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

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