



How much to model? (at ground)

At the Ground' is a special condition where some portion of the model is underground, and some portion above ground. Use the following table (ISO 10211 Section 5.2.4) to determine the extents of the ground to include in the model.

Direction	Min. Dimension Required			
Horizontal inside the building	0.5 × width of the ground floor (or 4 meters)			
Horizontal outside the building	2.5 × width of the ground floor (or 20 meters)			
Vertical below ground level	2.5 × width of the ground floor (or 20 meters)			
ISO 10211:2007 Table 1 - Location of cut-off planes in the ground:				
New York CENTER FOR ARCHITECTURE BIOLOGIYP				



















Detail U-Factor 1 (U _{2D})	and U _{wall}
U-Factors	×
U-factor delta T Length Btu/h-ft2-F F inches Rotation Exterior 0.0160 54.0 284 N/A Total Length Interior 0.0440 54.0 103.5 N/A Total Length	Heat Flow Btu/h 20.4705 20.4701 2.3733
Display	
% Error Energy Norm 9.46%	Export OK
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Floor U-Value (U _{Floor})			
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Display	U-1 Btu Interior 0.0 Exterior 0.0	factor delta 1 /h-ft2-F F 1400 68.0 1400 68.0	Length inches 32.0001 32.0001	Rotation N/A N/A	Total Length Total Length	v v	Heat Flow Btu/h 7.2564 7.2564	Heat Flux Btu/h-ft2 2.7212 2.7212
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Boundary Condi	tion Type	×
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Boundary Condition	Film Coefficient 0.04 Btu/h-ft2-F	Rename
U-Factor Surface		Color
Temperature		Save Lib Save Lib As
Emissivity 0		Load Lib Library
Shading system m		Protected
ALA New York	Relative Humidity: 50 %	



Detail U-Factor 2 (U _{2D_a})			
U-Factors X U-Factor delta T EXTERIOR 0.0048 54.0 240 N/A Total Length INTERIOR 0.0159 54.0 72 N/A Total Length 5.1407 0.8568 Display © U-factor R-value % Error Energy Norm 9.92% Export OK			
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Calculate PSI-Value				
Heat Loss through full 2D Therm model:				
Interior 0.0440 54.0 103.5 N/A Total Length	~ 20.4701			
Loss _{2D} = 20.47 Btu/hr-ft				
Heat Loss through modified 2D Therm model:				
INTERIOR 0.0159 54.0 72 N/A Total Length	~ 5.1407			
Loss _{2D_a} = 5.14 Btu/hr-ft				
Heat Loss through wall <u>only</u> :				
$Loss_{wall} = U_{wall} \times Len_{wall} \times \Delta T$				
Loss _{wall} = 0.0587 Btu/hr-ft ² -F × (48"/12"-ft) × 54	D			
Loss _{wall} = 12.68 Btu/hr-ft-F				
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