

### APPRENTICE MONTHLY PROGRESS RECORD - HVAC/R

"A" Work processes as per standards	"B" Hours brought forward	For each day, enter the work process code (listed on back) in the top half of the box IN THE LOWER PART OF THE BOX, ENTER THE NUMBER OF HOURS WORKED. RECORD HOURS TO NEAREST HOUR; NO FRACTIONS.																															"C" Total hours current month	"D" Total Hours To Date			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
A	wk proc hrs																																				
B	wk proc hrs																																				
C	wk proc hrs																																				
D	wk proc hrs																																				
E	wk proc hrs																																				
F	wk proc hrs																																				
G	wk proc hrs																																				
H	wk proc hrs																																				
I	wk proc hrs																																				
TOTAL OUT HOURS																																					
CLASS HOURS ATTENDED																																					

Name of Firm / Employer: \_\_\_\_\_  
 Location or Worksite: \_\_\_\_\_  
 Phone: \_\_\_\_\_

Name: \_\_\_\_\_  
 Month & Year: \_\_\_\_\_  
 Apprentice: I certify that the above information is correct  
 Signed: \_\_\_\_\_ Date: \_\_\_\_\_

# HVAC/R WORK PROCESSES ONLY

Effective 08/04/2014

## Mechanical Applications

### **A – Installation, Troubleshooting, and Service of HVAC Systems (1000 hours)**

1. Installation of systems. Package Units, H2O Source Heat Pumps, VRF Systems, Split Systems.
2. Troubleshooting (service calls): mechanical systems, pneumatic electrical & electronic control systems, air and water distribution systems, cooling towers, evaporative condenser, cooling evaporators, and control valves.
3. Maintenance of HVAC/R systems: coil cleaning, filter changing, fan belt replacement & adjustment, lubricating bearings, cleaning fans and cooling towers, run checking systems confirming normal operation and safety checks.
4. Welding/Brazing/Soldering

### **B – Duct design, Layout, Air Flow, and Refrigeration Theory (400 hours)**

1. Pipe design and layout, chilled and condensed water piping, VRF and split systems piping, steam piping.
2. Balancing air and water flow.
3. Refrigeration: retrofitting refrigeration systems with new blended refrigerants, natural refrigerants, recovering refrigerant, leak repairs.
4. Welding/Brazing/ Soldering

### **C – Piping, Welding, Brazing, and Soldering (300 hours)**

1. On water, steam, and refrigeration systems of all types.
2. Welding/Brazing/Soldering

### **D – Mechanical Processes (2300 hours)**

1. Chemical Distribution: Chilled and Hot water chemical analysis and treatment, Steam and Condensate analysis and treatment, Cooling tower water analysis and treatment.
2. Pumps/Motors: Hydronic systems operations and balancing, Shaft and belt alignment, sizing, and maintenance, Seal and coupling replacement/repair.
3. Refrigerants: Proper refrigerant selection, oil compatibility triage, proper charge calculating and fabrication of alternative refrigerants. Recovery EPA Guide lines.
4. Burners: Controls and safety device operation, adjustment, and replacement, Combustion analysis and adjustments.
5. Chillers: Various chiller tear down, repairs, replacements, adjustments, reciprocating centrifugal, and screw.
6. VAV Box Operations.
7. Low and Medium temperature operations (walk in coolers and freezers).
8. Welding/Brazing/Soldering

## Electrical Applications: LEB

### **G – Limited Energy Installations (1750 hours)**

### **H – Trouble Shooting & Maintenance (250 hours)**

### **I – Occupation-Specific applications (2000 hours)**

1. Communications systems – including data telecommunications, intercom, paging
2. Specialized control systems – including HVAC, medical, boiler, clock and instrumentation.