# MOLD
# BUILDING SCIENCES
# TRAINING PROGRAM

PREPARED FOR & PRESENTED TO
NEW YORK CITY HOUSING AUTHORITY

STUDENT MANUAL

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# MOLD BUILDING SCIENCES TRAINING PROGRAM
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## PREFACE

This training course manual has been created to provide staff of the New York City Housing Authority (NYCHA) with that organization's standard procedures, guidance and a general managers directive (GM) as prepared by NYCHA for NYCHA staff. The procedures and practices detailed in these pages incorporate current procedures at the time of printing. The reader should be advised that as procedures evolve, so do the methods for identifying and remediating mold contamination. Therefore, we emphasize the need for the reader to obtain the most up to date information available.

Standardized procedures, technical expertise and common sense are major components of a successful project. The reader is encouraged to improve further on the techniques provided in this manual as experience is gained through field practice. This will ensure that the mold industry continues to evolve to improve all facets of remediation and worker protection.

## ACKNOWLEDGEMENTS & REFERENCES

It would be impossible to acknowledge all of the individuals who have contributed to the development of this course manual in some fashion or manner. Environmental Education Associates, Inc. is extremely grateful to those who have generously shared their knowledge, expertise and experiences throughout the development process. Special thanks to Alisa Raab, Charlotte McLellan and Marvin Jean-Jacques who contributed to the creation of this manual and associated training courses.

## DISCLAIMER

This manual was developed using NYCHA documents. This manual has no official weight or legal merit outside NYCHA. Procedures and practices contained in this manual have not been reviewed or approved by regulatory agencies. It is the responsibility of the user to verify compliance with all applicable federal, sate of local regulatory agencies.

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# NYCHA STANDARD PROCEDURE MANUAL
# SP 040:14:1

**NYCHA STANDARD PROCEDURE MANUAL**

**SP 040:14:1, MOLD/MILDEW CONTROL IN NYCHA RESIDENTIAL BUILDINGS**

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## I. PURPOSE

This Standard Procedure establishes responsive measures to mold and its root causes in New York City Housing Authority (NYCHA) public housing locations and creates protocols to protect the health of residents and staff when remediating mold and identifying and correcting its root causes.

## II. POLICY

It is the policy of NYCHA to establish a cooperative partnership between staff and residents to quickly identify mold and its root causes. NYCHA will promptly remove mold from NYCHA locations and correct the root cause of the mold growth (i.e., the moisture source and/or inadequate ventilation).

## III. APPLICABILITY

This Standard Procedure applies to staff responsible for the operation and maintenance of NYCHA public housing developments that receive Section 9 subsidies from the U.S. Department of Housing and Urban Development (HUD). This procedure does not apply to Permanent Affordability Commitment Together (PACT) developments.

## IV. INTRODUCTION TO MOLD AND MOISTURE CONTROL

Moisture control is the key to mold control. Mold will often grow in moist or wet indoor areas. Common sites for indoor mold growth include bathroom and kitchen walls and ceilings, cabinet bases and walls beneath sinks, interior surfaces of walls, ceilings below leaks from above or directly below roofs, and areas around windows where moisture condenses. Common sources or causes of water or moisture problems include condensation of shower vapors on bathroom walls and ceilings, condensation in wall cavities from inadequately insulated cold water pipes, leaks from plumbing pipes, roof and fac;ade leaks, and drain backups/overflows.

The general approach to preventing mold growth in buildings is to keep exterior moisture out of the building, and to control moisture from internal sources. To this end, it is important to establish a cooperative partnership between NYCHA staff and residents so that conditions that require attention are identified and dealt with promptly.

Exposures from residential excessive moisture and mold have been associated with increased risks for respiratory symptoms, asthma, hypersensitivity pneumonitis, rhinosinusitis, bronchitis, and respiratory infections. NYCHA staff must take action to detect and correct leaks, condensation problems, and floods as soon as they are discovered. The potential for building structural damage, mold growth, and increased adverse health effects can and must be reduced by limiting the buildup of indoor moisture.

Top Ten Things NYCHA Staff Should Know About Mold & Moisture

1. Potential health effects and symptoms associated with exposure to mold and excessive moisture include allergic reactions, asthma, and other respiratory complaints.

2. Mold can be found almost anywhere; it can grow on virtually any substance if moisture is present. For example, there are molds that can grow on sheetrock, painted plaster and concrete, wood, paper, carpet, foods, and even dusty inorganic building materials.

3. There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.

4. If mold is a problem in an apartment or building, we must clean up the mold and eliminate the sources of moisture.

5. Fix the source of the water problem or leak to prevent mold growth, including repairing leaky roofs and façades and restoring adequate exhaust ventilation in bathrooms and kitchens.

6. Reduce indoor humidity (to 30-60%) to decrease potential for mold growth by: venting bathrooms and kitchens; using air conditioners and de-humidifiers; and increasing ventilation. Staff shall ensure that mechanical ventilation is functioning (clear lateral ductwork and operable roof fans). Further, staff can use a hygrometer to check the relative humidity in a resident's apartment.

7. Clean and dry any damp or wet building materials within 24-48 hours to prevent mold growth. Advise residents to clean and dry any damp furnishing and other personal property within 24-48 hours.

8. Clean minor levels of mold off hard surfaces with water and detergent, and dry completely. Absorbent materials, such as sheetrock, that are moldy may need to be replaced.

9. Prevent condensation: reduce the potential for condensation on cold surfaces by assuring that cold water pipes in wall cavities are properly insulated.

**10.** If needed as a result of asthma, individuals with mold and/or excessive moisture in their apartments are entitled to reasonable accommodations from NYCHA.

## V. DEFINITIONS

A. Anemometer

An anemometer is an instrument used to measure the air flow or speed of air.

B. Borescope

A borescope is an instrument with a camera used to inspect for leaks or moisture behind a wall through an opening in the wall. It can also be used to observe conditions in other hard to reach places, such as inside an exhaust vent.

C. Complex Repairs

Repairs that need skilled trades or other specialized staff to address and may require multiple visits to the apartment.

D. Craft

The craft is the type of worker (e.g. maintenance worker, painter) assigned to remediate mold and moisture or make other related repairs.

E. Cubic Feet Per Minute (CFM)

CFM is the unit of measure for air flow measurements.

F. HEPA Vacuum

A HEPA vacuum uses a high efficiency particulate air (HEPA) filter that is at least 99.97% efficient in removing microscopic particles, i.e. monodisperse air particles of 0.3 micrometers in diameter.

G. Hygrometer

A hygrometer is an instrument used for measuring the moisture content (i.e. humidity levels) in the air inside an apartment.

H. Independent Data Analyst

An individual or advisory firm who is independently selected and is qualified in forensic data analysis.

I. Independent Mold Analyst

An individual or advisory firm who is independently selected, is licensed as a mold assessor by the New York State Department of Labor, and is certified as an industrial hygienist by the American Industrial Hygiene Association.

J. Informer Work Management (iWM) App

Informer Work Management is a work order application available on the handheld device.

K. Inspector

An inspector is a property maintenance supervisor or assistant property maintenance supervisor trained and authorized to perform initial inspections and quality assurance inspections using the iWM app on the handheld device. The property manager is also an authorized inspector.

L. Initial Inspection

The process by which NYCHA diagnoses and documents a mold or excessive moisture condition.

M. Large Remediation Job

A large remediation job is the remediation of one hundred (100) or more square feet of mold in a room. Large remediation jobs are performed by lead abatement workers or a certified contractor.

N. Mold

Mold is a fungus that grows on, and sometimes in, damp surfaces and objects. Live spores act like seeds, forming new mold growth (colonies) when they find the right conditions. Mold is most likely to grow where there is water or excessive moisture such as in bathrooms. Mold at NYCHA is measured by the square footage identified in each room.

The term “mildew” is sometimes used to refer to some kinds of mold.

O. Moisture Meter

A moisture meter is an instrument used to measure the subsurface moisture content of a given structure (e.g. walls, ceilings, floors, and components such as kitchen and bathroom cabinets).

P. Mold Resistant Paint

Mold resistant paint contains a chemical fungicide that discourages the growth of mold on surfaces. There must be no mold present when the paint is applied.

Q. Mold Resistant Sheetrock

Mold resistant sheetrock is paperless sheetrock with a fiberglass face that is designed to discourage the growth of mold.

R. Ombudsperson

An independent, Special Master appointed individual, as described in Section VI of the *Baez et. Al. v. NYCHA Modified Amended Stipulation and Order of Settlement*, who has the authority to investigate mold and excessive moisture complaints and to order appropriate relief.

S. Quality Assurance Inspection

The process by which the inspector confirms that the root cause of mold was effectively addressed, and all child work orders were appropriately completed.

T. Root Cause

The root cause is the fundamental reason for the occurrence of mold, water damage, or moisture. The root cause could be the source of water or excessive moisture (e.g. leaking pipes or fixtures, condensation) or the lack of ventilation (e.g. blocked exhaust ducts, closed windows). Identifying and correcting the root cause in response to a mold complaint is essential to ensuring that the mold or moisture condition related to that root cause does not reoccur.

U. Simple Repairs

Repairs that can be completed by a caretaker or maintenance worker in a single visit to the apartment.

V. Special Master

An individual who was appointed by the U.S. Attorney's Office for the Southern District of New York to investigate NYCHA's failure to comply with the *Baez Consent Decree* and to make recommendations to the Court concerning steps that should be taken to bring NYCHA into compliance.

W. Wet Measurement

A structure is considered to be wet when the moisture meter measurement is equal to or greater than 599 (on a scale of 0 to 999).

## VI. REVIEW CYCLE

Healthy Homes shall review this Standard Procedure at least once every three (3) years; and advise the Compliance Department via email if no changes are needed or submit its revisions to the procedure by submitting *NYCHA Form 022.008*, *Procedure Development Request*.

## VII. RESPONSIBILITIES

A. Office of Mold Assessment & Remediation

The Office of Mold Assessment & Remediation shall:

1. Monitor key development-level mold-related indicators including, but not limited to, parent and child mold work order completion time frames, and mold reoccurrence and unfounded inspection rates.

2. Perform random inspections at developments with high rates of mold reoccurrence or unfounded inspections and report findings to the regional asset manager.

3. Monitor the efficiency of mold work order scheduling and provide follow up recommendations to the regional asset manager or skilled trades deputy director, as applicable.

B. Property Management

1. The property management department director shall:

   a. Monitor key development-level mold-related indicators in Maximo including, but not limited to, scheduled appointments, parent and child mold work order completion time frames, and mold reoccurrence and unfounded inspection rates.

   b. Assign supervisory staff to perform random inspections at developments, as needed.

2. The regional asset manager shall:

   a. Monitor development property management operations and hold property managers and property maintenance supervisors accountable for monitoring all mold-related work orders in Maximo and addressing conditions in compliance with protocols established for remediating mold and identifying and correcting root causes.

b. Investigate and respond to inspection reports prepared by the Office of Mold Assessment & Remediation.

3. The Property Management Department skilled trades deputy director shall:

   a. Monitor skilled trades administrators, borough schedulers, and skilled trades supervisors and hold them accountable for monitoring all mold-related work orders in Maximo and addressing conditions in compliance with protocols established for remediating mold and identifying and correcting root causes.

   b. Respond to recommendations from the Office of Mold Assessment & Remediation.

4. Skilled trades administrators shall schedule skilled trades workers to complete complex repairs within 15 days.

5. The borough scheduler shall:

   a. Review the Maximo scheduled appointments screen daily.

   b. Monitor Maximo daily for new parent mold and quality assurance inspection work orders.

   c. Monitor Maximo for the timely completion of parent and child mold work orders and immediately address delays.

   d. Ensure immediate scheduling of parent and child work orders to prevent delays.

      (1) Initial inspections must be scheduled for a date no more than 4 calendar days after the date of the parent work order creation.

      (2) Schedule child work orders for simple repairs to be completed by Property Management within 7 days.

      (3) Quality assurance inspections must be scheduled and completed between 30-45 days after the last child work order is closed.

   e. Assign in Maximo the property maintenance supervisor, assistant property maintenance supervisor, or property manager to work orders to conduct initial and quality assurance inspections.

   f. Identify and schedule all work orders with the status of Waiting To Schedule (WTSCH) and Failed to Schedule (FAILSCH).

   g. Reschedule appointments for mold related work orders as needed.

   h. Coordinate the scheduling of skilled trades workers with the Property Management Department Planning Unit skilled trades administrator; the director of the

Maintenance, Repair & Skilled Trades Department (MRST); and the Healthy Homes Lead Hazard Control Department Abatement and Clearance Unit.

6. The property manager shall:

   a. Closely monitor the customer service delivery aspects of this Standard Procedure to ensure NYCHA's commitments to residents are addressed.

   b. Work closely with the property maintenance supervisor to ensure that property management staff:

      (1) Visit apartments for all mold work appointments as scheduled.

      (2) Record resident outreach attempts in the Tenant Data System (TDS)

7. The property maintenance supervisor shall:

   a. Conduct mold initial inspections and quality assurance inspections using mold-related tools and equipment.

   b. Work closely with property maintenance staff to ensure that property maintenance staff:

      (1) Accompany the property maintenance supervisor during initial inspections and quality assurance inspections, as required.

      (2) Visit apartments for all mold work order appointments as scheduled.

8. The assistant property maintenance supervisor shall perform the tasks in Section 7.a-b directly above in addition to the property maintenance supervisor.

C. Maintenance, Repair & Skilled Trades Department (MRST)

1. The director shall

   a. Monitor MRST skilled trades administrators and MRST skilled trades supervisors and hold them accountable for monitoring all mold-related work orders in Maximo and addressing conditions in compliance with protocols established for remediating mold and identifying and correcting root causes.

   b. Respond to recommendations from the Office of Mold Assessment & Remediation.

2. MRST skilled trades administrators shall schedule skilled trades workers to complete complex repairs within 15 days.

D. Lead Hazard Control Department

The supervisor of the Abatement and Clearance Unit shall oversee staff for large remediation jobs and coordinate scheduling work with Environmental Field Operations in MRST and the borough scheduler.

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| **NOTE:** | Once abatement work is complete, Property Management Department staff is responsible for coordinating and scheduling remaining repairs. |

E. Employees Who Remediate or Correct the Root Causes of Mold

Employees shall follow the protocols in Section VIII.C and D, as applicable, when remediating mold and related conditions or correcting probable root causes.

F. All NYCHA Employees Performing Work in Apartments

Any employee performing work in a resident apartment who observes a mold condition shall create a parent mold work order either on the handheld device or submit a paper mold work order to the property management office.

## VIII. PROCEDURE

A. Creating and Scheduling Mold Service Requests

1. Creating Parent Mold Work Orders

a. Resident Service Requests to the CCC

When a resident calls the Customer Contact Center (CCC) to make a service request involving mold or mildew, a parent mold work order is created in Maximo. The resident is required to select a scheduled date for the initial inspection within 4 calendar days of the date of the call.

If the resident is unable to schedule a date within 4 calendar days of the date of the call, the resident is advised that NYCHA will visit the apartment the same day in an attempt to conduct the inspection; and that NYCHA will return to the apartment within 48 hours to reattempt to conduct the inspection and may use its Right of Entry to access the apartment for that purpose. See Section VIII.F, Tenant Not Home Policy.

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| **NOTE:** | • When residents are advised in the morning of a business day, the same day means that NYCHA will visit the apartment to attempt to conduct the inspection by that afternoon. When residents are advised in the afternoon of a business day or on weekends or holidays, the same day means that NYCHA will visit the apartment to attempt to conduct the inspection by the morning of the next business day. |

- See Standard Procedure 040:09:6, *Customer Contact Center* for information on the processing and scheduling of service requests to the CCC

b. Resident Service Requests Through the MyNYCHA App

When a resident submits a mold/mildew service request through the MyNYCHA App a parent mold work order is created in Maximo. The resident is required to select a scheduled date for the initial inspection.

