BPI Multifamily Building Operators Testing Knowledge List

MODULE	TASK/SKILL DESCRIPTION
	Building Science
1	Understand basic heat transfer mechanisms
1	Understand moisture transport mechanisms
1	Understand relative humidity, condensation, and how they are related to comfort
1	Basic principles of air conditioning
1	Understand multifamily building airflow characteristics (single zone, parallel floor, compartmentalization, etc.)
1	Understand and Identify typical multifamily ventilation system design strategies and applications
1	Associate interaction of stack effect and airflows in ventilation stacks
1	Understand air leakage issues related to elevators
1	Understand the difference between nominal and effective R-value
1	Understand IAQ pollutant transport mechanisms
1	Understand basic combustion science
1	Understand combustion technologies
1	Understand how heat recovery works for ventilation systems
1	Understand how heat recovery works for domestic hot water systems
1	Identify correct foot-candle requirements for light levels in different areas of the building
1	Associate relationship between lighting/appliance retrofits with internal gains and heating/cooling loads
1	Be familiar with proper de-manufacturing and disposal procedures for appliances and lighting components
1	Basic understanding of electrical systems
1	Understand how a building envelope works
1	Define air barrier
1	Define thermal barrier / boundary
1	Describe how wall assemblies effect the drying ability of the wall when water intrusion occurs
1	Define flashing and examples of use
	AUDITING / REPORTING SKILLS
2	Basic knowledge of operation and major parts of furnace distribution systems
2	Ability to read instructions and follow them for distribution controls

Basic knowledge of ventilation (exhaust, intake, leakage) as well as codes Ability to know the scope of work for a contractors and ensure proper installation Ability to schedule and stage work effectively and efficiently Evaluate the flow of combustion products out of the building Ability to use simple tools to follow flow of combustion air and identify back drafting and spillage Need to identify tell tale signs of back drafting, spillage, and condensation in the flue Relationship between boiler water aqua stat settings, DHW temp and cost of maintaining Knowledge of control settings Knowledge of mixing and tempering valves Ability to distinguish between routine maintenance tasks and basic repair work Understand energy efficient lighting options and design including controls Develop protocols for lighting replacement in areas of building owner responsibility Understanding of utility bills and usage patterns including demand Establish comprehensive lighting schedule and procedures for planned replacement Train maintenance staff and residents on proper operation Understand reasons to keep and use logs Ability to create a log from a set of data Translate information on logs into action steps Create and maintain systems for the safekeeping of records, logs Ability to create a log from a set of data Develop and maintain a system for tracking and completing work orders Develop and maintain a system for tracking and completing work orders Develop and maintain a system for tracking utility use Identify components of typical wall assemblies that make up the envelope and understand their functions Identify typical roof assemblies Identify typical roof assemblies Identify typical roof assemblies Identify proper air barrier and its function in a building		Decides the form of the first of the second
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2 Identify proper air barrier materials	2	Describe an air barrier and its function in a building
	2	Identify proper air barrier materials

2	Identify moisture tolerant materials for areas that are high risk for moisture
2	Identify common types of insulation
2	Identify the signs of deterioration for common exterior finishes
2	Identify typical causes of deterioration
2	Identify examples of improperly installed and/or deteriorating flashing
2	Know different types of doors and windows to characterize their energy performance
2	Inspection and Diagnostic Skills
3	Diagnose heating/cooling imbalance and correct basic complaints
3	Basic knowledge of distribution, balancing, bleeding
3	Knowledge of one pipe vs. two pipe systems
3	Knowledge of tankless and sidearm hot water makers
3	Knowledge of boiler pressure, low fire pressure, modulating pressure
3	Difference between pressure troll and vapor stat
3	Ability to test ventilation performance with little to no equipment
3	Ability to determine duct insulation levels
3	Ability to determine duct sealing needs
3	Basic A/C maintenance, cleaning filters
3	Record flue temperatures
3	Record daily fuel usage in logs for tracking of building efficiency and need for maintenance
3	Knowledge of paper and/or electronic log book systems
3	Ability to analyze and interpret log data and take appropriate corrective action
3	Water temperature testing at taps and shower heads
3	Perform periodic maintenance and repair of water heaters and tanks
3	Identify when the envelope has failed
3	Working knowledge of (EMS) system and how to read and control system for maximum efficiency
3	Reduce or eliminate potential sources of standing water
3	Conduct regular inspections of roof for possible damage and potential leaks
3	General understanding of diagnostic equipment and procedures
3	Train on proper utilization of diagnostic equipment
3	General understanding of testing procedures/efficiency for stoves/ovens

