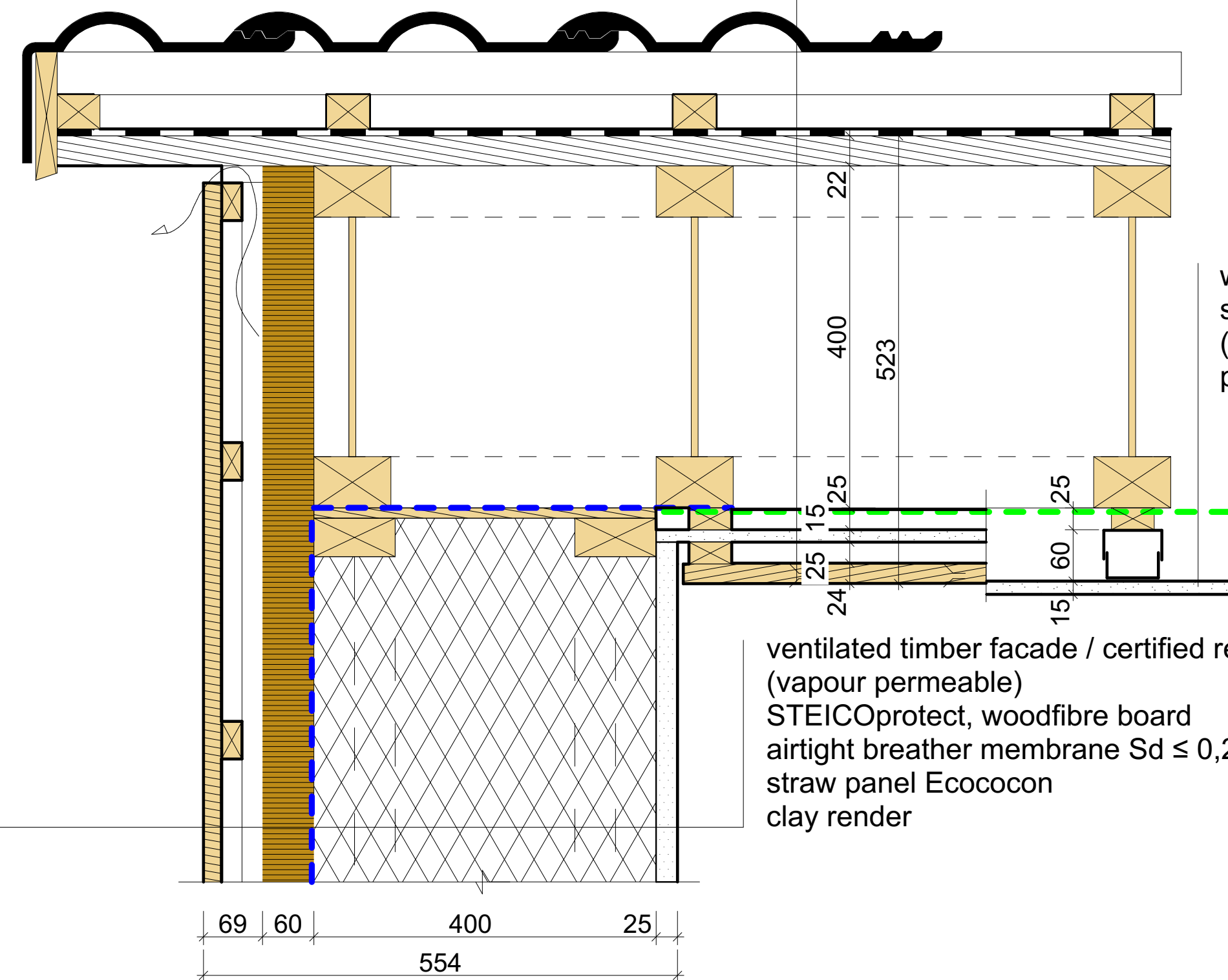
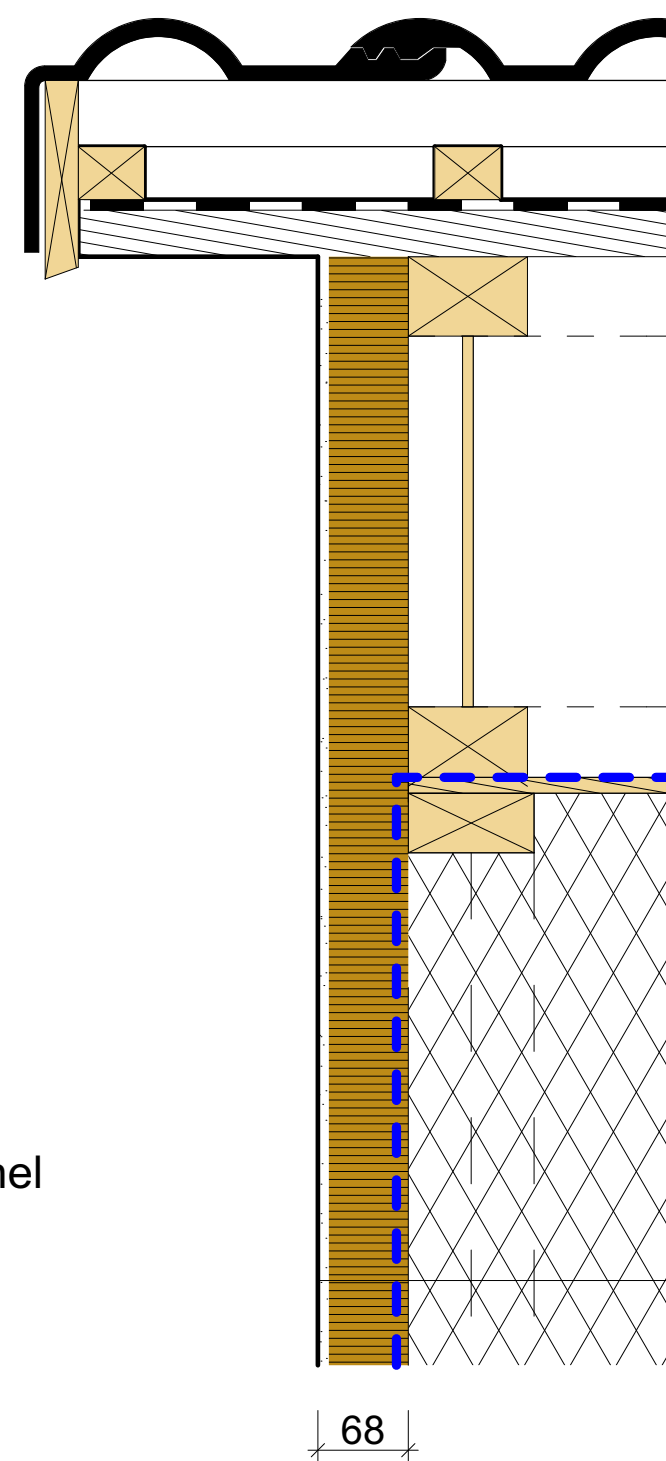
**Airtight layer:** - - - - -  
 Airtight breather membrane  $S_d \leq 0,2 \text{ m}$