If the resident is unable to schedule a date within 4 calendar days of the date of the request, the resident is advised that NYCHA will visit the apartment the same day in an attempt to conduct the inspection; and that NYCHA will return to the apartment within 48 hours to reattempt to conduct the inspection and may use its Right of Entry to access the apartment for that purpose. See Section VIII.F, Tenant Not Home Policy.

c. Property Management Staff Initiates Work Orders

(1) When property management staff or other NYCHA employees view mold conditions in a resident apartment while performing other work or an inspection, they must:

(a) Create a parent mold work order in Maximo using the iWM app on the handheld device; or

(b) Complete and submit a paper Maximo mold work order to the property management office the same day.

(2) The property maintenance supervisor or assistant property maintenance supervisor ensures that property management office staff immediately creates a parent mold work order in Maximo from any submitted paper mold work order.

| **NOTE:** | See Standard Procedure 040:09:7, *Managing Maintenance Work Orders* for definitions of Siebel and Maximo; information on planning, completing, and closing out work orders in the Siebel and Maximo applications; and for the definitions of and relationships between parent and child work orders. |
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2. Supervisory Review of All Mold Work Orders

The borough scheduler must review all mold work orders in Maximo at least daily.

a. If an initial inspection generated through a call to the CCC or via the MyNYCHA App is not scheduled, the borough scheduler must assign an inspector to visit the

apartment that same day to conduct the initial inspection, or issue *NYCHA Form 042.727, 48 Hour Notice of Health and Safety Repairs* to the apartment.

b. If an initial inspection created by NYCHA staff in Maximo is not scheduled, the borough scheduler must:

(1) Contact the resident to schedule the appointment for the initial inspection within 4 calendar days from the parent work order creation date.

(2) If the resident is unable to schedule an appointment within 4 calendar days from the parent work order creation date, the borough scheduler must advise the resident that:

(a) NYCHA will visit the apartment that same day in an attempt to conduct the inspection; and

(b) NYCHA will return to the apartment within 48 hours to reattempt to conduct the inspection and may use its Right of Entry to access the apartment. See Section VIII.F, Tenant Not Home Policy.

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| **NOTE:** | • Initial inspections must be scheduled for a date within 4 calendar days of the creation of the parent mold work order.<br>• All attempts to contact residents must be recorded in the Interview Details (Option 8) in the Tenant Data System (TDS). |

B. Inspecting Mold Conditions in Apartments

On the scheduled date provided on the parent mold work order, the inspector visits the resident's apartment to inspect the mold condition, identify the probable root cause(s), and determine appropriate next steps to remediate the mold, any related conditions, and correct the root cause(s).

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| **NOTE:** | Initial inspections are performed using the handheld device. If a handheld device is not operating during the initial inspection, the inspector must record the inspection results on a Maximo paper mold inspection work order and immediately enter the results into Maximo following the initial inspection. |

1. Preparing for the Mold Initial Inspection

Prior to visiting the apartment on the day of the initial inspection appointment, the inspector:

a. Reviews the Maximo work order history for the apartment to determine if there is a history of mold or moisture complaints.

b. Checks the mold inspection tool kit to ensure that the following instruments are in working order: anemometer, hygrometer, and moisture meter.

c. Assigns a maintenance worker to accompany them on the initial inspection, or to be on call, to immediately remediate mold and related conditions or to identify and correct root causes, when possible. The maintenance worker must bring an anemometer, a borescope and tools appropriate for making wall-breaks, and a HEPA vacuum.

d. Must make a courtesy call to the resident via the handheld device on the way to the initial inspection to remind them of the inspection. If the resident does not answer the call, the inspector must still go to the apartment at the scheduled time.

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| **NOTE:** | If the resident or other adult is not home to allow access to the apartment for a scheduled mold related appointment, see Section VIII.F, Tenant Not Home Policy. |

2. Discussing the Mold Condition with the Resident

   Upon arriving at the apartment, the inspector:

   a. Makes best efforts to interview an adult listed on the household composition about any history of mold and moisture in the apartment.

   b. Adds the information to the handheld device if there is a history.

3. Conducting the Initial Inspection

   The inspector conducts the initial inspection using the handheld device.

   a. Inspecting for Mold, Water Damage, and Moisture

      The inspector:

      (1) Visually inspects the room or area identified in the mold work order for mold growth and records the total estimated square footage of mold on each wall (1-4), floor, ceiling, and any components.

      (2) Visually inspects the room for water damage and records the location of the water damage (e.g. the specific wall(s), floor, ceiling, or component).

      (3) Uses the moisture meter to measure the walls, floor, ceiling, and components in the room for subsurface moisture and records if a measurement is equal to or greater than 599 (i.e. a wet measurement).

The inspector must take multiple measurements of each surface or component and record if a measurement is equal to or greater than 599.

b. General Evaluation of Room Conditions

If a mold, water damage, or moisture (i.e., a wet measurement) condition is found, the inspector must conduct a general evaluation of the room and the opposing common walls in adjoining rooms and common areas.

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| **NOTE:** | While the inspector is evaluating the opposing side of common walls in adjoining rooms and common areas, if mold conditions are identified in an adjoining room that are not likely from the same root cause, the inspector shall create a parent mold work order on the handheld device.<br><br>The inspector should complete this mold work order for the adjoining room at the time of the initial inspection. |

(1) Records the surface structure (e.g. concrete, plaster, sheetrock) and framing structure (e.g. wood, steel) of the room's walls, floor, ceiling, and component(s).

(2) Uses the hygrometer to take a humidity reading of the room and records the humidity level.

(3) If the room is a kitchen or bathroom:

Indicates if there is mechanical ventilation.

(a) If there is mechanical ventilation:

The inspector checks the ventilation by using the anemometer to take an air flow measurement in cubic feet per minute (CFM) and records the result in the handheld device.

i. Maximo automatically generates child work orders:

aa. To clean the horizontal vent ductwork.

ba. To check the roof fan if the CFM is less than 25.

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| **NOTE:** | The user must ensure the anemometer is properly calibrated by:<br>i. Entering the correct size of the exhaust duct (i.e. the height and width in inches); and<br>ii. Ensuring that the Free Air Percentage is set to 55%.<br>See Appendix C for instructions on how to use the anemometer. Users must follow the manufacturer's instructions when using inspection tools. |

(b) If there is a window:

i. The inspector checks that the window is operating properly and records the result in the handheld device.

ii. Maximo automatically generates a child work order to repair the window if it is not operating properly.

(4) If the room is a bathroom:

Checks if the toilet base and shower enclosure are caulked and records the results in the handheld device.

(a) Maximo automatically generates a child work order to caulk the toilet base and/or shower enclosure if they are not caulked.

(5) Visually inspects the room for signs of pest infestation and records the results in the handheld device.

(a) Maximo automatically generates a child work order for an exterminator when there is evidence of pests.

c. Identifying the Probable Root Cause(s) and Remediation Methods

The inspector determines the probable root cause(s) for any wall, floor, ceiling, or component identified in Section VIII.B.3.a above as having mold, water damage, or moisture (i.e. a wet measurement).

(1) The inspector:

(a) Selects on the handheld device a probable root cause from the following options:

i. Bathtub/shower

ii. Caulking

iii. Exterior wall (winter)

iv. Façade

v. Grouting

vi. Lack of pipe insulation in wall

vii. Leak in apartment above/beside

viii. Plumbing – In Unit

ix. Resident – Cause

x. Roof

xi. Shower moisture

xii. Sink

xiii. Toilet

xiv. Toilet bowl/tank needs barrier

xv. Tub surround

(b) Selects the ceiling, wall(s), floor, or component(s) identified in Section VIII.B.3.a above that have the same probable root cause (e.g., both the mold on the ceiling and water damage on the wall have a probable root cause of Shower Moisture).

(c) Indicates if a wall break is required to inspect or correct the probable root cause.

i. If a wall break is required, the inspector must conduct the wall break with the assistance of a maintenance worker as part of the initial inspection.

ii. Maximo will create a work order and alert staff if they are required to follow the Renovation, Repair, and Painting (RRP) rules.

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| **NOTE:** | Lead-safe work practices and RRP certified workers must be used if (i) Maximo identifies that RRP work is required (the apartment is presumed or known to contain lead-based paint) and (ii) any work would disturb more than 2 square feet of a painted surface per room, or more than 10 percent of the total surface area on an interior or exterior type of component with a small surface area. |

(d) If the probable root cause is not Resident – Cause:

i. Selects one or more Failure Class/Problem Codes, as applicable, from the limited set of options in the dropdown menu for that probable root cause.

ii. Selects the appropriate craft required to make the repair for each Failure Class/Problem Code selected.

(e) If the probable root cause is Resident – Cause

Selects on the handheld device the specific instruction provided to the resident in Section VIII.B.5 below for each probable root cause that is Resident – Cause.

(f) Selects the remediation method and craft from a dropdown menu of limited options for the selected wall(s), floor, ceiling, or component(s).

(2) Maximo automatically generates child work orders for the Failure Class/Problem Codes (except when the probable root cause is Resident – Cause) and the remediation methods selected.

(3) If there are any additional probable root causes, the inspector repeats the steps in Section VIII.B.3.c(1) above for each probable root cause.

(4) If the inspector is unable to determine the probable root cause of a mold, water damage, or moisture (i.e. wet measurement) condition they must immediately contact the Office of Mold Assessment & Remediation by email at:

mold.busters@nycha.nyc.gov

d. Completing the Initial Inspection

To complete the initial inspection:

(1) The inspector must take multiple photo(s) of the condition(s) identified, including at least one close-up photo of the condition(s) and at least one photo of the larger area, using the handheld device and upload the photo(s) into the parent work order in Maximo.

(2) If the condition is unfounded (i.e., there was no mold, water damage, or wet measurement condition identified):

The inspector must take and upload photo(s) of the condition reported by the resident as mold and upload the photo(s) into the parent work order in Maximo.

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| **NOTE:** | For clarity, the inspector should record key information obtained during the inspection in the notes field of the iWM app on an unfounded work order. |

4. Reviewing the Work Plan

Upon completion of the initial inspection, the inspector:

a. Reviews the child work orders (i.e. the work plan) in the handheld device to confirm the work plan is correct and complete.

*b.* Identifies the outcomes of the inspection on *NYCHA Form 060.845, Mold Inspection Receipt.*

5. Reviewing the Initial Inspection Results with the Resident

   a. When Mold, Water Damage, or a Moisture Condition is Identified

      The inspector:

      (1) Gives *NYCHA Form 060.303, Controlling Mold in Your Apartment* to the resident and reviews with the resident the general recommendations on the form for preventing and cleaning mold and the importance of identifying and correcting the root cause(s) of mold to avoid reoccurrence.

      (2) Gives *NYCHA Form 060.845, Mold Inspection Receipt* to the resident and reviews the following with the resident:

         (a) The initial inspection outcome (founded or unfounded).

         (b) The requirement that NYCHA conduct a quality assurance inspection between 30-45 days after all work is completed.

         (c) The required timeframe for the completion of all work.

         (d) The name and contact information of the ombudsperson.

      (3) Indicates in the handheld device that both *NYCHA Form 060.303, Controlling Mold in Your Apartment* and *NYCHA Form 060.845, Mold Inspection Receipt* were provided to and discussed with the resident.

      (4) Advises the resident that the property management office will contact them to schedule any additional appointments needed.

      (5) Advises the resident that NYCHA will mail them *NYCHA Form 060.846, Mold Inspection Review* which details the following information:

         (a) The initial inspection and probable root cause findings.

         (b) The next step(s) to remediate the mold, excessive moisture, or related condition and correct the root cause.

         (c) The specific instruction(s) on how to correct the probable root cause if the probable root cause is Resident – Cause.

| NOTE: | See Management Manual, Chapter II, Rent and Rent Collection, Section XV.A and Appendix 8 for details on when and how to make a social service referral to the Family Partnerships Department if there are housekeeping or safety hazards in an apartment. |
|---|---|

(d) The requirement that NYCHA conduct a quality assurance inspection between 30-45 days after all work is completed.

(e) The required timeframe for the completion of all work.

(f) The name and contact information of the ombudsperson.

b. When the Mold Condition is Unfounded

The inspector:

(1) Discusses the initial inspection findings with the resident.

(2) Gives *NYCHA Form 060.303, Controlling Mold in Your Apartment* to the resident and reviews with the resident the general recommendations on the form for preventing and cleaning mold and the importance of identifying and correcting the root cause(s) of mold to avoid reoccurrence.

(3) Requests that the resident sign the unfounded work order on the handheld device.

(4) Indicates in the handheld device if the resident refused to sign or if the resident disagrees that the mold condition is unfounded.

*(5)* Provides the resident with *NYCHA Form 060.845, Mold Inspection Receipt* including the name and contact information of the ombudsperson.

(6) Closes the mold work order as Unfounded.

(7) Provides the name and contact information of the ombudsperson.

| NOTE: | If when following the Tenant Not Home Policy in Section VIII.F, NYCHA conducts an initial inspection when a tenant is not home, the inspector must leave the following in the apartment: *NYCHA Form 060.303, Controlling Mold in Your Apartment, NYCHA Form 060.845, Mold Inspection Receipt,* and a hard copy of the work order. |
|---|---|

C. Remediating Mold and Related Conditions

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| **NOTE:** | See Appendix B for a list of HA numbers for ordering specialized tools and supplies. |

1. All remediation work must conform to the protocols in the following documents:

   *a.* Standard Procedure 050:20:1*, Lead Safe Housing Procedure*

   b. Appendix A, Remediation Methods

   *c. Interim Guidance on Wall Breaks*

   *d. Interim Guidance on Pipe Insulation*

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| **NOTE:** | If cracked or crumbling 9 by 9 vinyl floor tile is present, staff must:<br>• Cover the exposed area of floor with plastic<br>• Tape all edges securely with duct tape<br>• Instruct the resident not to disturb the covered area<br>• Contact the Technical Services Department's Asbestos Unit for further instructions. |

2. All work must be documented with photographs, including at least one close-up photo of the condition(s) and at least one photo of the larger area.

   Employees must take and upload photos of the work into Maximo using the handheld device. Required photos include:

   a. The condition before work is performed.

   b. The condition after work is completed.

   c. Other photos as needed to demonstrate that work behind a surface was completed to standard, e.g. photos of insulated pipes, mold free areas.

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| **NOTE:** | Lead-safe work practices and RRP certified workers must be used if (i) Maximo identifies that RRP work is required (the apartment is presumed or known to contain lead-based paint) and (ii) any work would disturb more than 2 square feet of a painted surface per room, or more than 10 percent of the total surface area on an interior or exterior type of component with a small surface area. |

3. Employees must document the materials used in the Materials section of the mold-related child work order including, as applicable, the specific paint (mold resistant or standard) and sheetrock (mold resistant or standard).

4. Personal Protective Equipment (PPE)

   a. Mold Remediation of Less than 100 Square Feet

      Employees are recommended to use the following:

      (1) An N95 disposable respirator (i.e., a dust mask) or more protective respirator (such as an N100 disposable respirator) in accordance with the OSHA respiratory protection standard (29 CFR 1910.134)

      (2) Disposable protective clothing covering both head and shoes

      (3) Gloves

      (4) Eye protection

   b. Mold Remediation of 100 Square Feet or More (Large Remediation Jobs) Performed by Lead Abatement Workers or Certified Contractors

      Employees must use the following:

      (1) A minimum of a half-face elastomeric respirator with a P-100 filter used in accordance with OSHA respiratory protection standard (29 CFR 1910.134)

      (2) Disposable protective clothing covering both head and shoes

      (3) Gloves

      (4) Eye protection

| **NOTE:** | Employees using respirators must follow the requirements in *SP 001:17:2, Respiratory Protection Safety Program*. |
|---|---|

D. Correcting Root Causes

1. Employees must ensure that all repairs to correct root causes:

   a. Are completed to industry standards.

   b. Conform to the protocols in the following documents:

      *(1)* Standard Procedure 050:20:1, *Lead Safe Housing Procedure*

      *(2) Interim Guidance on Wall Breaks*

      *(3) Interim Guidance on Pipe Insulation*

*(4) Interim Guidance on Roof Fan Inspections*

c. Are documented with photographs per the guidelines in Section VIII.C.2. above.

