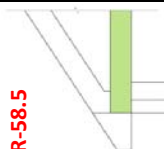

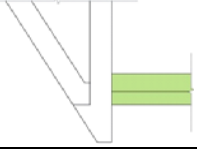


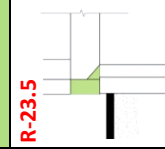
Insulation requirements

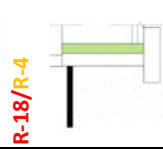
(Calculation made by ASHRAE 90.1)

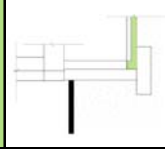


Roof		Spacing @ 16"		Spacing @ 24"			
		Inch	mm	Inch	mm		
R-58.5		Sloped Roof with attic					
		Roof truss by attic ventilated (sprayed on ceiling)	10.75	272	10.75	268	
R-41		Cathedral or Flat roof					
		I-Joist or Web Joist by interior unvented	8.5	214	7.75	196	
		I-Joist or Web Joist by interior vented cavity outside	8.75	218	8	199	
		I-Joist or Web Joist by exterior vented cavity outside	9	226	8.25	207	
		Joist by interior unvented	Consult Demilec				
		2x8	Consult Demilec				
		2x10 (with flat 2x3 perpendicular for 16" C/C only)	(R-9)	7.75	193	8.5	213
		2x12		8.5	213	7.75	196
		Joist by interior vented cavity	Consult Demilec				
		2x8	Consult Demilec				
		2x10 (with flat 2x3 perpendicular for 16" C/C only)	(R-9)	8	199	8.75	219
		2x12		8.75	219	8	201
Joist by exterior vented cavity	Consult Demilec						
2x8	Consult Demilec						
2x10 (with flat 2x3 perpendicular for 16" C/C only)	(R-9)	8.5	211	9.25	232		
2x12		9.25	232	8.5	211		
Truss by interior unvented		7.5	190	7.5	185		
Truss by interior vented cavity		7.75	193	7.5	188		
Truss by exterior vented cavity		8	199	7.75	194		

Above grade wall (cladding, furring 90° or 45°)		Spacing @ 16"		Spacing @ 24"			
		Inch	mm	Inch	mm		
R-23.5/R-4		Heatlok Soya exterior + Int. insulation (Cellulose or fiberglass)					
		2x4	1.75	44	1.75	43	
		2x6	1	24	1	21	
		Heatlok Soya breaking thermal bridges + Heatlok Soya interior					
		2x4	(R-9)	1.5-3	36-75	1.5-3	34-75
		2x6	(R-6)	1-3	25-75	1-3	25-71
		Heatlok Soya interior + Int. insulation (Cellulose or fiberglass)					
		2x4	Non	Non	Non	Non	Non
		2x6 (breaking thermal bridges)	(R-6)	1	22	1	20
		R-4 exterior + Heatlok Soya interior					
		2x4	Non	Non	Non	Non	Non
		2x6	(R-4)	4.25	106	4	97
R-5 exterior + Heatlok Soya interior							
2x4	Non	Non	Non	Non	Non		
2x6	(R-5)	3.75	94	3.5	86		

Rim Joist		Spacing @ 16"		Spacing @ 24"			
		Inch	mm	Inch	mm		
R-23.5		I-Joist with R-4 exterior					
		I-Joist (no exterior insulation)	(R-4)	4	97	3.5	88
		Rim Joist R-4 exterior	(R-4)	4.75	116	4.25	106
		Rim Joist (no exterior insulation)	(R-4)	4.25	108	4	100
		Rim Joist parallel with structure with R-4 exterior	(R-4)	5.25	130	4.75	120
		Rim Joist parallel with structure	(R-4)	3	72	3	72
		3.5	86	3.5	86		

Foundation wall		Spacing @ 16"		Spacing @ 24"		
		Inch	mm	Inch	mm	
R-18/R-4		By interior structure 2x4 (spaced 1" from concrete)				
		(R-6)	3	75	3	73
		By interior structure 2x3 (spaced 1.5" from concrete)				
		(R-9)	2.75	70	2.75	69
By exterior with interior finish						
		2.5	64	2.5	64	
By exterior whitout interior finish						
		2.75	70	2.75	70	

Slab		Full surface	
		Inch	mm
R-6.2		Slab on-grade	
		1.25	32
		Slab on-grade (with foundation wall insulated 4' underground)	
		1.75	41
Heated slab or Raft slab		2.5	62

Cantilevered Floor		Spacing @ 16"		Spacing @ 24"			
		Inch	mm	Inch	mm		
R-28.5/R-7.5		I-Joist or Web Joist by interior (air cavity 1/2" under the floor)					
		I-Joist or Web Joist by exterior	5.25	130	5	122	
		Joist by interior (2x3 flat under joist)	(R-9)	5.25	130	5	122
		2x8		4.75	116	4.5	113
		2x10		4.5	111	4.5	110
		2x12		4.25	108	4.25	108
		Joist by exterior (2x3 upwards under joist)					
		2x8		4.75	116	4.5	113
		2x10		4.5	111	4.5	110
		2x12		4.25	108	4.25	108

* Red = Effective R values for the assembly

* Orange = Minimum R value required for thermal bridges covering (Part 11)

* Blue = R values of thermal bridges covering achieved for the assembly

Demilec technical support : 1.866.437.0223

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Comparison of insulation requirements for buildings 3 stories and less and 600 m² and less (Part 9) (National Building Code)

	Act respecting the conservation of energy in buildings (Zone A) 1983	Part 11 CCQ / Novoclimat (<6000 DD) 2012	Novoclimat 2.0 2014 ⁽⁴⁾
	Mandatory before 2012	Presently mandatory	Voluntary (Québec)
	Total R value ⁽¹⁾	Total R value + minimum thermal bridges covering ⁽²⁾	Effective R value ⁽³⁾
Sloped roof with attic	R-30.1 (RSI 5.30)	R-41 (RSI 7.22)	R-58.5 (RSI 10.3)
Flat or cathedral roof	R-30.1 (RSI 5.30)	R-41 (RSI 7.22)	R-41 (RSI 7.22)
Above ground wall (including rim joist)	R-19.3 (RSI 3.4)	R-24.5 (RSI 4.31) Thermal bridges covering : R-4 (R-22 effective)	R-23.5 (RSI 4.14)
Cantilevered floor	R-26.7 (RSI 4.7)	R-29.5 (RSI 5.2) Thermal bridges covering : R-7.5 (R-25 effective)	R-28.5 (RSI 6.02)
Foundation wall	R-12.5 (RSI 2.2)	R-17 (RSI 3.0) Thermal bridges covering : R-4 (R-15 effective)	R-18 (RSI 3.17)
Basement slab	None	R-5 (RSI 0.88) Full surface	R-6.2 (RSI 1.09) Full surface
Slab on ground	None	R-7.5 (RSI 1.32) Full surface	R-11.1 (RSI 1.95) Full surface
Heated or Raft slab	R-9 (RSI 1.6)	R-10 (RSI 1.76) Full surface	R-16.1 (RSI 2.84) Full surface

⁽¹⁾ Thermal resistance value through insulation only.

⁽²⁾ Total R value incluant including thermal bridges covering.

⁽³⁾ Thermal R value including calculation of thermal bridges by structure.

⁽⁴⁾ For region with more than 6000 degree days, the effective R value is increased only to the building parts below :

- Flat or cathedral roof : R-45 (RSI 7.93)

- Above ground wall : R-25 (RSI 4.4)

- Foundation wall : R-19.5 (RSI 3.43)