**Airtight layer:** - - - - -  
 Airtight membrane with variable value  $S_d = 0,2-10 \text{ m}$

RENDER

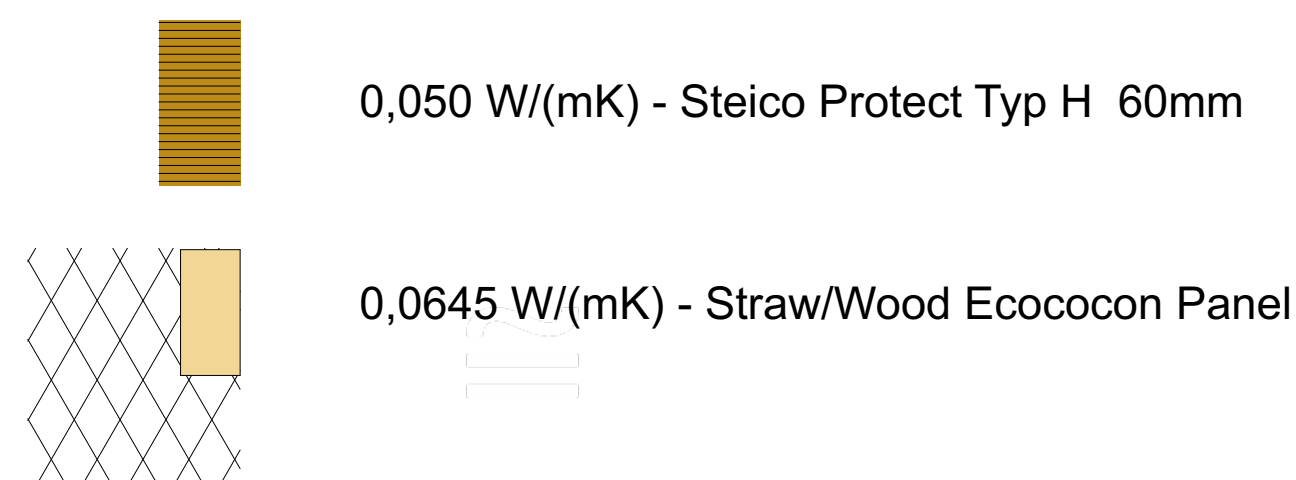
WOOD FACADE

Roof tiles  
 counter battens  
 roof battens  
 roof membrane  
 OSB/Plywood/Wooden boards 22 mm  
 STEICOjoist with STEICO ZELL 0,044 W/(mK)  
 airtight membrane with variable value  $S_d = 0,2-10 \text{ m}$   
 wooden batten  
 plaster board  
 timber ceiling



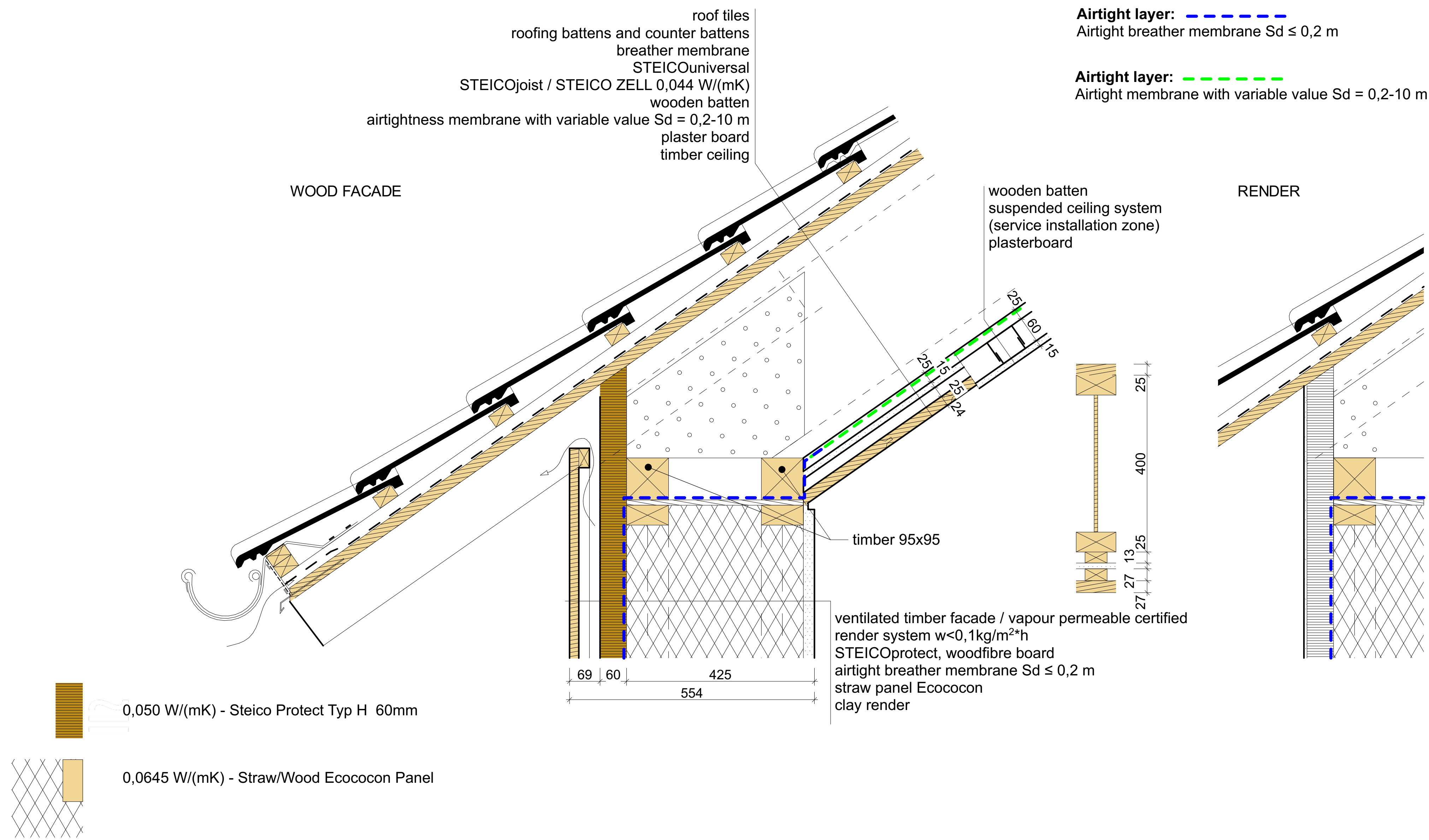
wooden batten  
 suspended ceiling system  
 (service installation zone)  
 plasterboard