2. Instructions for Specific Tasks

a. Additional Pipe Insulation Instruction

(1) When performing any wall break including instances where the probable root cause is the lack of pipe insulation in the wall, employees must install or replace pipe insulation in any area inside the wall cavity where the employee determines that the insulation is missing or defective. The employee creating the wall break shall create an opening of sufficient size to allow visibility of all pipes within the wall cavity with assistance of the borescope.

(2) Lead-safe work practices and RRP certified workers must be used if (i) Maximo identifies that RRP work is required (the apartment is presumed or known to contain lead-based paint) and (ii) any work would disturb more than 2 square feet of a painted surface per room, or more than 10 percent of the total surface area on an interior or exterior type of component with a small surface area.

(3) If the current insulation in the wall cavity is a suspected asbestos-containing material, then no further work must be conducted, the hole must be sealed with either Masonite or 6 mm poly sheeting and duct tape, and a work order must be created for testing/abatement by the Technical Services Department's Asbestos Unit.

b. Instructions for Cleaning Horizontal Vent Ductwork

When cleaning horizontal vent ductwork from inside the apartment, employees:

(1) Remove the face of the grill to the vertical shaft and HEPA-vacuum the grill and the interior and exterior of the horizontal vent ductwork.

(2) Must use caution when cleaning the fire damper inside the ductwork.

3. Personal Protective Equipment (PPE)

Employees must use the PPE required to perform their specific task. An employee should refer any questions about the required PPE to their supervisor or contact the Office of Safety and Security at 212-306-8800.

Please refer to the *Personal Protective Equipment (PPE) and Other Safety Equipment Catalogue* for HA numbers and item descriptions. The catalogue is located on the SafeNYCHA webpage on NYCHA Connect/Departments.

E. Time Frames to Respond to Mold and Related Issues

1. Service Level Goals

a. Flooding conditions must be abated within 24 hours provided that NYCHA has access to the impacted areas. All standing water relating to the flood must be removed, and water-soaked areas, with the exception of residents' personal property, must be dried within 48 hours. Residents must be advised to clean and dry any damp furnishing and other personal property within 24-48 hours.

b. Initial Inspection and Child Work Orders

All simple repairs must be completed within 7 calendar days from the date the parent mold work order was created. Complex repairs must be completed within 15 calendar days from the date the parent mold work order was created.

Given this timeframe the initial inspection must be completed within 4 calendar days from the date the parent mold work order was created.

These standards may be reviewed and updated based on performance.

c. Quality Assurance Inspections

The quality assurance inspection must be completed between 30-45 calendar days after the last child work order has been closed.

F. Tenant Not Home Policy

If the resident or another adult eighteen years of age or older is not home to provide access for a scheduled appointment for a mold inspection or related child work order, or a quality assurance inspection, NYCHA employees must follow the steps in Standard Procedure 040:17:3*, Accessing Public Housing Apartments When Tenant Not Home to Address Deficiencies Related to Leaks, Mold, and Lead-Based Paint.*

G. Reasonable Accommodations

1. If needed as a result of a medical disability or a breathing or respiratory disorder including asthma, residents in apartments with mold and/or excessive and/or uncontrolled moisture conditions are entitled to reasonable accommodations from NYCHA. Such accommodations may include, but are not limited to, the following:

a. The right to install and operate an additional air conditioning unit in their apartment if the electrical system permits an additional unit;

b. Temporary relocation during mold and moisture remediation;

c. Permanent relocation to other NYCHA housing if the apartment is uninhabitable and another apartment is available; and/or

d. The use of enhanced dust suppression methods during mold remediation.

2. Property management staff or CCC customer information representatives must check the "reasonable accommodation" flag on the Maximo mold work order or Siebel service request if a resident asks for a reasonable accommodation.

3. See Standard Procedure 040:12:1, *Reasonable Accommodations in Housing for Applicants, Public Housing Residents, and Section 8 Voucher Holders*, to learn more about the responsibilities of NYCHA staff to review reasonable accommodation requests, and the applicable terms, forms, and policies for reasonable accommodations.

H. Quality Assurance

1. Quality Assurance Inspections

a. Maximo automatically generates a quality assurance inspection work order twenty-five (25) calendar days after the last child work order is closed for all apartments where a mold, water damage, or moisture (i.e. a wet measurement) condition was identified during the inspection. The target start date is automatically populated as 30 calendar days after the last child work order is closed and the target end date is populated as 45 calendar days after the last child work order is closed.

b. Once the quality assurance inspection work order is generated, the borough scheduler:

(1) Assigns the property maintenance supervisor, assistant property maintenance supervisor, or property manager to conduct the quality assurance inspection; and

(2) Ensures that property management staff contacts the resident and schedules the quality assurance inspection to take place between 30-45 calendar days after the last child work order is closed.

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| **NOTE:** | • For quality assurance purposes, whenever possible the inspector conducting the quality assurance inspection should be different than the inspector who performed the initial inspection.<br>• Quality assurance inspections are performed using the handheld device. If a handheld device is not operating during the quality assurance inspection, the inspector must record the results on a paper quality assurance inspection work order and enter the results into Maximo immediately following the quality assurance inspection. |

c. Preparing for the Quality Assurance Inspection

Prior to visiting the apartment on the day of the quality assurance inspection appointment, the inspector:

(1) Checks the mold inspection tool kit, to ensure that the following instruments are in working order: anemometer, hygrometer, and moisture meter. Brings all the tools on the quality assurance inspection in case a full new initial inspection is needed.

(2) Assigns a maintenance worker to accompany them on the quality assurance inspection or be on call in case there is follow up work or a full new initial inspection is required. The maintenance worker must bring a borescope and tools appropriate for making wall-breaks.

(3) Must make a courtesy call to the resident via the handheld device on the way to the quality assurance inspection to remind them of the appointment. If the resident does not answer the call, the inspector must still go to the apartment at the scheduled time.

d. Conducting the Quality Assurance Inspection

(1) Inspecting for Mold, Water Damage, and Moisture

(a) The inspector:

i. Visually inspects for mold any wall, floor, ceiling, or component identified in the initial inspection as having mold and records the results in the handheld device.

ii. Visually inspects for water damage any wall, floor, ceiling, or component identified in the initial inspection as having water damage and records the results in the handheld device.

iii. Uses the moisture meter to measure for subsurface moisture any, wall, floor, ceiling, or component that measured wet during the initial inspection and records the results in the handheld device.

(b) If mold, water damage, or moisture (i.e. a wet measurement) is found during the quality assurance inspection:

i. The inspector immediately stops the quality assurance inspection and completes and closes the quality assurance inspection work order.

ii. Maximo automatically generates a new parent mold work order.

iii. The inspector immediately conducts a full inspection following the steps in Section VIII.B.3-5.

(c) If no mold, water damage, or moisture (i.e. a wet measurement) is found, the inspector continues with the quality assurance inspection.

(2) If an air flow measurement was taken during the initial inspection:

The inspector uses an anemometer to take an air flow measurement in cubic feet per minute (CFM) of the kitchen or bathroom exhaust vent.

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| **NOTE:** | The user must ensure the anemometer is properly calibrated by:<br>i. Entering the correct size of the exhaust duct (i.e. the height and width in inches); and<br>ii. Ensuring that the Free Air Percentage is set to 55%.<br>See Appendix C for instructions on how to use the anemometer. Users must follow the manufacturer's instructions when using inspection tools. |

(3) Confirms that all work (i.e. child work orders) to remediate mold and correct root causes and related conditions was satisfactorily completed.

(a) The inspector:

i. Reviews the work actuals of the child work orders using the handheld device.

ii. Visually inspects all completed work in the apartment related to the child work orders.

(b) If all work was satisfactorily completed:

The inspector completes the quality assurance inspection by taking photo(s) of the inspection area free of mold, water damage, and/or moisture and uploading the photo(s) into Maximo.

(c) If any work was not satisfactorily completed:

The inspector:

i. Immediately creates a child work order in Maximo.

ii. Takes and uploads a photograph of the unsatisfactory work into Maximo if the work is visible in the apartment.

iii. Closes the existing quality assurance inspection work order.

iv. Follows up with supervisor of the staff person(s) who performed the work to report the unsatisfactory work and ensure the work is completed.

| **NOTE:** | See Section XII, Non-Compliance, for steps to address work that is not performed to standard. |
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e. Reviewing the Quality Assurance Inspection with the Resident

(1) Quality Assurance Inspection Complete – All Work Satisfactorily Completed

The inspector:

(a) Reviews the quality assurance inspection findings with the resident.

(b) Requests that the resident sign the quality assurance inspection work order on the handheld device confirming that mold and any related conditions are not present and that all work was completed satisfactorily.

(c) Indicates on the handheld device if the resident refuses to sign or is dissatisfied with the work.

(d) Closes the quality assurance inspection work order.

(2) Additional Work Needed

If additional work is needed, the inspector advises the resident of:

(a) The next steps to complete the work and the required timeframe for completion of all work.

(b) The requirement for a new quality assurance inspection once the work is completed.

2. Performance Reporting

The Office of Mold Assessment and Remediation assigns:

a. Staff to review reports to identify developments with:

(1) High parent mold work order completion time frames.

(2) High rates of unfounded mold work orders.

(3) High reoccurrence rates for mold work orders.

b. Supervisory staff trained in mold inspections to:

(1) Visit developments and inspect randomly selected apartments with high rates of unfounded or reoccurring (as applicable) mold work orders.

(2) Report findings on the underlying issue, i.e. a building system and/or mold inspection and remediation process issue.

(3) Provide follow up recommendations to the regional asset manager.

(a) For building system issues, the supervisory staff may, for example, recommend additional repairs.

(b) For process issues, the regional asset manager follows up with the property manager and property maintenance supervisor to address the process issue which could include providing additional training, reviewing key accountabilities, or providing progressive discipline.

c. Staff trained in scheduling mold work orders to:

(1) Provide follow up recommendations to the Property Management Department skilled trades deputy director or regional asset manager; or the director of MRST.

(a) For building system issues, the Office of Mold Assessment & Remediation staff may, for example, recommend additional repairs.

(b) For process issues, recommendations could include providing additional training, reviewing key accountabilities, and/or providing progressive discipline.

i. The Property Management Department skilled trades deputy director addresses issues with the borough scheduler, skilled trades administrators, and skilled trades supervisors.

ii. The director of MRST addresses issues with MRST skilled trades administrators and MRST skilled trades supervisors.

iii. The regional asset manager addresses issues with the property manager and property maintenance supervisor.

## IX. OUTPUTS, REPORTS, AND RECORDKEEPING

A. Outputs

1. Mold in NYCHA apartments is remediated and the root causes are identified and corrected within the allowable timeframes.

2. Mold recurrence (same apartment/same room) is reduced.

B. Reports

Operations reports to be developed with the independent data analyst.

C. Recordkeeping

The IT Business Solutions Technology Department's Maximo Team retains electronically created and stored completed work orders for at least seven (7) years.

## X. TRAINING REQUIREMENTS

The Human Resources Department's Learning and Development section in conjunction with Operations shall provide or contract to provide the following training, as applicable. The training shall be provided initially and once every two years thereafter.

A. Inspections

Training on inspection tools and methods as well as conducting and documenting inspections.

B. Building Sciences

Training on identifying the root causes of mold and on the methods to correct the root causes to prevent the reoccurrence of mold.

C. Remediation Methods

Training on how to safely and effectively remediate mold and its root causes.

## XI. PERFORMANCE METRICS

A. Average number of days to complete repairs and close mold work orders.

B. Average number of days to complete initial inspections.

C. Percent of mold work orders for reoccurring mold.

## XII. NON-COMPLIANCE

A. If unsatisfactory work is identified during a quality assurance inspection described in Section VIII.H, or at any other time, supervisory staff must take one or more of the following actions:

   1. Identify areas for follow up training for the employee and ensure training is scheduled and provided.

   2. Reinforce with the employee(s) the job expectations, accountabilities, and the progressive discipline process.

B. Failure to comply with the requirements of this Standard Procedure may result in disciplinary actions.

## XIII. FORMS

A. NYCHA Form 042.727, 48 Hour Notice for Health & Safety Repairs

B. NYCHA Form 060.303, Controlling Mold in Your Apartment

C. NYCHA Form 060.845, Mold Inspection Receipt

D. NYCHA Form 060.846, Mold Inspection Review

# XIV. WORKFLOW

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# XV. REVIEW/REVISION HISTORY PAGE

**MOLD/MILDEW CONTROL IN NYCHA RESIDENTIAL BUILDINGS**

**SP 040:14:1**

| Review/ Revision | Review/ Revision Date | Sections Amended |
|---|---|---|
| 1. | Not applicable -- new Standard Procedure | The Standard Procedure was posted as a draft on the Forms & Reference Library on May 19, 2014. NYCHA staff used the posted draft as agency policy beginning on the effective date of May 21, 2014. |
| 2. | 6/3/2015 | Banner |
| 3. | 6/3/2015 | VI, Assessment of Mold/Mildew: The First Staff Visit |
| 4. | 12/19/18 | Procedure updated and organized into current Standard Procedure format. |
| 5. | 12/19/18 | Section I, Purpose |
| 6. | 12/19/18 | Section II, Policy |
| 7. | 12/19/18 | Section III, Applicability |
| 8. | 12/19/18 | Added Section IV, Introduction to Mold and Moisture Control |
| 9. | 12/19/18 | Added Section V, Definitions |
| 10. | 12/19/18 | Section VI, Review Cycle |
| 11. | 12/19/18 | Added Section VII, Responsibilities |
| 12. | 12/19/18 | Added Section VIII, Procedure |
| 13. | 12/19/18 | Added Section IX, Outputs, Reports, and Recordkeeping |
| 14. | 12/19/18 | Added Section X, Training Requirements |
| 15. | 12/19/18 | Added Section XI, Performance Metrics |
| 16. | 12/19/18 | Added Section XII, Non-Compliance |
| 17. | 12/19/18 | Section XIII, Forms |
| 18. | 12/19/18 | Added Section XIV, Workflow |
| 19. | 12/19/18 | Added Section XV, Review/Revision History Page |
| 20. | 12/19/18 | Added Section XVI, Appendices |
| 21. | 12/19/18 | Removed previous appendices A-G |
| 22. | 12/19/18 | Added Appendix A, Remediation Methods |
| 23. | 12/19/18 | Added Appendix B, HA Numbers for Mold Related Tools and Supplies |
| 24. | 12/19/18 | Added Appendix C, Instructions for Using the Anemometer |
| 25. | 1/3/19 | Section VIII.C, Remediating Mold and Related Conditions |
| 26. | 1/3/19 | Section VIII.D, Correcting Root Causes |
| 27. | 10/17/19 | Section VIII.G, Procedure |
| 28. | 2/26/20 | Banner |

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|---|---|---|
| 29. | 2/26/20 | Section II, Policy |
| 30. | 2/26/20 | Section III, Applicability |
| 31. | 2/26/20 | Section IV, Introduction to Mold and Moisture Control |
| 32. | 2/26/20 | Section V, Definitions |
| 33. | 2/26/20 | Section VI, Review Cycle |
| 34. | 2/26/20 | Section VII, Responsibilities |
| 35. | 2/26/20 | Section VIII, Procedure, Subsections A-H |
| 36. | 2/26/20 | Section IX, Outputs, Reports, and Recordkeeping |
| 37. | 2/26/20 | Section X, Training Requirements |
| 38. | 2/26/20 | Section XII, Non-Compliance |
| 39. | 2/26/20 | Appendix A, Remediation Methods |
| 40. | 2/26/20 | Appendix B, HA Numbers for Mold Related Tools and Supplies |
| 41. | 2/26/20 | Appendix C, Instructions for Using the Anemometer |
| 42. | | |
| 43. | | |
| 44. | | |
| 45. | | |
| 46. | | |
| 47. | | |

# XVI. APPENDICES

Appendix A – Remediation Methods

**1. Ceiling: Painted Concrete (Leak or Condensation; All Rooms)**

a. HEPA-vacuum and clean with a detergent solution surfaces displaying water damage, mold growth, and/or that measure wet.
b. Wet-scrape or wire-brush any loose paint.
c. Repaint with mold standard paint. In bathrooms and kitchens repaint with mold resistant paint.