3	Establish ongoing testing protocols
3	Interpret and analyze usage data and communicate information to other decision makers
3	Identify areas that need weatherstripping
3	Know proper materials to be used for caulking
3	Demonstrate how to conduct a basic roof inspection
3	Identify common reasons for water penetration
3	Know routine maintenance tasks for various kinds of roofs
3	Maintain integrity of boundaries between interior conditioned space and attached or underground garages or mech rooms
	Installation / Analysis Skills
4	Ability to know the scope of work for a contractors and ensure proper installation
4	Ability to schedule and stage work effectively and efficiently
4	Evaluate the flow of combustion products out of the building
4	Ability to use simple tools to follow flow of combustion air and identify back drafting and spillage
4	Identify tell tale signs of back drafting, spillage, and condensation in the flue
4	Knowledge of indirect, tankless, and sidearm hot water makers
4	Relationship between boiler water aqua stat settings, DHW temp
4	Knowledge of hot water control settings
4	Knowledge of hot water mixing and tempering valves
4	Maintain hot water temperature to meet all relevant health and safety codes
4	Identify and avoid unsafe hot water temperatures
4	Establish a maintenance schedule for building-owned equipment including: trash compactors, central laundry and
	kitchen facilities, etc.
4	Ensure proper seal/closing of trash chutes
4	Maintain records and logs as appropriate
4	Develop protocols for replacement of appliances
4	Ensure proper maintenance of washer/dryer venting in common areas and in unit
4	Simple maintenance such as caulking/ weather-stripping
4	Materials commonly used as thermal barriers and proper applications
4	Identify materials commonly used as moisture barriers and proper application
4	Distinguish when repair vs. replacement of doors and windows is needed

	HEALTH AND SAFETY
5	Understand health ramifications of product selection
5	Maintain and understand MSD sheets on all products
5	Understand common health issues related to building management practices
5	Identify / correct fall/trip/slip areas in apartments and common areas
5	Understand, measure, and correct light levels
5	Proper use of tools
5	Effectively ask questions to residents regarding building management health considerations
5	Apply air sealing and related tobacco smoke mitigation
5	Develop tobacco smoke response strategy
5	Apply air sealing and related pest mitigation
5	Develop pest response strategy
5	Develop health-related complaint response strategy
5	Apply Evaluation and feedback techniques to gauge changes in building's resident health considerations.
5	Be able to measure and correct CO problems
5	Understand and apply environmental hazard management requirements
5	Be able to monitor, identify, test, and respond to natural gas leaks
5	Prepare and apply a critical health and safety checklist - apartments, common areas, mechanical rooms
5	Educate residents about apartment/ resident health and safety maintenance requirements
5	Understand and apply Health and Safety drill management best practices
5	Reduce impact of dust migration into building/ apartments
5	Apply NYC mold mitigation guidelines
5	Maintain apartment and common area thermal comfort per guidelines
5	Identify and prevent burn possibilities
5	Follow Integrated Pest Management (IPM) best practices
5	Follow worker safety personal health best practices.
5	Maintain a secure building. Evaluate performance.
5	Maintain safe elevators, identify, check, and anticipate potential elevator problems
5	Develop and apply an electrical inspection protocol. Understand safe electric system best practices
5	Cooling Tower chemical treatment/ operation/ monitoring considerations HVAC

5	Identify need and install tip control brackets for equipment, appliances, and furnishings that may pose a safety hazard
5	Be aware of commercial space health and safety issues.