ventilated timber facade / certified render system  
 (vapour permeable)  
 STEICOprotect, woodfibre board  
 airtight breather membrane  $S_d \leq 0,2 \text{ m}$   
 straw panel Ecococon  
 clay render



# Detail ROVE 01 -0.071 W/mK

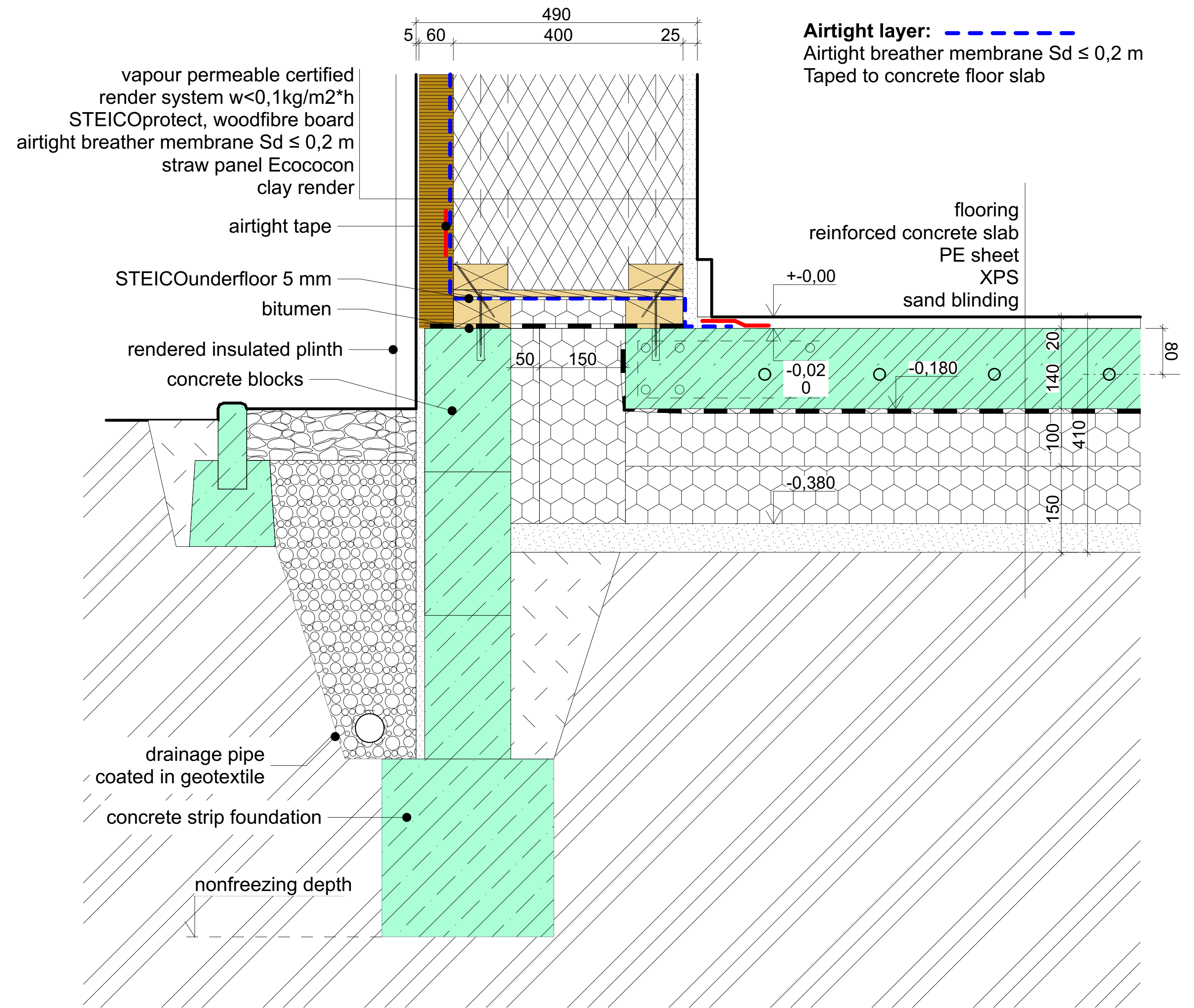
Detail design: CREATERRA


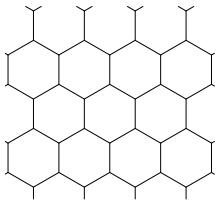
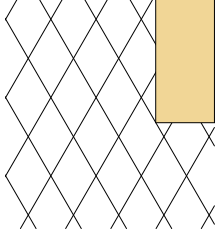


# Detail ROEA 01 -0.030 W/mK

Detail design: CREATERRA





- 
 0,050 W/(mK) - Steico Protect Typ H 60mm
- 
 0,037 W/(mK) - XPS (Extruded Polystyrene)
- 
 0,0645 W/(mK) - Straw/Wood Ecococon Panel