**2. Ceiling: Sheetrock with Steel Framing (Leak; All Rooms)**

a. Remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. Continue removal to a point of at least 6 inches beyond any visible water damage or mold growth on the front or back sides of the sheetrock and/or areas that measure wet or to the next available framing member. If mold growth is observed on the exposed adjacent wall, remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. In areas where significant water damage, mold growth, or moisture is present on sheetrock, use a HEPA-vacuum at the point of dust generation during the sheetrock removal work.
b. Replace sheetrock. In bathrooms and kitchens replace with mold resistant sheetrock.
c. Repaint with standard paint. In bathrooms and kitchens repaint with mold resistant paint.

**3. Ceiling: Sheetrock with Wood Framing (Leak; All Rooms)**

a. Remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. Continue removal to a point of at least 6 inches beyond any visible water damage or mold growth on the front or back sides of the sheetrock and/or areas that measure wet or to the next available framing member. If mold growth is observed on the exposed adjacent wall, remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. In areas where significant water damage, mold growth, or moisture is present on sheetrock, use a HEPA-vacuum at the point of dust generation during the sheetrock removal work.
b. HEPA-vacuum and clean with a soap or detergent solution any wood framing components displaying water damage and/or minor levels of mold growth.
c. Paint any wood framing components displaying water damage and/or minor levels of mold growth conditions with mold resistant paint.
d. Remove and replace wood framing displaying significant mold growth.
e. Replace sheetrock. In bathrooms and kitchens replace with mold resistant sheetrock.
f. Repaint with standard paint. In bathrooms and kitchens repaint with mold resistant paint.

**4. Ceiling Sheetrock with Steel Framing (Condensation; Bathroom or Kitchen)**

a. Remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. Continue removal to a point of at least 6 inches beyond any visible water damage or mold growth on the front or back sides of the sheetrock and/or areas that measure wet or to the next available framing member. If mold growth is observed on the exposed adjacent wall, remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. In areas where significant water damage, mold growth, or moisture is present on sheetrock, use a HEPA-vacuum at the point of dust generation during the sheetrock removal work.
b. Replace with mold resistant sheetrock.
c. Repaint with mold resistant paint.

**5. Ceiling: Sheetrock with Steel Framing (Condensation; Other Rooms)**

a. Remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. Continue removal to a point of at least 6 inches beyond any visible water damage or mold growth on the front or back sides of the sheetrock and/or areas that measure wet or to the next available framing member. If mold growth is observed on the exposed adjacent wall, remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. In areas where significant water damage, mold growth, or moisture is present on sheetrock, use a HEPA-vacuum at the point of dust generation during the sheetrock removal work.
b. Replace sheetrock.
c. Repaint with standard paint.

**6. Ceiling: Sheetrock with Wood Framing (Condensation; Bathroom or Kitchen)**

a. Remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. Continue removal to a point of at least 6 inches beyond any visible water damage or mold growth on the front or back sides of the sheetrock and/or areas that measure wet or to the next available framing member. If mold growth is observed on the exposed adjacent wall, remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. In areas where significant water damage, mold growth, or moisture is present on sheetrock, use a HEPA-vacuum at the point of dust generation during the sheetrock removal work.
b. HEPA-vacuum and clean with a soap or detergent solution any wood framing components displaying water damage and/or minor levels of mold growth.
c. Paint any wood framing components displaying water damage and/or minor levels of mold growth conditions with mold resistant paint.
d. Remove and replace wood framing displaying significant mold growth.
e. Replace with mold resistant sheetrock.
f. Repaint with mold resistant paint.

**7. Walls: Painted Plaster (Leak or Condensation; All Rooms)**

a. HEPA-vacuum and clean with a detergent solution surfaces displaying water damage, mold growth, and/or that measure wet.
b. Wet-scrape to remove the affected paint and top-coated plaster or skim-coating to which the paint is adhered. Continue wet-scraping to a point of at least 12 inches beyond any visible water damage, mold growth, and/or areas that measure wet.
c. Repaint with mold resistant paint.

**8. Walls: Sheetrock with Steel Framing (Leak or Condensation; All Rooms)**

a. Remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. Continue removal to a point of at least 6 inches beyond any visible water damage or mold growth on the front or back sides of the sheetrock and/or areas that measure wet or to the next available framing member. If mold growth is observed on the exposed adjacent wall, remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet.
b. Replace sheetrock. In bathrooms and kitchens replace with mold resistant sheetrock.
c. Repaint with standard paint. In bathrooms and kitchens repaint with mold resistant paint.

**9. Walls: Sheetrock with Wood Framing (Leak or Condensation; All Rooms)**

a. Remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. Continue removal to a point of at least 6 inches beyond any visible water damage or mold growth on the front or back sides of the sheetrock and/or areas that measure wet or to the next available framing member. If mold growth is observed on the exposed adjacent wall, remove and dispose of sheetrock displaying visible water damage, mold growth, and/or that measure wet. In areas where significant water damage, mold growth, or moisture is present on sheetrock, use a HEPA-vacuum at the point of dust generation during the sheetrock removal work.
b. HEPA-vacuum and clean with a soap or detergent solution any wood framing components displaying water damage and/or minor levels of mold growth.
c. Paint any wood framing components displaying water damage and/or minor levels of mold growth conditions with mold resistant paint.
d. Remove and replace wood framing displaying significant mold growth.
e. Replace sheetrock. In bathrooms and kitchens replace with mold resistant sheetrock.
f. Repaint with standard paint. In bathrooms and kitchens repaint with mold resistant paint.

**10. Floors: Finished Wood Floors (Leak or Condensation; All Rooms)**

a. Remove and dispose of finished wood floorboards displaying significant water damage (buckling) and/or that measure wet. Continue removal to a point of at least 12 inches

beyond any visible mold growth on the top and/or bottom sides of finished wood floorboards, plywood sub-flooring, and/or sleepers or to the perimeter of the room.
b. If wet, water-damage, and/or mold growth conditions reach the perimeter of a room, evaluate flooring in the adjacent room to determine if additional removal work is necessary.
c. Replace flooring.

**11. Floors: Ceramic Floors (Leak or Condensation; All Rooms)**

a. Clean surfaces thoroughly using a low-toxicity household cleaner with slightly abrasive properties.

**12. Floors: Vinyl Floor Tiles (Leak or Condensation; All Rooms)**

a. Remove and dispose of water-damaged vinyl floor tiles or tiles measuring wet.
b. HEPA-vacuum underlying concrete slab and clean using a detergent solution.
c. Replace floor tiles.

**13. Kitchen Cabinetry and Bathroom Vanities (Significant Mold)**

a. Remove and dispose of cabinetry.
b. Replace cabinetry.

**14. Bathtub and Shower Grout or Caulking**

a. Where grout or caulking displays heavy and widespread levels of mold growth, dig out existing grout or caulking and replace with an approved mold resistant product.

**15. Minor Mold Growth (On Painted Surfaces, Shower Grout, Cabinets, etc.)**

a. Clean surfaces thoroughly using a low-toxicity household cleaner with slightly abrasive properties.

Appendix B – HA Numbers for Mold Related Tools and Supplies

## 1. Supplies

| HA # | Material Item | Material Item Specification | Application |
|---|---|---|---|
| 1404922227 | Foster 40-50 Paint | 5 Gallon Container | Used as per remediation method |
| 1214922226 | Plas-tec | 4 X 8 Sheet | Provide waterproof barrier behind toilet |
| 1219924836 | Heavy Duty Adhesive, | Multipurpose Type for Various Construction Projects, Liquid Nails # LN603 | Adhesive for plastic panel |
| 1220991245 | White Tub & Tile Sealant Caulking Silicone | 10.1 oz Cartridge Packed 24/box G.E. SCS1702 | Sealing base of toilets and shower walls |
| 0304920052 | Micro Filter | Micro Filter, 10 Quantity Replacement Filters | Used with backpack vacuum |
| 0806938344 | Microbiowash | | Detergent |
| 080657583 | ShockWave | | Detergent |

## 2. Tools

| HA # | Material Item | Material Item Specification | Application |
|---|---|---|---|
| 2016125015 | Putty Knife | 1-1/4" Stiff Blade | Spread adhesive for plastic panel |
| 2016125020 | Putty Knife | 1-1/2", Flex Professional Type, Stanley #28241 | Spread adhesive for plastic panel |
| 2022922432 | V-Notched Trowel | Flat Top for Flooring, 9" X 1/8" X 1/16" | Spread adhesive for plastic panel |
| 2022922431 | Roller | 3" J-Type, Use for Plastic Laminate | Press plastic panel into adhesive and ensure good bond |

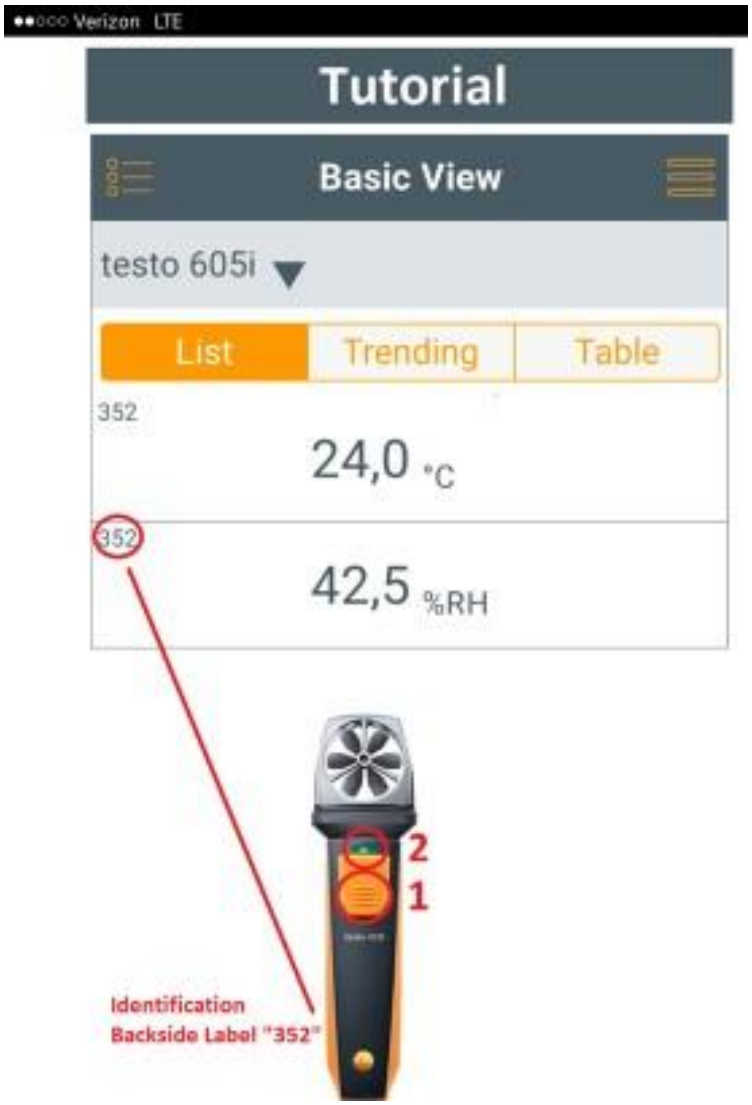
| HA # | Material Item | Material Item Specification | Application |
|---|---|---|---|
| 2022922433 | Drywall Type T Square | 48" X 2", Aluminum, Anodized Finish, 5-Rivet Construction, 1 mm Graduations | Assist in cutting plastic panel |
| 2022991858 | Plexiglass Cutter | Heavy Duty, Fletcher #05-120 | Assist in cutting plastic panel |
| 2006924266 | Spiral Saw | 6 Amp, 120 Volt, Complete Kit with Zip Mate, Circle Cutter Guide & Dust Vault, Rotozip # SS560VSC-31 | Assist in cutting plastic panel |
| 0304920051 | HEPA Vacuum Cleaner | 1 1/2" Static-Dissipating Vacuum Hose, 50' Extension Cord, Two Intercept Micro Filters, 17" Crevice Tool, 3" Dust Brush w/ Reduce, 5" Upholstery Tool, Xover Floor Tool, 42 to 59" Aluminum Telescoping Wand | Assist in controlling airborne particles |
| 1701920185 | Moisture Meter | Rugged construction, large backlit display, pin moisture measurement, non-invasive measurement up to ¾" - 20mm below the surface | Assist in detecting excessive moisture |
| 1701921776 | VAC Smart and Wireless Probe Kit | Thermal Anemometer, Vane Anemometer, Thermo-Hygrometers, and Infrared Thermometer | Assist in measuring air velocity, temperature, relative humidity, wet bulb/dew point, and volume flow |
| 1701920186 | Vane Anemometer Wireless Smart Probe | Bluetooth Vane Anemometer, 3 AAA Batteries, Certificate of Calibration | Assist in volume-flow measurements and balancing multi-outlet ventilation systems using several instruments |
| 1701920187 | Hygrometer Smart and Wireless Probe | Bluetooth Hygrometer, 3 AAA Batteries, Certificate of Calibration | Assist in measuring humidity and temperature |
| 1701920188 | Infrared Thermometer | Bluetooth Infrared Thermometer, 3 AAA Batteries, Certificate of Calibration | Assist in non-contact temperature readings from a distance |

| HA # | Material Item | Material Item Specification | Application |
|---|---|---|---|
| 2003928503 | Seesnake Micro Inspection Camera | Model CA-300 with 3 ft. cable, complete with accessories, Rigid #37888 | Record and save still images and videos of problems in hard-to-reach areas |

Appendix C – Instructions for Using the Anemometer

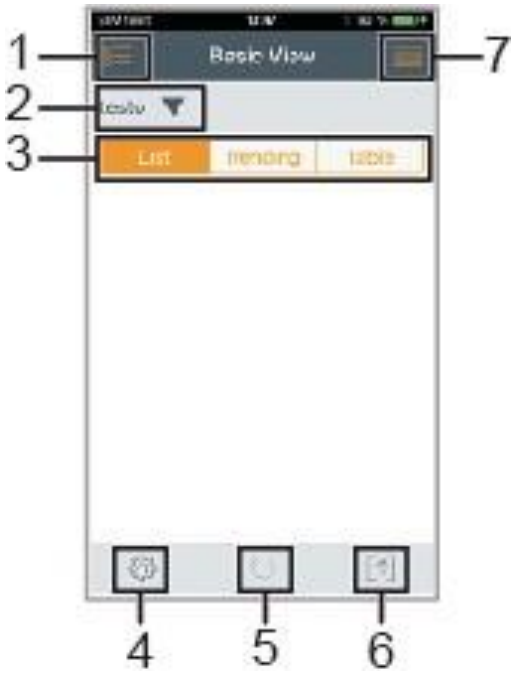
## A. Switching On and Off

1. Open the Testo App on your NYCHA issued handheld device. Once the Testo App is open, turn on your Anemometer using the instructions below:
    i. Press the large button shown as number 1 in the image below.
    ii. The LED light should start blinking yellow.




