

MMB Developments Ltd.
 Retrfoam - Timber kit cavity re-insulating
 Proposed Building Performance Evaluation (BPE) work and conditions
Conversion of values from Imperial to Metric

	Resistance (ft².hr.°F/Btu)		
	(original)		
Outside Air Film	0.170		
Siding	0.810		
Sheating	1.320		
Wood Framing	0.9	1.0	1.1
Cavity Insulation	Listed in table		
Gypsum	0.450		
Inside Air Film	0.680		

	Resistance (m².K/W)		
	(New)		
Outside Air Film	0.04		
External finishing	0.143		
Timber board	0.232		
Timber straps	0.158	0.176	0.194
Insulation	Listed in table		
Plasterboard	0.079		
Inside Air Film	0.13		

1 sq ft (ft ²) =	0.093	m ²
T(°C) = (T(°F)-32)/1.8		
1 inch =	2.54 cm	
	0.0254 m	
U-Value :		
W/m ² .K	=	0.176 Btu/ft ² .h.°F
Btu/ft ² .h.°F	=	5.679 W/m ² .K
Resistance :		
ft ² .h.°F/Btu	=	0.176 m ² .K/W
Permeance :		
perm (US)	=	5.745E-11 kg/m ² .s.Pa
grain	=	0.065 g

MMB Developments Ltd.

Retrfoam - Timber kit cavity re-insulating

Proposed Building Performance Evaluation (BPE) work and conditions

Conversion of values from Imperial to Metric

R-Values and U-Values for Wood Frame Walls Insulated with PolyMaster Plastic Foam Insulation Imperial values (original)						
Ave. Temp	R-foam per inch	R-wood per inch	R16 (1)	R24 (2)	U16 (3)	U24 (4)
R-505 Foam						
25	4.63	0.90	15.50	22.90	0.065	0.044
50	4.43	0.90	15.10	22.30	0.066	0.045
75	4.13	0.90	14.50	21.40	0.069	0.047
25	4.63	1.00	15.70	23.40	0.064	0.043
50	4.43	1.00	15.30	22.70	0.065	0.044
75	4.13	1.00	14.70	21.70	0.068	0.046
25	4.63	1.10	16.00	23.70	0.063	0.042
50	4.43	1.10	15.50	23.10	0.065	0.043
75	4.13	1.10	14.90	22.10	0.067	0.045
R-501 Foam						
25	4.59	0.90	15.40	22.80	0.065	0.044
50	4.38	0.90	15.00	22.20	0.067	0.045
75	4.10	0.90	14.40	21.20	0.069	0.047
25	4.59	1.00	15.60	23.20	0.064	0.043
50	4.38	1.00	15.20	22.50	0.066	0.044
75	4.10	1.00	14.60	21.60	0.068	0.046
25	4.59	1.10	15.90	23.60	0.063	0.042
50	4.38	1.10	15.40	22.90	0.065	0.044
75	4.10	1.10	14.90	21.90	0.067	0.046

^[1 & 3] Nominal 2x4 on 16-inch centres

^[2 & 4] Nominal 2x6 on 24-inch centres

R-Values and U-Values for Wood Frame Walls Insulated with PolyMaster Plastic Foam Insulation Metric values (New)								
Ave. Temp (°C)	R-foam/meter (m².K/W)	R-wood/ meter (m².K/W)	Bridge (Timber & Foam)		Bridge (Timber & Foam)		U-value (wall)	
			R16 ⁽¹⁾ (m².K/W)	R24 ⁽²⁾ (m².K/W)	U16 ⁽³⁾ (W/m²K)	U24 ⁽⁴⁾ (W/m²K)	U16 ⁽³⁾ (W/m²K)	U24 ⁽⁴⁾ (W/m²K)
R-505 Foam								
-4	0.82	0.16	2.73	4.03	0.37	0.25	0.30	0.21
10	0.78	0.16	2.66	3.93	0.38	0.25	0.30	0.22
24	0.73	0.16	2.55	3.77	0.39	0.27	0.31	0.23
-4	0.82	0.18	2.76	4.12	0.36	0.24	0.30	0.21
10	0.78	0.18	2.69	4.00	0.37	0.25	0.30	0.22
24	0.73	0.18	2.59	3.82	0.39	0.26	0.31	0.22
-4	0.82	0.19	2.82	4.17	0.35	0.24	0.29	0.21
10	0.78	0.19	2.73	4.07	0.37	0.25	0.30	0.21
24	0.73	0.19	2.62	3.89	0.38	0.26	0.31	0.22
R-501 Foam								
-4	0.81	0.16	2.71	4.02	0.37	0.25	0.30	0.22
10	0.77	0.16	2.64	3.91	0.38	0.26	0.31	0.22
24	0.72	0.16	2.54	3.73	0.39	0.27	0.32	0.23
-4	0.81	0.18	2.75	4.09	0.36	0.24	0.30	0.21
10	0.77	0.18	2.68	3.96	0.37	0.25	0.30	0.22
24	0.72	0.18	2.57	3.80	0.39	0.26	0.31	0.23
-4	0.81	0.19	2.80	4.16	0.36	0.24	0.29	0.21
10	0.77	0.19	2.71	4.03	0.37	0.25	0.30	0.21
24	0.72	0.19	2.62	3.86	0.38	0.26	0.31	0.22

^[1 & 3] Nominal 5x10 cm on 40cm centres

^[2 & 4] Nominal 5x15 cm on 60cm centres

MMB Developments Ltd.
 Retrfoam - Timber kit cavity re-insulating
 Proposed Building Performance Evaluation (BPE) work and conditions
Conversion of values from Imperial to Metric

Test method:			
The test was conducted in accordance with ASTM Test Method E 96, Water Vapor Transmission of Materials.			
Imperial values (Original)			
Test Procedure:			
Test Method Used	-	Water	
Temperature	-	90 °F	
Relative Humidity	-	50 %	
Exposure Time	-	93 hrs	
Cup Design	-	Hemispherical	
Sealant	-	Paraffin	
Material Tested:			
Identification	-	PolyMaster Foam	
Thickness Tested	-	2.375 inch	
Test Result:			
Water Vapour Transmission	-	4.655 grains/h-ft ²	
Permeance	-	6.631 perms	
Average Permeability	-	15.749	

Test method:			
The test was conducted in accordance with ASTM Test Method E 96, Water Vapor Transmission of Materials.			
Metric values (New)			
Test Procedure:			
Test Method Used	-	Water	
Temperature	-	32 °C	
Relative Humidity	-	50 %	
Exposure Time	-	93 hrs	
Cup Design	-	Hemispherical	
Sealant	-	Paraffin	
Material Tested:			
Identification	-	PolyMaster Foam	
Thickness Tested	-	6.03 cm	0.060 m
Test Result:			
Water Vapour Transmission	-	77.92 g/m ² .day	3.25
Permeance	-	3.81E-10 kg/m ² .s.Pa	3.81E-07
Average Permeability	-		