Design considerations:

Royal Commission on the Ancient and Historical Monuments of Scotland
View from north west
Each room is 24 x 12 m
External wall: 200 mm insulation – 300 mm cellular concrete blocks
Wall to corridor: 150 mm concrete
Internal walls 100 mm paper
Corridor temperature constant 20°C
Corridor now used as solar heating device with varying temperature through the year. Corridor – archive wall is 250 mm lightweight concrete. Outside wall east is 200 mm insulation, 250 mm lightweight concrete. Outside wall west is half as east wall, half double glazed window. Air exchange rate to corridor 0.1 per hour. Inside wall surfaces buffered by paper.
Data: edinb14.txt

%RH

Temperature C g/m³

Month

01 02 03 04 05 06 07 08 09 10 11 12

-10 -5 0 5 10 15 20 25

t out
rh out
t corridor
t mid
rh mid
g/m³ out-in
The pale traces show the unbuffered RH and temperature.