2. The Testo device should automatically pair with your NYCHA issued handheld device. You will know the Anemometer has successfully paired when the LED light turns green. **(Note: For best results, do not operate more than one Testo device at a time.)**

## B. Overview of the Operating Controls



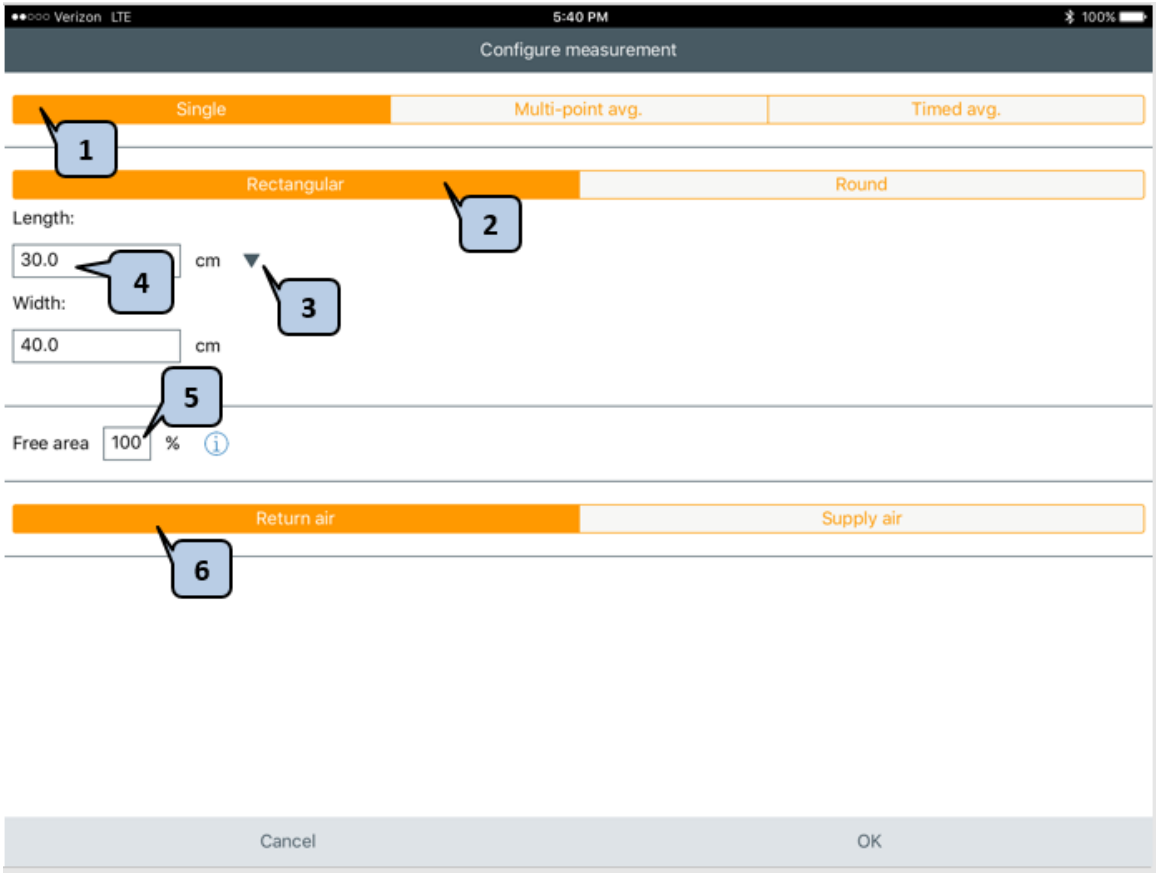

1. Choice of applications
2. Display of connected Smart Probes
3. 3-panel switch between the 3 informational views (list, graphic diagram, table)
4. Measurement settings. (The menu changes depending on which Smart Probe is connected and which particular device is selected)
5. Restarts the measuring value recordings in graph and table format. Allows you to freeze and unfreeze the reading
6. Export the reading
7. Options menu

## C. Configuring the Testo App to Take an Airflow Reading

1. From the Start up Screen, select **Measurement Settings**
2. On the next selection screen, select **Volume Flow (Outlet)**
    a. Select settings. This selection screen will let you choose your configuration for measurement

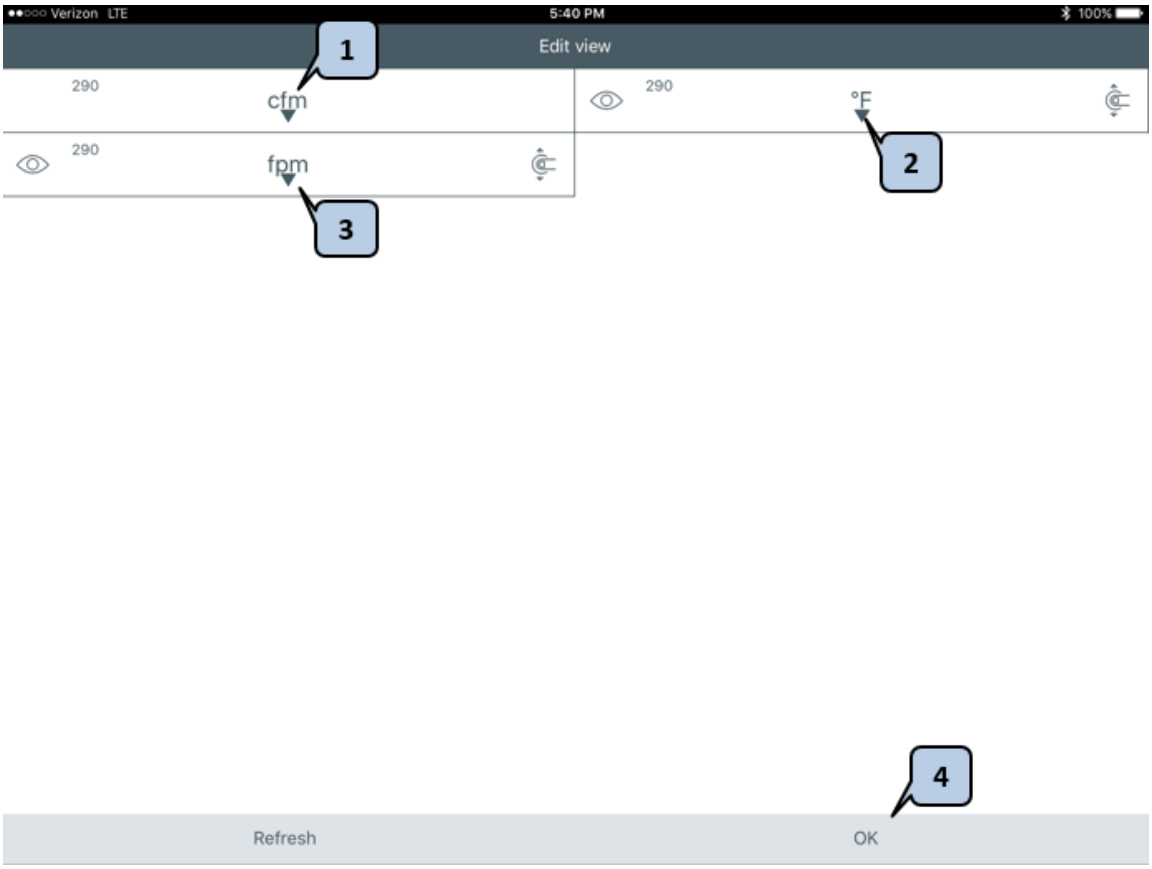
**Configuring the Testo App to Take an Airflow Reading (Continued)**

1. On the Configure Measurement screen (Pictured Below), choose **Single** measurement
2. Below that setting, there is a setting for either a rectangular or round air duct measurement
    **a.** Choose the **Rectangular measurement**
3. Ensure that the length and width in your App is set to inches
    a. If the unit of measure is not in inches, use the drop-down triangle symbolto change your unit of measure to inches.
4. Input the length and width of the air duct you are measuring
5. Change Free Area to **55%**
6. Ensure the setting for return air is selected
7. Hit **OK** to save your settings.



**D.** In the following screen adjust your units to the following:

1. Change unit of measure to **Cubic Feet per minute (CFM)**
2. Change temperature units to **Fahrenheit (°F)**
3. Change unit of measure to **Feet Per Minute (FPM)**
4. Select **OK** at the bottom of the screen to save your unit selections

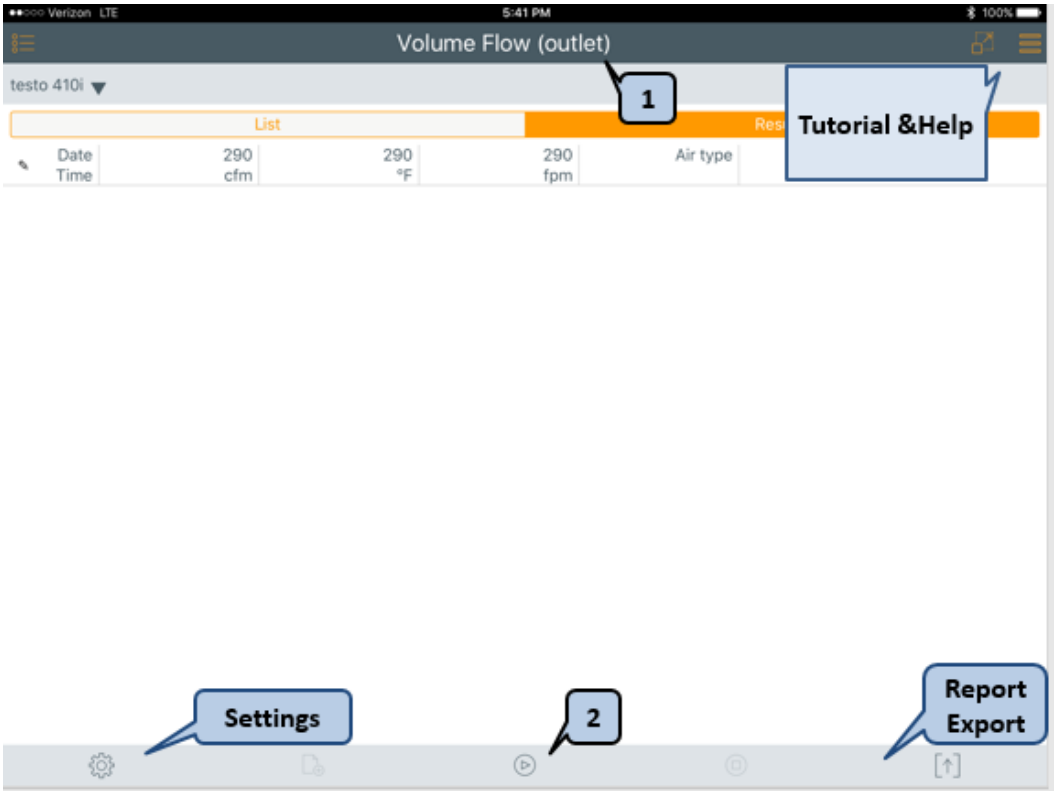


## E. Taking a Flow Measurement

To take a measurement, place the anemometer so it is flush with the face of the air duct grill.

1. Your results will be displayed on the Volume Flow (outlet) screen (Pictured Below)
2. To freeze a flow measurement, hit the Start and Stop button at the bottom of your screen

Hitting the Start and Stop button multiple times will allow you to save multiple readings.

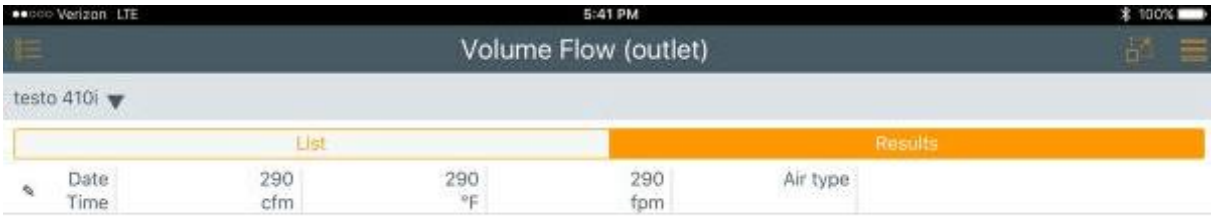


## F. Output Results

To view a table of results:

1. Return to the Main Menu screen
2. Select the **Volume Flow (outlet)**


Below is the **Volume Flow (outlet) screen**:




# INTERIM GUIDANCE ON WALL BREAKS

**NEW YORK CITY HOUSING AUTHORITY**
**MANAGEMENT SERVICES DEPARTMENT**

Interim Guidance on Wall Breaks
Updated: December 16, 2016

When opening a wall to perform or prepare for repairs, staff must take the necessary precautions to protect residents and staff from mold, asbestos, and lead. This guidance (which supplements the wall break procedures detailed in GM3666) details the steps staff must take before, during, and after the wall break. Instructions on temporary wall closures are also included in this guidance; temporary wall closures are an important customer service practice that must be implemented until permanent repairs can be completed.

Maintenance workers, bricklayers, carpenters, plumbers, plasterers and roofers are responsible for performing repairs that require wall breaks, and are responsible for following the below guidance.

**Work area preparation**

After determining that a wall break must be performed, staff must immediately obtain the necessary supplies before proceeding with repairs. Supplies include, but are not limited to, 6 mil polyethylene sheets, duct tape, a spray bottle, and a sheet of pre-cut Masonite. Lay polyethylene sheets on all horizontal surfaces in the immediate vicinity of the wall opening and secure them with duct tape. **Just prior** to starting work, mist with water the surface area to be opened to reduce the amount of dust produced from the wall break.

If you are working in a development with known lead-based paint or lead components (listed in Appendix A and B of GM3666), polyethylene sheets should cover all horizontal surfaces in the room where the repairs occur. The entrance door should also be covered and weighted at the base to prevent dust from entering other rooms. In these developments, you should make every effort to keep the wall opening under two (2) square feet to limit the amount of dust produced. If the wall break must be greater than two (2) square feet, you must follow the Level 4 dust control instructions detailed in Appendix C of GM3666.

**Precautions while performing repairs; temporary wall closure**

Where possible, score painted walls with a utility knife or use a pry bar or chisel to open a glazed wall. Sawing and drilling should be avoided, if possible, as they produce significantly more dust and make containment and clean up more difficult.

The wall opening should measure 1’ by 1’ when done for exploratory purposes (e.g., locating a leak), 2’ by 2’ for smaller repairs, and 4’ by 4’ for larger repairs. By opening the wall according to these standard sizes, staff can quickly and easily create a temporary closure using pre-cut Masonite. Developments should maintain a stock of Masonite cut in these sizes to fit the standard wall opening.

Staff **must** make a temporary closure over the opening so that residents are not left with an open wall until final repairs can be completed. Staff should place a pre-cut Masonite sheet over the opening and screw in to secure it. The edges should be covered with duct tape to seal it.

When the wall opening is performed on a tub wall, staff must waterproof the temporary Masonite closure. Use a new piece of polyethylene sheeting to cover the affected wall from the side and top edges to the tub ledge and extend 12 inches past the corner onto the adjacent wall, securing all edges with duct tape. Carefully cut an opening for the tub spout and shower controls, and tape down edges as thoroughly as possible.

**Please note: Staff are required to detail that a wall opening has been performed on a tub wall in the notes section of the work order. The subsequent permanent repairs must be expedited in order to prevent potential damage to apartments below. To do so, staff must also notify the development supervisor(s), who will inform the Planning Unit that the follow-up work order must be prioritized.**

**Clean up**

Once the temporary wall closure is complete, use a HEPA-filter vacuum to remove dust, then wet wipe the work area using a clean rag or moistened towel to remove any remaining dust. If you suspect lead is present, use a clean rag or moistened towel with lead-specific detergent to wipe down the work area.