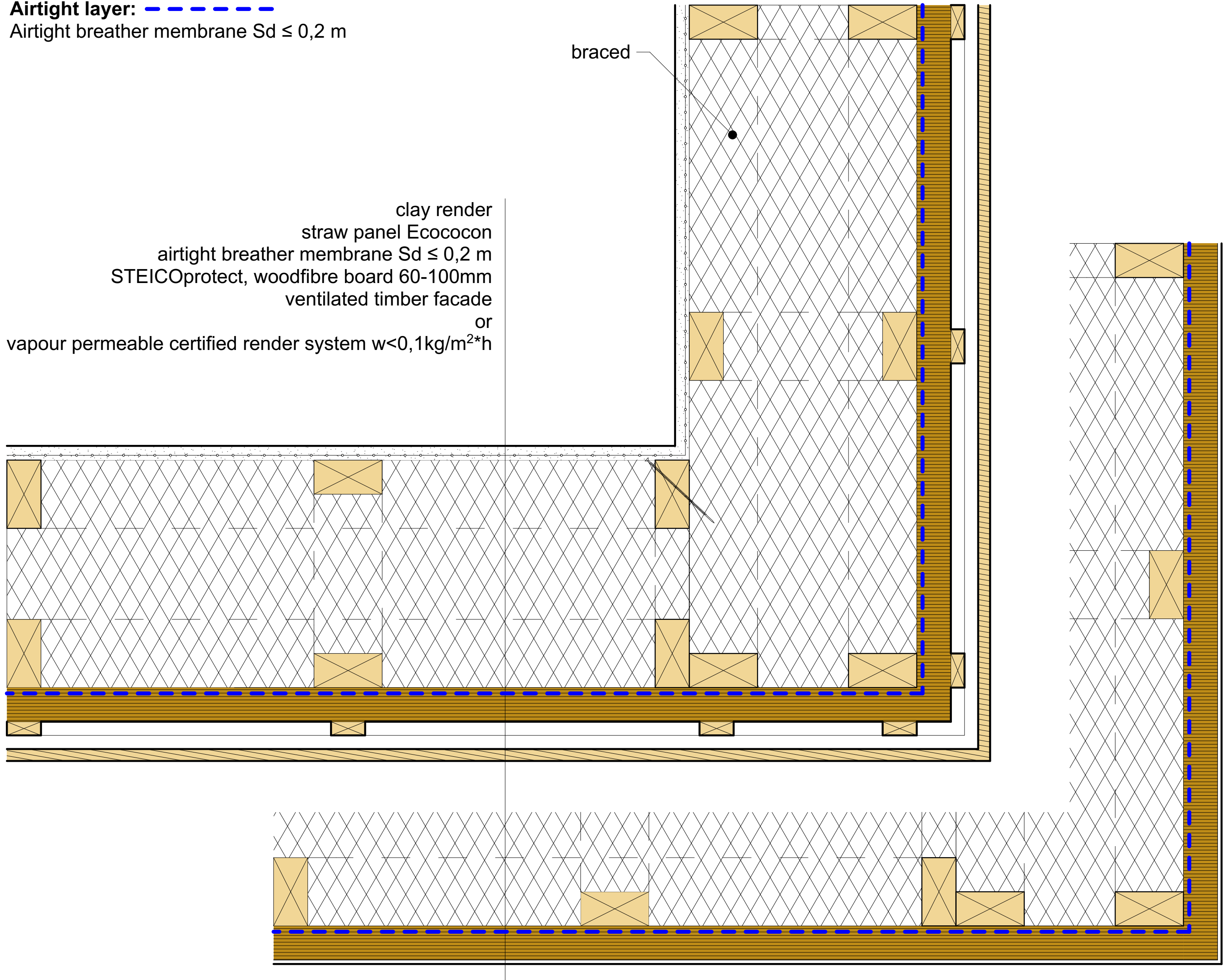
# Detail FSEW 01 -0.059 W/mK


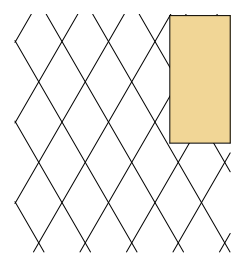
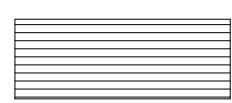
Detail design: CREATERRA

**Airtight layer:** - - - - -  
Airtight breather membrane  $S_d \leq 0,2 \text{ m}$

clay render  
straw panel Ecococon  
airtight breather membrane  $S_d \leq 0,2 \text{ m}$   
STEICOprotect, woodfibre board 60-100mm  
ventilated timber facade  
or  
vapour permeable certified render system  $w < 0,1 \text{ kg/m}^2 \cdot \text{h}$

braced



-  0,050 W/(mK) - Steico Protect Typ H 60mm
-  0,0645 W/(mK) - Straw/Wood Ecococon Panel
-  0,039 W/(mK) - Steico Flex

