

Heat Transfer Checklist For the PE Exam

Test Date: _____

Name: _____

		Confident	Knowledgeable	Need More Work
Heat Transfer Terms				
1.	Conduction. Do you understand conduction and the equations governing conduction? Can you distinguish between the three modes of heat transfer?			
2.	Convection. Do you understand convection and the equations governing convection? Can you distinguish between the three modes of heat transfer?			
3.	Radiation. Do you understand radiation and the equations governing radiation? Can you distinguish between the three modes of heat transfer?			
4.	U-Factor. What is the U-Factor? What are the units of the U-factor? Can you convert between U-Factor, R-Value and k-Value?			
5.	R-Value. What is the R-value? What are the units of the R-Value? Can you convert between U-Factor, R-Value and k-Value?			
6.	k-Value. What is the k-value? What are the units of the k-value? Can you convert between U-Factor, R-Value and k-Value?			
7.	Overall Heat Transfer Coefficient. What is the overall heat transfer coefficient? Can you determine the overall heat transfer coefficient of a wall or roof assembly?			
8.	Resources. Do you have quick access to roof and wall materials properties?			
Cooling Load Calculations				
1.	Walls. Can you calculate the heat transfer through a wall? Can you calculate the overall heat transfer coefficient for a wall? Can you use the CLTD term to find the heat transfer through a wall?			
2.	Roofs. Can you calculate the heat transfer through a roof? Can you calculate the overall heat transfer coefficient for a roof? Can you use the CLTD term to find the heat transfer through a roof?			
3.	Windows/Skylights. Can you calculate the heat transfer through a window or skylight? Can you use the SC and SCL term to find the heat transfer through a wall?			
4.	People. Can you calculate the heat gain from people? Sensible and latent? Do you have quick access to heat gains from people at different activity levels?			

5.	<u>Lighting</u> . Can you calculate the heat gain from lights? Do you have quick access to heat gains from different types of light installation?			
6.	<u>Equipment</u> . Can you calculate the heat gain from miscellaneous equipment and motor installations? Do you also have access to typical heat gains from typical equipment?			
7.	<u>Infiltration</u> . What is infiltration? Can you determine the amount of infiltration based on the construction tightness? Can you calculate the heat gain from infiltration?			
8.	<u>Ventilation</u> . Can you determine the required ventilation in accordance with the applicable code? Do you have quick access to ASHRAE 62.1? Can you determine the heat gain from ventilation?			
Heat Exchangers				
1.	<u>LMTD</u> . Can you calculate the LMTD given the conditions of the fluids?			
2.	<u>Types of Heat Exchangers</u> . Can you identify the difference between counter current and parallel flow heat exchangers? Can you calculate the LMTD of both types?			
3.	<u>Energy Balance</u> . Can you create an energy balance to describe a heat exchanger?			