# INTERIM GUIDANCE ON PIPE INSULATION

**NEW YORK CITY HOUSING AUTHORITY**
**MANAGEMENT SERVICES DEPARTMENT**

Interim Guidance on Pipe Insulation
Updated: December 16, 2016

**Background**

When performing repairs that require a wall break and/or repairs to water/ fire system piping or heat supply lines, NYCHA has the opportunity to quickly and efficiently retrofit piping with insulation in accordance with New York City code.[1] This Interim Guidance provides information on how to inspect and install insulation when a wall break has been performed in the course of completing a repair.

Maintenance workers, bricklayers, carpenters, plumbers, plasterers and roofers are responsible for conducting repairs that require wall breaks and/or repairs to water piping. Thus, maintenance workers and the aforementioned trades will be responsible for following the below guidance.

**Process Details**

For repairs requiring a wall containing pipes to be opened, maintenance and applicable skilled trades staff are instructed to inspect pipes, valves and fittings exposed for the presence of insulation. For apartment repairs, staff must inspect all domestic water pipes for insulation. In public space, staff must inspect water/ fire system piping or heat supply lines affected by the repair. All new piping (other than waste, vent piping and heat return lines) must be insulated and any repairs that require removal of insulation must include replacing the removed insulation.

If there is no insulation present, staff must install insulation on all pipes, valves and fittings exposed and accessible as a result of the wall break. Where possible, one-inch thick insulation should be installed. If pipe spacing prevents one-inch insulation to be installed, half-inch thick insulation should be installed. Owens Corning ASJ Max insulation of both sizes and related materials (or other manufactured insulation approved by Supply Chain Operations) will be available in the development storeroom for maintenance and skilled trades staff to install on water pipes of various sizes. The full list of insulation and related materials is included in Appendix A. Should they not be available in the development storeroom at the time of the appointment, staff should make a temporary closure to the wall opening using Masonite until the material is obtained at which point work may resume. (Please follow Interim Guidance for Wall Breaks)

Maintenance workers and applicable skilled trades staff are responsible for fully inspecting the pipes exposed and accessible after the wall is opened. Should they find these pipes lack insulation, they must install the insulation during the course of the repair. Staff should consult the manufacturer's installation instructions for additional information. Staff issued with a handheld device must take a photo of the installed insulation once they have completed the installation, select the appropriate insulation remedy codes and attach the photo to the work order in Maximo.

If staff finds that insulation is ripped, damaged or unsecured, staff should remove what remains of the old insulation, and then install insulation around all pipes, valves and fittings that are exposed and accessible as a result of the repair. In the event staff suspects existing insulation may contain asbestos, they are to report it to

the development and follow the existing process for testing and abatement. Once insulation has been tested and/or abated, staff should resume installation as outlined above.

Superintendents, assistant superintendents, and skilled trades supervisors are responsible for ensuring that maintenance and skilled trades staff have properly inspected pipes and installed insulation and adhered to policy and procedure outlined in this interim guidance. Superintendents and supervisors should review the work orders where insulation has been installed and view the attached photos to evaluate the installation.

Additionally, superintendents and development staff are responsible for ensuring that an adequate supply of insulation is in stock, monitoring the supply, and ordering additional insulation, when necessary.

| **Appendix A:** Insulation Materials and Supplies | |
|---|---|
| HA Number | Description |
| INSULATION | |
| 1207923960* | INSULATION, FIBERGLASS, FOR 1/2" PIPE SIZE, 1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722579 OR GRAINGER # 45FM38 |
| 1207923801* | FOR 1/2" PIPE SIZE, 1" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722470 OR GRAINGER #4LFC9 |
| 1207923802 | INSULATION, FIBERGLASS, FOR 1/2" PIPE SIZE, 1-1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722571 OR GRAINGER #4LFE2 |
| 1207923803 | INSULATION, FIBERGLASS, FOR 1/2" PIPE SIZE, 2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #200257 OR GRAINGER #4LFF4 |
| 1207923961* | INSULATION, FIBERGLASS, FOR 3/4" PIPE SIZE, 1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722597 OR GRAINGER # 40PP22 |
| 1207923804* | FOR 3/4" PIPE SIZE, 1" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722471 OR GRAINGER #4LFD1 |
| 1207923805 | FOR 3/4" PIPE SIZE, 1-1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722575 OR GRAINGER #4LFE3 |
| 1207923806 | FOR 3/4" PIPE SIZE, 2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722619 OR GRAINGER #4LFF5 |
| 1207923962* | INSULATION, FIBERGLASS, FOR 1" PIPE SIZE, 1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722609 OR GRAINGER # 40PP32 |
| 1207923807* | FOR 1" PIPE SIZE, 1" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722564 OR GRAINGER #4LFD2 |
| 1207923808 | FOR 1" PIPE SIZE, 1-1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722580 OR GRAINGER #4LFE4 |
| 1207923809 | FOR 1" PIPE SIZE, 2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722612 OR GRAINGER #4LFF6 |
| 1207923963* | INSULATION, FIBERGLASS, FOR 1-1/2" PIPE SIZE, 1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722602 OR GRAINGER # 40PP18 |
| 1207923810* | FOR 1-1/2" PIPE SIZE, 1" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722596 OR GRAINGER #4LFD4 |
| 1207923811 | FOR 1-1/2" PIPE SIZE, 1-1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722594 OR GRAINGER #4LFE6 |
| 1207923812 | FOR 1-1/2" PIPE SIZE, 2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722606 OR GRAINGER #4LFF8 |
| 1207923964** | INSULATION, FIBERGLASS, FOR 2" PIPE SIZE, 1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH |
| 1207923813** | FOR 2" PIPE SIZE, 1" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722586 OR GRAINGER #4LFD5 |

| | |
|---|---|
| 1207923814 | FOR 2" PIPE SIZE, 1-1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #200267 OR GRAINGER #4LFE7 |
| 1207923815 | FOR 2" PIPE SIZE, 2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722587 OR GRAINGER #4LFF9 |
| 1207923816** | FOR 2-1/2" PIPE SIZE, 1" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722599 OR GRAINGER #4LFD6 |
| 1207923817 | FOR 2-1/2" PIPE SIZE, 1-1/2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722583 OR GRAINGER #4LFE8 |
| 1207923818 | FOR 2-1/2" PIPE SIZE, 2" WALL THICKNESS, HINGED WITH SELF SEALING LAP, 3 FT LENGTH, OWENS CORNING #722589 OR GRAINGER #4LFG1 |
| | TAPE |
| 1207923819 | FOR FIBERGLASS PIPE INSULATION, 3" WIDE X 15O FT, PRESSURE SENSITIVE ADHESIVE, RATED 0 TO 150 DEG F., OWENS CORNING #531700 OR GRAINGER #4LFJ3 |
| 1207923820 | FOR PIPE INSULATION, 1" X 108 FT, PRESSURE SENSTITIVE ADHESIVE, RATED 0 TO 150 DEG F., VINYL, OWENS CORNING #PVC201 OR GRAINGER #6WXE4 |

** For insulation marked with a single asterisk (*), developments must maintain a stock of 40 units. For insulation marked with a double asterisk (**), 20 units must be maintained in stock. Developments must also maintain a stock of 10 rolls of both styles of tape.*

# NYCHA STANDARD PROCEDURE MANUAL
# SP 050:21:1

**NYCHA STANDARD PROCEDURE MANUAL**

**SP 050:21:1, ROOF FAN INSPECTIONS AT NYCHA RESIDENTIAL BUILDINGS**

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| SUBJECT | PROCEDURE OWNER | APPROVED DATE | APPROVED BY | INDEX NO. |
|---|---|---|---|---|
| ROOF FAN INSPECTIONS AT NYCHA RESIDENTIAL BUILDINGS | HEALTHY HOMES<br>PUBLIC HOUSING OPERATIONS | Date: 7/30/2021 | Rassoul Azarnejad<br>Vice-President of Healthy Homes<br>Vito Mustaciuolo<br>Chief Operating Officer | 050:21:1 |

## I. PURPOSE

The purpose of this Standard Procedure is to provide instructions to NYCHA employees to perform inspections, maintenance, and repairs of roof fans.

## II. POLICY

It is the policy of NYCHA to:

A. Ensure roof fans are operating continuously, 24 hours per day, where possible;

B. Inspect roof fans monthly to ensure roof fans are operating properly;

C. Conduct detailed quality assurance inspections of roof fans;

D. Perform preventative maintenance on roof fans;

E. Return all inoperative or malfunctioning fans to service within 21 calendar days from the date of inspection; and

F. Follow the requirements of the *Baez et. al. v. NYCHA Modified Amended Stipulation and Order of Settlement* (United States District Court, Southern District of New York).

G. The inspection instructions in Section VII.A. of this Standard Procedure also are followed if an individual roof fan inspection work order is generated from a mold inspection, leak, or excessive moisture

## III. APPLICABILITY

This Standard Procedure applies to all NYCHA employees who perform roof fan inspections in NYCHA public housing developments, and the employees who monitor the inspections. This procedure does not apply to Permanent Affordability Commitment Together (PACT) developments.

## IV. DEFINITIONS

A. Belt Driven Roof Fan

A type of fan where the fan wheel is affixed to a pulley that is driven by a motor and associated belt.

B. Craft

The type of worker assigned to a work order. For each failure class or problem code, Maximo lists a default craft and other possible crafts that can be assigned. Titles that can be assigned such work orders include roofers, machinists, and electricians.

C. Direct Drive Roof Fan

A type of fan where the fan wheel is directly affixed to the motor.

D. Fan Timer

A device that limits the operating hours of fans; it is NYCHA's policy that all fan timers must be overridden or disconnected to ensure continuous fan operation.

E. High Efficiency Particulate Air (HEPA) Vacuum

A vacuum that uses a HEPA filter and is at least 99.97% efficient in removing microscopic particles (i.e., monodisperse air particles of 0.3 micrometers in diameter).

F. Informer Work Management App (iWM App)

A computer software work order application used by NYCHA to support maintenance and repairs, accessed by employees on handheld devices.

G. Maximo

A computer software application used by NYCHA to support inspections, maintenance, and repairs.

H. Malfunctioning Roof Fan

A roof fan identified during a monthly roof fan inspection as needing repair or replacement. A roof fan is considered to be malfunctioning if it meets one or more of the following conditions: is not operable, no air exhausts from the fan, the fan exhibits excessive noise or vibration, or the belt is not in satisfactory condition.

I. Rubber Isolator (Double Studded)

A specialized rubber washer installed on screws used to affix the fan housing to the riser that reduces vibration and noise.

J. Vendor

A third party under contract with NYCHA.

K. Ventilation Riser

A vertical shaft (commonly constructed of galvanized steel) that connects bathroom, kitchen, and common space horizontal vents to roof fans.

## V. REVIEW CYCLE

The Healthy Homes Department's Office of Mold Assessment and Remediation and Department of Public Housing Operations shall review this Standard Procedure at least once every three years; and advise the Compliance Department's Procedures Unit via email if no changes are needed or submit its revisions to the procedure by submitting *NYCHA Form 022.008*, *Procedure Development Request*.

## VI. RESPONSIBILITIES

The following departments and titles have responsibilities in this Standard Procedure. See Appendix A - Position Duty Statements, for the summary of duties by title or department.

A. Operations Departments

1. Borough vice-presidents
2. Neighborhood administrators
3. Property managers
4. Property maintenance supervisors
5. Assistant property maintenance supervisors
6. Skilled Trades deputy directors
7. Skilled Trades employees (Property Management)
8. Skilled Trades employees (Technical Services Department)

9. Borough Planning supervisors

10. Maintenance workers

B. Healthy Homes Department

1. Office of Mold Assessment and Remediation senior manager

2. Employees in the Office of Mold Assessment and Remediation Analytics and Process Change Unit

C. Office of Quality Assurance

1. Director

2. Inspectors

3. Quality assurance officer

## VII. PROCEDURE

A. Monthly Roof Fan Inspections

1. Maximo automatically generates a monthly roof fan inspection work order (IN) for each building that contains roof fans.

   a. The work orders are viewable on the iWM App on the handheld devices provided to employees who perform inspections for ease of use and data collection purposes.

| **NOTE:** | If an employee performing roof work observes problems or potential problems with a roof fan, they must create a roof fan inspection work order. |
|---|---|

2. The development property maintenance supervisor or assistant property maintenance supervisor monitors Maximo for monthly roof fan inspections.

3. The development property maintenance supervisor, assistant property maintenance supervisor, or maintenance worker (inspector) performs monthly roof fan inspections.

4. Defective roof fans are required to be returned to service within 21 calendar days of a monthly inspection.

   a. If an individual roof fan inspection work order is generated as a result of a mold inspection, leak, or excessive moisture, these inspection work orders and related work must be addressed within 21 calendar days.

b. Work orders resulting as a response to a resident complaint regarding apartment ventilation are remediated based on the 21-day period provisions.

| | |
|---|---|
| **NOTE:** | If the timeframes related to this Standard Procedure cannot be met because of weather conditions, the inspector adds that information into the notes section of the work order. |

5. Fan repairs may be performed by either in-house staff or a vendor.

   a. If a development has less than 15 roof fans, repairs usually are made by NYCHA employees. If a development has 15 or more roof fans, a vendor performs the repairs.

   b. If a vendor is required to make roof fan repairs, the inspector contacts the Property Management Borough Office. The Borough Office identifies the vendor and coordinates the repairs.

6. Fan repairs must be made in accordance with the manufacturer's specifications.

7. If a fan motor needs to be replaced and the fan model number cannot be identified because the manufacturer's name plate is illegible or missing, the inspector reviews Development Blueprints or the Document Management and Archival System (DMAS) for Heating and Ventilation plans. To access DMAS, go to nycha.zlinkfm.com. Users must have an account to get access.

| | |
|---|---|
| **NOTE:** | To request access to DMAS, go to the Service Desk on the NYCHA Connect home page and select the option for DMAS. |

8. Replacement fans must be sized to meet the horsepower, RPM, and other characteristics as per original specifications, with the following exceptions:

   a. All roof fans are to be replaced with direct drive fans.

   b. Replacement fans must be specified to operate 24 hours per day, seven days per week.

9. To prepare for the monthly roof fan inspection, the inspector brings the following equipment to the location:

   a. Equipment to open roof fans (including but not limited to screw drivers).

   b. Spare fan belts (if belt driven fans are present on the roof).

   c. Spare bolts, nails, and rubber isolators to make limited repairs described below in section VII.A.10.c.

d. Equipment to access all roof fans on a roof, if required, based on the needs of each development.

| | |
|---|---|
| **NOTE:** | Some fans are located on the roof above the elevator machine room or other areas that are elevated above the main roof or on a sub-roof. These areas typically require ladders to access. Detailed roof drawings can be obtained from DMAS.<br><br>To access DMAS, go to nycha.zlinkfm.com. Users must have an account to get access. See Section VII.A.7. above for instructions on how to request access to DMAS. |

10. On the Inspection Tab in Maximo, there are tasks listed with questions for inspectors to answer related to the following items. The inspection questions are available on the handheld device. The answer choices are pre-loaded from Maximo and must be selected by the inspector.

    a. Verifying fan timer overrides.

| | |
|---|---|
| **NOTE:** | It is NYCHA's policy that roof fans must be operable for 24 hours per day, seven days per week. |

    (1) On the inspection work order, Fan Timer Task, Question 1, asks whether the fan timers have been overridden to allow fans to operate continuously.

    (2) If the fan timers have not been overridden, the inspector:

        (a) Locates and bypasses the existing roof fan timer(s) by removing the Off Pin and then tripping the Override or Bypass Switch (see Appendix B – Override/Bypass Switch Supplemental Information). Fan timers can be in a basement or a roof top distribution room.

        (b) After the timers are bypassed, secures the timer cover.

        (c) Attaches a sign to indicate that the timer was bypassed. Use Appendix C – Standard Bypass Sign.

b. Physically inspecting each roof fan.