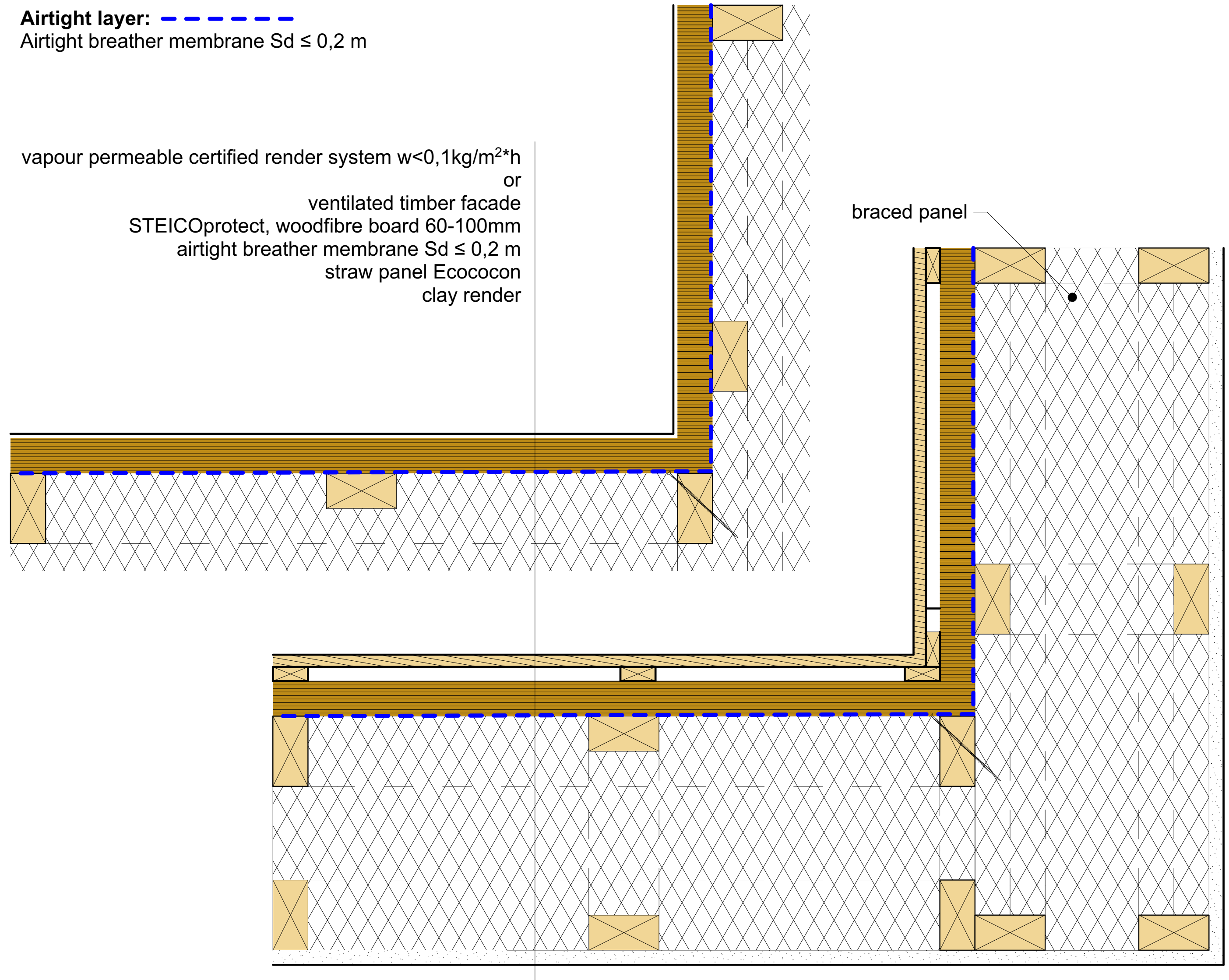
# Detail EWEC 01 -0.089 W/mK

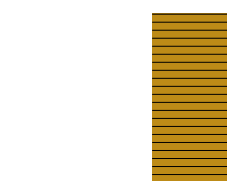
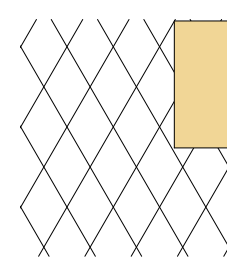
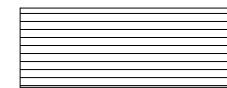
Detail design: CREATERRA

**Airtight layer:** - - - - -  
Airtight breather membrane  $S_d \leq 0,2$  m

vapour permeable certified render system  $w < 0,1 \text{ kg/m}^2 \cdot \text{h}$   
or  
