



**Protect Membranes**  
2 Brooklands Road, Sale, Cheshire M33 3SS

Telephone **0161 905 5700**  
Fax **0161 905 2085**  
Email [info@protectmembranes.com](mailto:info@protectmembranes.com)  
Website [www.protectmembranes.com](http://www.protectmembranes.com)

### Calculation of interstitial condensation

by ICond Calculator version 2.03

Printed on 02 Mar 2018 at 13:17

**Element type: Wall**

### Wall Type 2 - 144mm SIP

#### Construction Details

| Layer | d<br>mm                              | $\lambda$<br>W/m·K | rv<br>MN·s/g·m | R layer<br>m <sup>2</sup> K/W | Rv layer<br>MN·s/g | Description                                    |
|-------|--------------------------------------|--------------------|----------------|-------------------------------|--------------------|--|
|       |                                      |                    |                | 0.130                         |                    | Rsi  |
| 1     | 12.5                                 | 0.160              |                | 0.078                         |                    | Vapourcheck plasterboard                       |
| 2     |                                      |                    | Rv-value       |                               | 689                | Protect VC Foil Ultra Insulating AVCL Membrane |
| 3     | 22                                   | R-value            | Rv-value       | 0.780                         | 0.050              | Cavity unventilated                            |
| 4     | 11                                   | 0.130              | 50.0           | 0.085                         | 0.55               | SIP - OSB                                      |
| 5     | 122                                  | 0.030              | 5.00           | 4.067                         | 0.61               | SIP - Lambdatherm EPS                          |
| 6     | 11                                   | 0.130              | 50.0           | 0.085                         | 0.55               | SIP - OSB                                      |
| 7     |                                      |                    | Rv-value       |                               | 1.0                | Protect TF200 Breather Membrane                |
| 8     | 12                                   | 0.210              | 50.0           | 0.057                         | 0.60               | Magnesium Oxide Board                          |
| 9     | 5                                    | 0.570              | 40.0           | 0.009                         | 0.20               | Render   |
|       |                                      |                    |                | <u>0.040</u>                  |                    | Rse  |
|       | <u>196 mm (total wall thickness)</u> |                    |                | <u>5.330</u>                  | <u>693</u>         |  |

#### Boundary conditions

Manchester (Edinburgh.hgt)

Return period 2 years (mean external temperature and RH)

Internal Humidity: BS 5250 Class 3

#### Results

No condensation

| Month     | Internal<br>T °C | Internal<br>RH % | External<br>T °C | External<br>RH % | RH % at<br>internal surface |
|-----------|------------------|------------------|------------------|------------------|-----------------------------|
| October   | 20.0             | 62               | 10.6             | 83               | 63                          |
| November  | 20.0             | 59               | 6.4              | 85               | 60                          |
| December  | 20.0             | 58               | 4.6              | 86               | 59                          |
| January   | 20.0             | 57               | 3.9              | 85               | 58                          |
| February  | 20.0             | 56               | 3.9              | 82               | 57                          |
| March     | 20.0             | 56               | 5.7              | 79               | 57                          |
| April     | 20.0             | 55               | 8.0              | 75               | 56                          |
| May       | 20.0             | 57               | 11.3             | 73               | 58                          |
| June      | 20.0             | 62               | 14.2             | 75               | 63                          |
| July      | 20.0             | 65               | 15.8             | 75               | 65                          |
| August    | 20.0             | 66               | 15.7             | 77               | 66                          |
| September | 20.0             | 64               | 13.5             | 80               | 65                          |

Calculated by Protect Technical Services