(1) During this phase of the inspection, the inspector determines if the roof fan is in proper working condition by answering the following questions with a 'Yes' or 'No.'

(a) Is the roof fan operable?

(b) Is the air exhausting from the fan?

(c) Is the roof fan exhibiting excessive noise or vibration?

(2) The inspector then is asked to select the fan's motor drive which can be either:

(a) Belt-driven (typical on older model fans); or

(b) Direct-driven (typical on newer model fans).

(3) If 'belt-driven' is selected, the inspector opens the roof fan housing to observe the belt-driven motor.

**(a)** To observe the condition of the belt, the inspector opens the hood and **immediately** shuts down the motor using the switch located within the housing. **This is required to avoid serious injury or death.**

(b) The inspector answers 'Is the belt in satisfactory condition?' in one of three ways:

i. Yes (satisfactory- belt is not broken, no signs of cracking or cuts)

ii. CAT (corrective action taken)

The inspector chooses this if they note a deficiency and correct it successfully. With this selection, Maximo automatically creates a closed work order against the roof fan asset with a failure class of 'ROOFFAN' and a problem code of 'BELTS DML.'

iii. No (unsatisfactory- belt is broken or shows **any** signs of visible wear, including cracking or cuts)

The inspector chooses this if they note a deficiency and the deficiency is not corrected. With this selection, Maximo automatically creates a work order against the roof fan asset with a failure class of 'ROOFFAN' and a problem code of 'BELTS DML.'

(4) If ‘direct-driven’ is selected, the inspector does not answer any more questions regarding the proper working condition of any belt items and proceeds directly below to Section VII.A.10.b.(5).

(5) The inspection is complete, and no further questions are asked if the inspector answers:

**(a)** ‘Yes’ to ‘Is the roof fan operable,’ **and**

**(b)** ‘Yes’ to ‘Is the air exhausting from the fan,’ **and**

**(c)** ‘No’ to ‘Is the roof fan exhibiting excessive noise or vibration,’ **and**

(d) ‘Yes’ to ‘Is the belt in satisfactory condition’ (for belt-driven roof fans).

(6) The inspection continues with the items in sections VII.A.10.c. and VII.A.10.d. (directly below) if the inspector answers:

**(a)** ‘No’ to ‘Is the roof fan operable,’ **and/or**

**(b)** ‘No’ to ‘Is the air exhausting from the fan,’ **and/or**

**(c)** ‘Yes’ to ‘Is the roof fan exhibiting excessive noise or vibration,’ **and/or**

(d) ‘No’ to ‘Is the belt in satisfactory condition’ (for belt-driven roof fans).

c. For the inspection question determining if the roof fan is exhibiting excessive noise or vibration:

(1) If the fan is not exhibiting excessive noise or vibration, the inspector responds ‘No.’

(2) If the fan is exhibiting excessive noise or vibration, the inspector responds ‘Yes,’ and:

(a) Evaluates whether corrective action can be taken during the inspection by performing one or more of the following tasks:

i. Tightening, replacing, or installing of appropriate bolts connecting the fan housing to the base plate.

ii. Installing new or replacing worn out rubber isolators (double studded) associated with the fan housing bolts.

iii. Removing foreign objects located within the fan housing.

(3) If the actions taken during the inspection as outlined directly above in section c.(2)(a) eliminates the excessive noise or vibration, the inspector responds ‘CAT’ (corrective action taken).

(a) If corrective action was taken because of the fan wheel, the inspector selects the response ‘CAT-FANWHEEL.’ Maximo automatically creates a closed work order against the roof fan asset with a failure class of ‘ROOFFAN’ and a problem code of ‘FANHOUSINGDL.’

(b) If corrective action was taken because of a loose pulley, the inspector selects the response ‘CAT-PULLEY LOOSE.’ Maximo automatically creates a closed work order against the roof fan asset with a failure class of ‘ROOFFAN’ and a problem code of ‘PULLEYDAMAGED.’

(4) If any actions were taken during the inspection, as outlined directly above in section c.(2)(a), but the excessive noise or vibration continues, the inspector chooses one of the following responses:

(a) If the issue is related to the fan wheel, the inspector selects the response ‘YES-FANWHEEL.’ Maximo automatically creates a work order against the roof fan asset with a failure class of ‘ROOFFAN’ and a problem code of ‘FANHOUSINGDL.’

(b) If the issue is related to a damaged pulley, the inspector selects the response ‘YES-PULLEY DAMAGED.’ Maximo automatically creates a work order against the roof fan asset with a failure class of ‘ROOFFAN’ and a problem code of ‘PULLEYDAMAGED.’

| | |
|---|---|
| **NOTE:** | Common causes of excessive noise or vibration include the following:<br>1. Belt is too tight or too loose<br>2. Defective bearings<br>3. Imbalanced fan wheel<br>4. Wheel improperly aligned and rubbing against the inside of the fan housing<br>5. Loose drive or motor pulleys<br>6. Foreign objects in fan wheel or housing<br><br>Common causes of reduced air flow include:<br>1. High system resistance caused by dirty or closed backdraft dampers<br>2. The fan is running backwards<br>3. Excessive dirt buildup on the fan wheel<br>4. Improper wheel alignment<br><br>Common causes of a non-operational fan motor include:<br>1. Faulty electrical wiring<br>2. Motor failure<br><br>Common causes of air not exhausting from a fan:<br>1. Non-functioning unit<br>2. Bird-screen blocked with heavy dust build-up<br><br>For manufacturer's troubleshooting and maintenance recommendations, if the fan is a Direct Drive model (G) or Belt Drive model (GB) manufactured by Greenheck, refer to Appendix D, Greenheck Roof Fans Information. If the fan is not a G or GB model manufactured by Greenheck, check the name of the manufacturer and the model number to search online for the appropriate manufacturer's manual. |

d. Is there a potential motor failure or no power to the motor?

(1) If the fan does not have a potential motor failure and there is power to the motor, the inspector responds 'No.'

(2) If the fan does have a potential motor failure and/or there is no power to the motor, the inspector attempts to fix the issue, if possible. The two main causes of motor failure or no power to the motor are (1) faulty electrical wiring or (2) the motor has reached the end of its lifecycle.

(a) If the cause of the motor failure is faulty electrical wiring and the inspector's actions taken during the inspection resolve faulty electrical wiring, the inspector responds 'CAT-FAULTY ELECTRICAL WIRING.' Maximo automatically creates a closed work order against the roof fan asset with a failure class of 'ROOFFAN' and a problem code of 'FANOOO.'

(3) If actions taken during the inspection do not resolve the issue, the inspector chooses one of the following responses:

(a) If the issue is faulty electrical wiring, the inspector responds 'YES-FAULTY ELECTRICAL WIRING.' Maximo automatically creates a work order against the roof fan asset with a failure class of 'ROOFFAN' and a problem code of 'FANOOO' or 'EXPOSEDWIRES' or 'FUSEMOOO' or 'NOPOWER.'

(b) If the issue is a motor failure, the inspector responds 'YES-MOTOR FAILURE.' Maximo automatically creates a work order against the roof fan asset with a failure class of 'ROOFFAN' and a problem code of 'FANOOO.'

B. Child Work Orders

When a child work order is created during a roof fan inspection:

1. The property maintenance supervisor or assistant property maintenance supervisor coordinates the scheduling of skilled trades crafts with the Property Management Department Planning Unit or Technical Services Department.

2. The Property Management Department skilled trades deputy director or Technical Services Department deputy director assigns the appropriate craft to perform the repairs.

3. Property managers approve any work ordered that is performed by a vendor.

C. Oversight

1. Department of Healthy Homes

a. Office of Mold Assessment and Remediation Analytics and Process Change Unit employees review the results of autogenerated monthly roof fan inspections to:

(1) Identify developments with lengthy child work order completion time frames (greater than 21 days between the roof fan inspection and repair/replacement of the malfunctioning roof fan);

(2) Identify developments with high rates of inoperable roof fans (greater than five percent of the roof fans at the development are reported as inoperable within a single month); and

(3) Provide reporting and related actionable recommendations to Operations Management pertaining to developments with lengthy child work order completion time frames and high rates of inoperable roof fans to ensure Baez Consent Decree requirements for roof fans are met.

2. Department of Operations

   a. Borough vice-presidents monitor the progress of child work orders and completion of inspections.

   b. Neighborhood administrators:

      (1) Ensure property managers and property maintenance supervisors monitor roof fan-related work orders in Maximo and address conditions in compliance with this Standard Procedure.

      (2) Follow up with property managers and property maintenance supervisors to address process issues, including but not limited to providing additional training, reviewing key accountabilities, and/or commencing progressive discipline.

   c. Property maintenance supervisors monitor Maximo for the timely completion of roof fan child work orders and address delays.

   d. Property Management Department skilled trades deputy directors investigate and respond to reports prepared by the Performance Management Department regarding skilled trades issues.

3. Department of Quality Assurance

   The Office of Quality Assurance reviews randomly selected roof fan work orders to ensure that industry standards are being met. Refer to NYCHA Standard Procedure 059:17:1, *Public Housing Quality Assurance Program*. Quality assurance inspectors generate quality assurance inspection work orders from their handheld devices when on-site.

## VIII. OUTPUTS, REPORTS, AND RECORDKEEPING

A. Outputs

1. Roof fans operating properly 24 hours per day, seven days per week.

2. Reduced mold conditions in apartments where the root cause was determined to be poor ventilation.

3. All roof fans in NYCHA public housing developments inspected at least once per month.

4. Malfunctioning roof fans repaired or replaced within 21 days of a monthly inspection.

B. Reports

1. The Office of Mold Assessment and Remediation provides a quarterly report on the results of roof fan inspections and work completion times.

C. Recordkeeping

1. The Information Technology Department Maximo Unit retains electronically created and stored completed work orders for at least seven years.

## IX. TRAINING REQUIREMENTS

A. All property managers and property maintenance supervisors must review this Standard Procedure and review it with applicable staff.

## X. PERFORMANCE METRICS

A. Completion rate of monthly roof fan inspections.

B. Number of fan repairs required.

C. Average time to return roof fans to operation.

## XI. NON-COMPLIANCE

A. NYCHA employees who perform inspections, maintenance, and repairs of roof fans are required to comply with this Standard Procedure.

B. If unsatisfactory work is identified during either a monthly or quality assurance inspection as described in this Standard Procedure, or at any other time, supervisory employees must:

1. Identify areas of training for staff and ensure such training is provided.

2. Reinforce with the relevant employee(s) the job expectations, accountabilities, and the progressive discipline process.

C. Failure to comply with the requirements of this Standard Procedure may result in disciplinary actions.

D. Departments are required to take corrective action to bring NYCHA into compliance.

## XII. FORMS

This section intentionally left blank.

# XIII. WORKFLOW

This section intentionally left blank.

# XIV. REVIEW/REVISION HISTORY PAGE

## ROOF FAN INSPECTIONS AT NYCHA RESIDENTIAL BUILDINGS

## SP 050:21:1

| Review/ Revision | Review/ Revision Date | Sections Amended |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |

# XV. APPENDICES

Appendix A – Position Duty Statements

1. Operations Departments

   a. Borough Vice-Presidents

      (1) Monitor the progress of child work orders and completion of inspections.

   b. Neighborhood Administrators

      (1) Ensure property managers and property maintenance supervisors monitor roof fan-related work orders in Maximo and address conditions in compliance with this Standard Procedure.

      (2) Follow up with property managers and property maintenance supervisors to address process issues, including but not limited to providing additional training, reviewing key accountabilities, and/or commencing progressive discipline.

   c. Property Managers

      (1) Approve any work ordered that is performed by a vendor.

   d. Property Maintenance Supervisors

      (1) Monitor Maximo for monthly roof fan inspections.

      (2) Perform monthly roof fan inspections, including any actions that can be taken during the inspections to eliminate identified problems.

      (3) When a work order is created based on an inspection, coordinate the scheduling of skilled trades crafts with the Property Management Department Planning Unit or Maintenance, Repairs, and Skilled Trades Department.

      (4) Monitor Maximo for the timely completion of roof fan child work orders and address delays.

   e. Assistant Property Maintenance Supervisors

      (1) Monitor Maximo for monthly roof fan inspections.

      (2) Perform monthly roof fan inspections, including any actions that can be taken during the inspections to eliminate identified problems.

(3) When a work order is created based on an inspection, coordinate the scheduling of skilled trades crafts with the Property Management Department Planning Unit or Maintenance, Repairs, and Skilled Trades Department.

f. Skilled Trades Deputy Directors

(1) Assign the appropriate craft to perform repairs. Skilled Trades titles that perform work on roof fans include roofers, machinists, and electricians.

(2) Investigate and respond to reports prepared by the Performance Management Department regarding skilled trades issues.

g. Skilled Trades Employees (Property Management)

(1) Perform the work created by child work orders.

h. Skilled Trades Employees (Technical Services Department)

(1) Perform the work created by child work orders.

i. Borough Planning Unit Supervisors

(1) When a work order is created based on an inspection, coordinate the scheduling of skilled trades crafts with the property maintenance supervisor.

j. Maintenance Workers

(1) Perform monthly roof fan inspections, including any actions that can be taken during the inspections to eliminate identified problems.

2. Department of Healthy Homes

a. Office of Mold Assessment and Remediation Senior Manager

(1) Manages the duties performed by Office of Mold Assessment and Remediation employees in this standard procedure.

b. Employees in the Office of Mold Assessment and Remediation Analytics and Process Change Unit

(1) Review the results of autogenerated monthly roof fan inspections.

3. Office of Quality Assurance

   a. Director

      (1) Performs duties as outlined in NYCHA Standard Procedure 059:17:1, *Public Housing Quality Assurance Program*.

   b. Inspectors

      (1) Perform duties as outlined in NYCHA Standard Procedure 059:17:1, *Public Housing Quality Assurance Program*.

   c. Quality Assurance Officer

      (1) Perform duties as outlined in NYCHA Standard Procedure 059:17:1, *Public Housing Quality Assurance Program*.