ventilated timber facade  
STEICOprotect, woodfibre board 60-100mm  
airtight breather membrane  $S_d \leq 0,2$  m  
straw panel Ecococon  
clay render


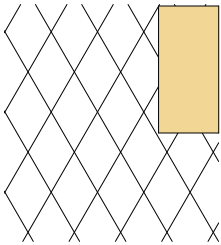
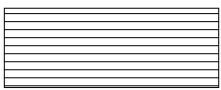
braced panel



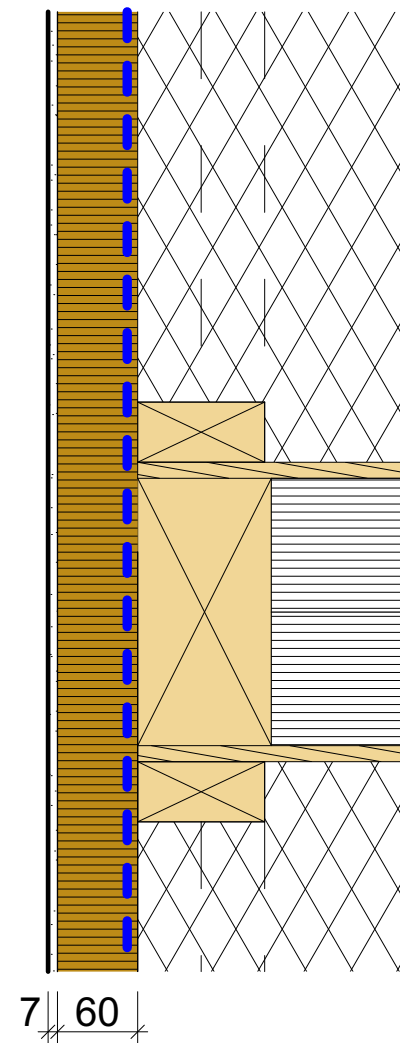
-  0,050 W/(mK) - Steico Protect Typ H 60mm
-  0,0645 W/(mK) - Straw/Wood Ecococon Panel
-  0,039 W/(mK) - Steico Flex

