VRF & SPLIT SYSTEM MAINTENANCE PLAN
Preventative Maintenance Program & Plan

Maintenance & Service Overview

Good maintenance ensures the longevity and efficiency of heat pump equipment and the comfort and safety of residents. This document provides guidance on a VRF & Split System Maintenance Plan, including building responsibilities, and a MAINTENANCE SERVICE CONTRACT CHECKLIST AND EQUIPMENT TABLE in Appendix 1 and 2.

- The most common maintenance anticipated in the initial years (1-3) of operation are cleaning the fan coil unit on the outdoor units, including the fins, and the cleaning and changing of filters on outdoor (where applicable) and indoor units. Failure to implement this basic maintenance can have significant impact on system efficiency and longevity.
- Other common causes of issues include electrical power surges as they can impact circuit / power control boards, and refrigerant leaks. Note that refrigerant leaks are one of the most common causes of callbacks for inverter-driven heat pump systems. They can present in various ways: as complaints of inadequate heating or cooling; as error codes and intermittent lockouts; as iced-up indoor or outdoor coils; and as high energy bills. Left unaddressed, refrigerant leaks can significantly reduce equipment efficiency and lifespan.
- Assume that systems will require the following items during their expected 15+ year lifespan:
    - Filter Replacements: +/- every 10 years Crankcase
    - Replacement: +/- every 10 years Fuse: per
    - manufacturer/ as needed
    - Condensate Pumps: per manufacturer/ as needed
- **It is imperative to have the first scheduled maintenance event during the first year and while the installation is still under warranty. Most errors that occur in the initial year are due to improper installation. It is critical that these be addressed as part of the 1-year initial warranty on labor.** This includes refrigerant leaks, which can be expensive to repair, refrigerant line insulation, ensuring that equipment is not short cycling due to improperly located thermostats and unbalanced/ secured units that may cause vibration and/or future equipment damage. It is also recommended the service provider visit all apartments that have submitted complaints, including complaints about performance, odors, or leaks which can signify poor installation.

Building Responsibilities (Owner/ Building Staff)

Operations

- The building is responsible for proper operation of all heat pump systems
- oWill train all new staff (at initial installation and staff turnover) on equipment servicing and protocols and have building staff accompany service contractors on all service visits, with a goal of becoming self-reliant for routine issues and maintenance.
- oWill ensure that all thermostats are pre-set as required in the HPD Technical Requirements and Best Practices
- oWill train all residents on equipment and thermostat use (at initial installation and tenant turnover) and provide resources to residents per HPD's Resident-Paid Heating Policy

Maintenance

- Will procure a service contract to engage a factory-authorized service company for annual and as-needed services and troubleshooting/ emergency repairs (see Attachment 1 for details).

  - All outdoor units will be serviced annually prior to Heat Season (typically in August- September) by implementing all measures on the attached checklist.
  - All indoor units will be serviced every 5 years
- Collect and maintain equipment manuals in a central location for easy access (i.e., owner's manual, installation and maintenance manual, service manual)
- Will coordinate all planned maintenance and servicing and ensure that (1) access to all applicable spaces is coordinated, and (2) that minimizes impact to all other spaces and residents.
- In winter, check for units with excessive ice build-up which may signify issues with the defrost cycle.
- Maintain equipment maintenance checklists and service logs.
- Maintain a list of resident complaints, including complaints of high utility costs for resident-paid equipment.
- Will provide seasonal reminders (every 3 months) to residents, along with the HPD Resource Packet, about filter cleaning, and/or will provide this service if determined necessary by the building owner.
  - All indoor units are assumed to be cleaned by residents seasonally. At the owner's discretion, the building staff can take on this responsibility but must ensure access to apartments.

Repairs and Emergencies

For large buildings/ large central VRF systems

- The Building's Maintenance Coordinator (BMC) will monitor the performance of all systems daily through a back-end viewable BMS system with remote access. The system can be monitored from anywhere. We recommend that the BMC keep a log of issues (error codes) for each unit, and download diagnostic issues
- In the event of a no-heat or no-cooling service request from a resident; the BMC will review the BMS system for initial troubleshooting and dispatch an on-site technician for first attempt at repairs/adjustments to bring the unit online based on the error code observed.
- If the on-site associates cannot bring the unit back online within 30 minutes, the BMC will dispatch the authorized vendor to further troubleshoot to make any necessary repairs.
- The on-site team will have an adequate stock of all common parts, materials, etc. at the property at all times to reduce the downtime of any/all units at the property.

For smaller buildings without full-time staff or a BMC

- The building's property manager will receive no-heat or no-cooling service requests from residents.
- If possible, the building or property manager staff will attempt to troubleshoot the unit (e.g., by reviewing and implementing the checklist and recommendations for typical issues).
- If this entity cannot bring the unit back online within 30 minutes, the authorized vendor will be sent to the building to further troubleshoot to make any necessary repairs.
- The service contractor will be expected to maintain an adequate stock of all common parts, materials, etc. at the property at all times to reduce the downtime of any/all units at the property.