

Climate Class 4:

Attention: ***IT IS ESSENTIAL TO USE A DAMP-PROOFING LAYER IN THIS CLASS.***

- Preconditions: $p_i \geq 1430 \text{ N/m}^2$
 $T_{\text{average}} \geq 22 \text{ }^\circ\text{C} \ \& \ RH_{\text{average}} \geq 60\%$

- Areas of application: Laundrettes, bathrooms, swimming pools, dairies and buildings with high humidity such as printing works, tanneries, and textile factories.
- Rooms with very high humidity.
- In these situations a damp proofing layer (vapour barrier) is always necessary and it is advisable to have good building physics calculations, the damp-proofing layer should be of the highest possible specification in all cases.

Notes:

1. Inverted Roof Systems;
With inverted roof systems, irrespective of the internal circumstances, the ***hertalan*** will act as a vapour barrier.

2. Refrigerators and Freezers:
As with all other situations requiring vapour barriers, the barrier must always be located on the warm side of the roof, in these situations this will always be on the outside as the temperature inside will always be about or below freezing. With refrigerators the inside temperature will fluctuate between 0 and 4 degrees Celsius and it may be necessary to provide an extra damp layer inside to prevent a reverse effect in severe winter conditions, in these situations the following specification should be adopted:
 - a) Profiled steel roof sheets.
 - b) The Damp proof layer (usually man-supporting PE foil with a damp-proofing layer)
 - c) Pre-formed shrink proof insulation between 200 and 350mm.
 - d) ***hertalan*** EPDM membrane
 - e) Ballast layer to specified thickness.

Chapter 6 Damp-Proofing Layers

The following list is an illustration of climate classes requiring damp proof layers (vapour barriers):

Climate Class 1:

- Pre conditions: $1030 < p_i < 1080 \text{ N/m}^2$
 $T \leq 18 \text{ }^\circ\text{C} \text{ \& } RH \leq 45 \%$
- Area of Application: Storage of dry goods, garages and sheds
- Damp free rooms or rooms with low likelihood of damp
- No damp-proofing layer required

Climate Class 2:

- Preconditions: $1080 < p_i < 1320 \text{ N/m}^2$
 $T_{\text{average}} = 20 \text{ }^\circ\text{C} \text{ \& } RH_{\text{average}} = 50\%$
- Area of Application: housing, offices and shops without humidity
- Rooms with low production of damp
- It is recommended that damp-proof layers be added from this climate class. The recommendation is 0.2mm thick PE foil and or a bituminous layer. It is advised that building physics calculations are completed to determine the most suited damp-proof layer.

Climate Class 3:

- Preconditions: $1320 < p_i < 1430 \text{ N/m}^2$
 $T_{\text{average}} = 20 \text{ }^\circ\text{C} \text{ \& } RH_{\text{average}} = 60\%$
- Areas of Application: schools, care institutions, old peoples homes, recreational buildings and office buildings with low air humidity.
- Rooms with low production of damp.
- A damp-proof layer is always necessary, even though some calculations may suggest otherwise. The damp-proofing layer can consist of 0.2 or 0.4mm thick PE-foil or a 0.4mm thick bituminous layer with or without aluminium inlay. The type and thickness of damp – proof layer used should be determined by the type of ***hertalan*** system being used and on the basis of building physics calculations.