**Detail EWIC 01: +0.034 W/mK**

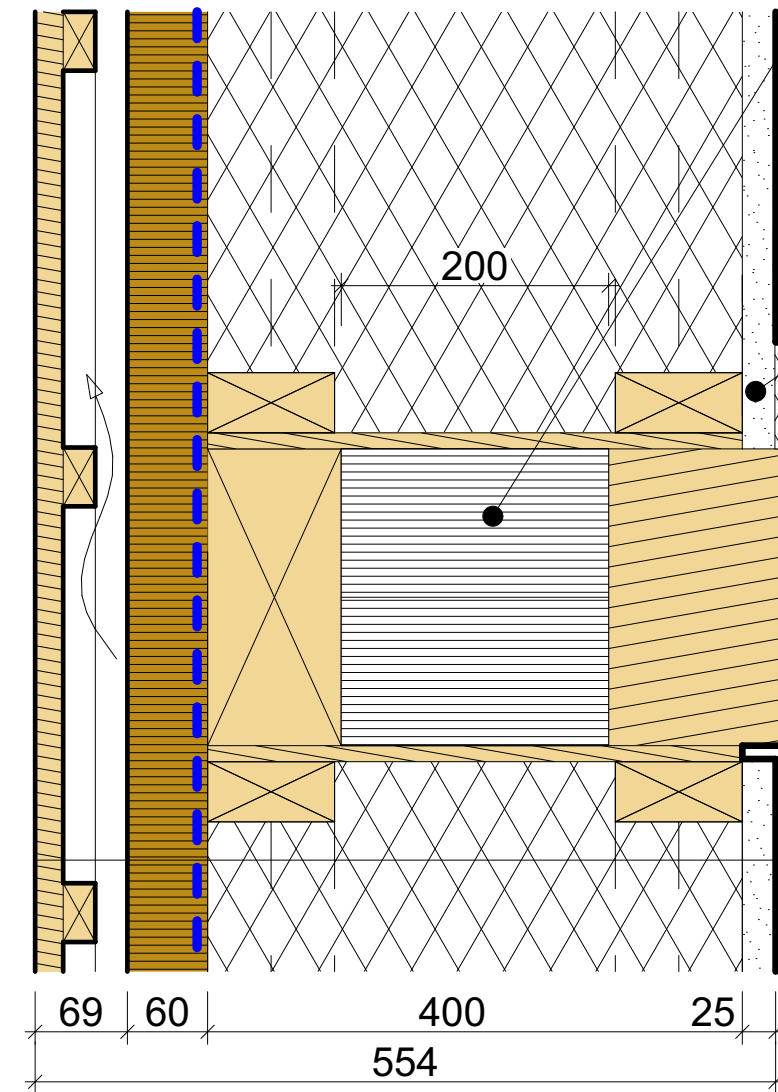
Detail design: CREATERRA

-  0,050 W/(mK) - Steico Protect Typ H 60mm
-  0,0645 W/(mK) - Straw/Wood Ecococon Panel
-  0,039 W/(mK) - Steico Flex

RENDER



WOOD FACADE

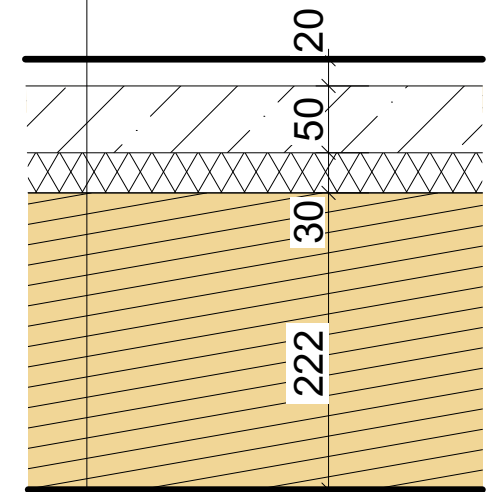


STEICOflex 0,039 W/(mK)

board floor  
STEICOfloor 40  
STEICOtherm 20  
Lignotrend Rippe/Decke

STEICOsoundstrip

flooring  
concrete screed mineral  
insulation  
Lignotrend Rippe/Decke



ventilated timber facade / vapour permeable certified  
render system  $w < 0,1 \text{ kg/m}^2 \cdot \text{h}$   
STEICOprotect, woodfibre board  
airtight breather membrane  $S_d \leq 0,2 \text{ m}$   
straw panel Ecococon  
clay render

# Detail EWCE 01: +0.007 W/mK

Detail design: CREATERRA