Appendix B – Override/Bypass Switch Supplemental Information

## Typical Time Clock

1. Remove On/Off Pins- Blue Arrows
2. Lift Protective Wire Cover
3. Trip Override lever into On Position
4. Verify Roof Fans Operating
5. Close Cover and Secure
6. Post Signage stating clock on Bypass

**Override Lever**

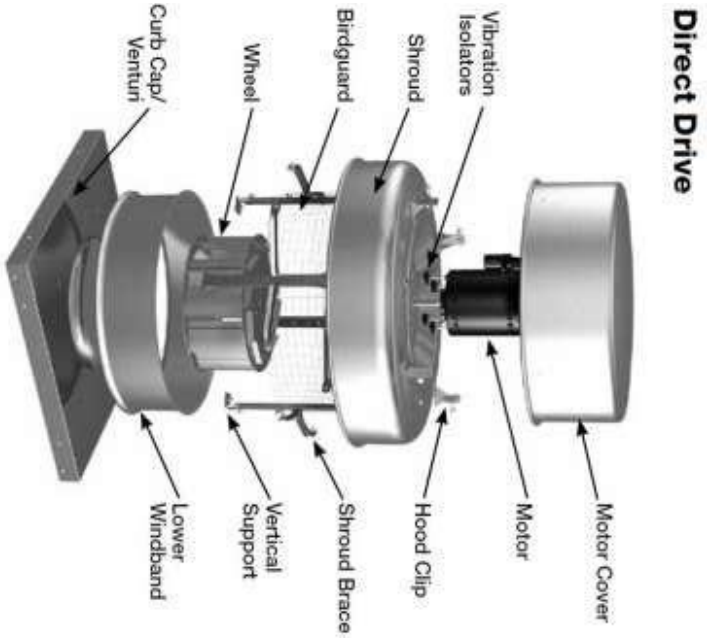
# Time Clock equipped with Separate Bypass Switch

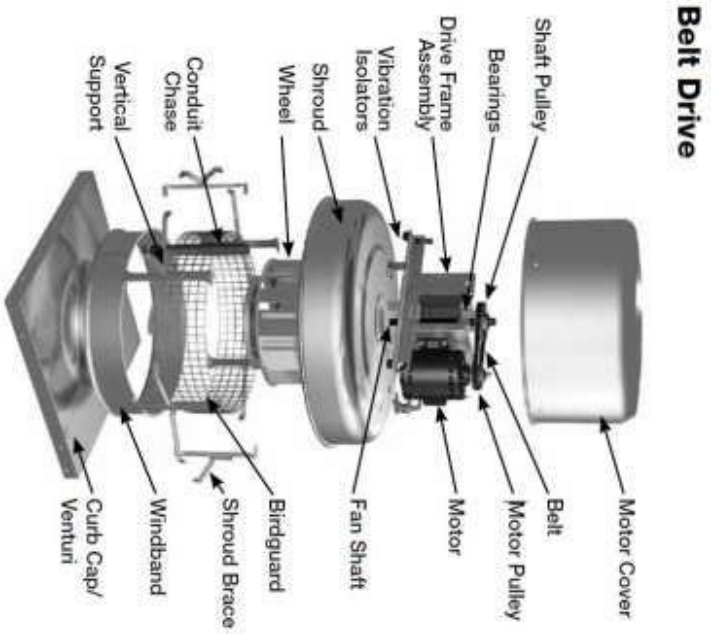
1. Remove On/Off Pins- Blue Arrow
2. Trip Override Lever into On Position or use manual Bypass Switch- Green Arrows
3. Verify Roof Fans Operating
4. Close Cover and Secure
5. Post Signage stating Clock on Bypass

Appendix C – Standard Bypass Sign

# ATTENTION:
# TIMER IS
# ON BYPASS.

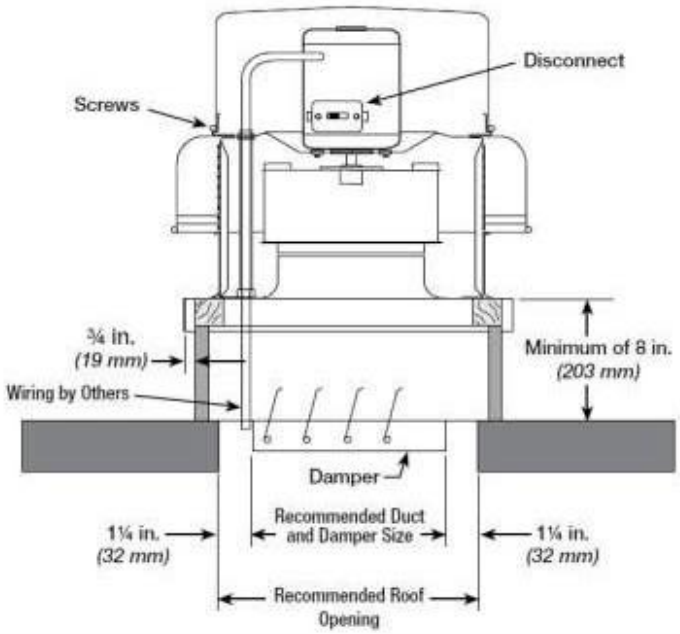
# ROOF FAN
# MUST OPERATE
# CONTINUOUSLY.


Direct Drive
Motor Cover
Motor
Hood Clip
Shroud Brace
Vertical Support
Lower Windband
Curb Cap/ Venturi
Wheel
Birdguard
Shroud
Vibration Isolators


Belt Drive
Motor Cover
Belt
Motor Pulley
Motor
Fan Shaft
Birdguard
Shroud Brace
Windband
Curb Cap/ Venturi
Vertical Support
Conduit Chase
Wheel
Shroud
Vibration Isolators
Drive Frame Assembly
Bearings
Shaft Pulley

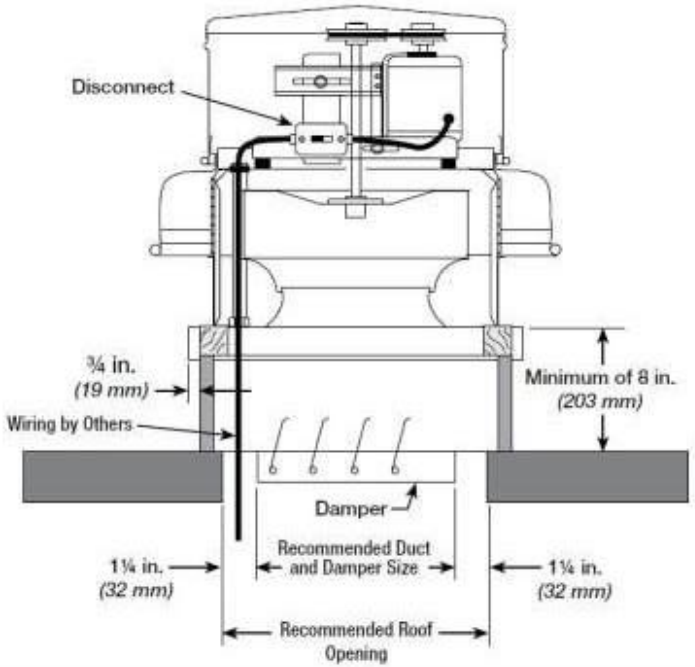
## Direct Drive

**Figure 4 - Typical Roof Mounting Installation**




## Belt Drive

**Figure 5 - Typical Roof Mounting Installation**



| PROBLEM | CAUSE | CORRECTIVE ACTION |
|---|---|---|
| Excessive noise or vibration | Wheel rubbing inlet | Adjust wheel and/or inlet cone.<br>Tighten wheel hub or bearing collars on shaft. |
| | V-belt drive | Tighten pulleys on motor/fan shaft. Adjust belt tension. Align pulleys properly, see page 6, Figures 9 and 10. Replace worn belts or pulleys. |
| | Bearings | Replace defective bearing(s). Lubricate bearings.<br>Tighten collars and fasteners. |
| | Wheel unbalance | Clean all dirt off wheel.<br>Check wheel balance, rebalance in place if necessary. |
| | Belts too tight or too loose | Adjust tension, see page 7, Figure 12a-b. |
| | Wheel improperly aligned and rubbing | Center wheel on inlet, see page 6, Figure 7. |
| | Loose drive or motor pulleys | Align and tighten. See "Pre-Starting Checks", see page 6 and 7. |
| | Foreign objects in wheel or housing | Remove objects, check for damage or unbalance. |
| | Fan base not securely anchored | Secure properly. |
| | Motor hood loose and rattling | Tighten fasteners to secure the motor hood. |
| | Defective or loose motor bearings | Replace motor with same frame size, RPM-HP. |
| High horsepower | Fan | Check rotation of wheel, see page 6, Figure 8. Reduce fan speed. |
| | Duct system | Resize ductwork. Check proper operation of face and bypass dampers. Check filters and access doors. |
| Fan does not operate | Electrical supply | Check fuses/circuit breakers. Check for switches off.<br>Check for correct supply voltage. |
| | Drive | Check for broken belts. Tighten loose pulleys or belts. |
| | Motor | Ensure motor is correct horsepower and not tripping overload protector. |
| Motor overloads or overheats | Lubrication | Check for excessive or insufficient grease in the bearing. |
| | Mechanical | Replace damaged bearing. Relieve excessive belt tension.<br>Align bearings. Check for bent shaft. |
| | Belt slippage | Adjust tension or replace bad belts, see pages 6 and 7. |
| | Over/Under line voltage | Contact power company. |
| | Incorrect wheel rotation | Check motor wiring, see page 5, Figure 4. Confirm wheel rotation, see page 6, Figure 8. |
| | Wheel RPM too high | Check drives or slow down fan by opening variable pitch pulley on motor shaft. |
| | Undersized motor | Check motor ratings with catalog speed and air capacity chart. |
| | Motor wired incorrectly | Check motor wiring to wiring diagram located on fan motor. |
| Reduced airflow | System resistance too high | Check system: Proper operation of backdraft or control dampers, obstruction in ductwork, clean dirty filters. |
| | Unit running backwards | Correct as shown on page 6, Figure 8. |
| | Excessive dirt buildup on wheels | Clean wheel. |
| | Improper wheel alignment | Center wheel on inlet, see "Pre-Starting Checks" on page 6. |
| | Dampers closed | Inspect and repair. |
| | Blocked duct/clogged filter | Clean or replace. |
| | Belt slippage | Replace and adjust tension. |
| | Speed too slow | Check for correct drives. |

# Model Number Code

The model number code system is designed to completely identify the fan. The correct code letters must be specified to designate belt or direct drive. The remainder of the model code is determined by the size and performance.

**GB - 240 HP - VG/VGD/5/A - X**

**Configuration**
G - Direct Drive
GB - Belt Drive

**Fan Size**
060 through 540

**Wheel Pressure Level**
HP - High Pressure

**VG** = Vari-Green®
*(Direct Drive only)*

**VGD** = Vari-Green Drive®

**Motor HP** *(Belt Drive only)*

| | | |
|---|---|---|
| 6 = 1/6 | 10 = 1 | 50 = 5 |
| 4 = 1/4 | 15 = 1½ | 75 = 7½ |
| 3 = 1/3 | 20 = 2 | 100 = 10 |
| 5 = 1/2 | 30 = 3 | 150 = 15 |
| 7 = 3/4 | | |

**Motor RPM** *(Direct Drive only)*

| | |
|---|---|
| A = 1725 | D = 1550 |
| B = 1140 | E = 1050 |
| C = 860 | G = 1300 |

**International**
*(See CAPS for performance)*
K = 950 RPM J = 1475 RPM

X = UL 705
F = UL *Smoke Control Systems*

# NYCHA STANDARD PROCEDURE MANUAL (SP 040:18:2)
# LEAD SAFETY FOR RENOVATION, REPAIR & PAINTING

**NYCHA STANDARD PROCEDURE MANUAL**

**SP 040:18:2, LEAD SAFETY FOR RENOVATION, REPAIR, AND PAINTING**

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| SUBJECT | PROCEDURE OWNER | APPROVED DATE | APPROVED BY | INDEX NO. |
|---|---|---|---|---|
| LEAD SAFETY FOR RENOVATION, REPAIR, AND PAINTING | OPERATIONS | Date: 12/31/18 | Cathy Pennington<br>Executive Vice-President of Operations<br>Vito Mustaciuolo<br>General Manager | 040:18:2 |

# I. PURPOSE

The purpose of this Standard Procedure is to provide instructions to employees on how to comply with applicable federal and local lead-based paint requirements when performing renovation, repair, and painting (RRP) work in public housing apartments, common areas, or exteriors where lead-based paint may be present.

This Standard Procedure does not provide complete operational instructions for performing RRP work. For more detailed information, please refer to the *Renovation, Repair, and Painting Training Manual* on the Forms and Reference Library in the Other Publications section.

# II. POLICY

It is the policy of NYCHA to follow the requirements set forth in federal and local laws and regulations for performing RRP work, including but not limited to:

A. Lead-Based Paint Poisoning Prevention Act, as amended (42 U.S.C. 4821 et seq.)

B. Residential Lead-Based Paint Hazard Reduction Act of 1992 (42 U.S.C. 4851 et seq.)

C. U.S. Department of Housing and Urban Development (HUD) regulations at 24 CFR Part 35 ("Lead Law")

D. U.S. Environmental Protection Agency (EPA) regulations at 40 CFR Part 745 Subpart E ("RRP Rule")

E. Local Law 1, NYC Admin. Code§§ 27-2056 ("New York City Childhood Lead Poisoning Prevention Act of 2003")

# III. APPLICABILITY

Maximo flags locations in which lead-based paint is or may be present, and identifies when RRP requirements must be met. If a Maximo work order identifies that RRP is required, all painted surfaces must be presumed to be lead-based paint.

This Standard Procedure applies to all RRP work in apartments, common areas, or exteriors, if Maximo identifies the work order as such, and if:

A. The work disturbs two (2) square feet or more of presumed lead-based paint per room, or more than 10 percent of a single small component per room, in apartments and common areas; or

B. The work disturbs more than 20 square feet of lead-based paint on exteriors.

## IV. DEFINITIONS

A. Certified Renovator

An individual who successfully completes a renovator course accredited by the federal Environmental Protection Agency (EPA) or an EPA-authorized State or Tribal program.

B. Child-Occupied Facility

A building, or portion of a building, constructed prior to 1978, that meets all three (3) of the following conditions:

1. Visited regularly by the same child, younger than six (6) years old;

2. The visits are on at least two different days within any week, provided that each day's visit lasts at least three 3 hours; and

3. Combined weekly visits last at least six (6) hours, and the combined annual visits last at least 60 hours.

C. Common Area

Part of a residential property available for use by occupants of more than one apartment, including, but not limited to, hallways, stairways, laundry rooms, recreational rooms, community centers, on-site day care facilities, garages, and exteriors.

D. Component

A specific design or structural element or fixture distinguished by its form, function, and location. Examples include, but are not limited to:

1. Counter tops

2. Doors and trim

3. Walls

4. Window sills and sashes

5. Windows and trim

E. Containment

A system of temporary barriers used to isolate a work area so that no dust or debris escapes while work is being performed.

F. Disposable Soft Wipe Method

A method of cleaning that uses a flip mop with wet disposable soft wipes.

G. Disturbed Paint Surface

A paint surface that is scraped, sanded, cut, penetrated, or otherwise affected by work in a manner that could potentially create a lead-based paint hazard by generating dust, fumes, or paint chips.

H. Dust Clearance Examination

An examination to confirm no lead dust remains in a work area after it is cleaned. The examination includes a visual inspection and a dust wipe.

I. Emergency Renovations and Repairs

Unscheduled renovation and repair activities that were not planned but result from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, or threatens equipment and/or property with significant damage.

J. Exterior

Any area outside of a building, including but not limited to exterior walls, playgrounds, and boundary fences.

K. HEPA Vacuum

A vacuum with filters that is capable of trapping extremely small particles. HEPA stands for High-Efficiency Particulate Air.

L. Maximo

A computer software application used by NYCHA to support maintenance and repairs.

M. Renovation

Any activity that disturbs painted surfaces and includes most repair, remodeling, and maintenance activities including windows replacement.

N. Renovation, Repair, and Painting (RRP) Certification

A certification provided by trainers approved by the EPA after a worker has successfully completed a Certified Renovator training program. A worker must have up-to-date RRP certification to perform RRP work that might disturb lead-based paint.

O. Two-Bucket Method

A method of cleaning that uses one bucket filled with a cleaning agent/water solution, and another bucket filled with clean water.

P. Vendor

A third party under contract with NYCHA.

## V. REVIEW CYCLE

The Department of Operations shall review this Standard Procedure every one (1) year, or earlier if necessary; and advise the Department of Procedures Development and Administration via e-mail if no changes are needed, or submit its revisions to the procedure by submitting NYCHA Form 022.008, *Procedure Development Request*.

## VI. RESPONSIBILITIES

This Standard Procedure applies to the following titles who may perform RRP work, and their supervisors:

A. Operations Departments

1. Property Managers
2. Assistant Property Managers
3. Property Maintenance Supervisors
4. Assistant Property Maintenance Supervisors
5. Maintenance Workers
6. Supervisor Bricklayers

7. Bricklayers
8. Supervisor Carpenters
9. Carpenters
10. Supervisor Painters
11. Painters
12. Apprentices (Painter)
13. Supervisor Plasterers
14. Plasterers
15. Supervisor Plumbers
16. Plumbers
17. Plumber's Helpers
18. Electricians
19. Emergency Services Aides
20. Caretaker Ps
21. Mason's Helpers
22. Asbestos Handlers

B. Lead Hazard Control Department

1. Lead Abatement Workers
2. Contract Administrator
3. Environmental Health and Safety Coordinator

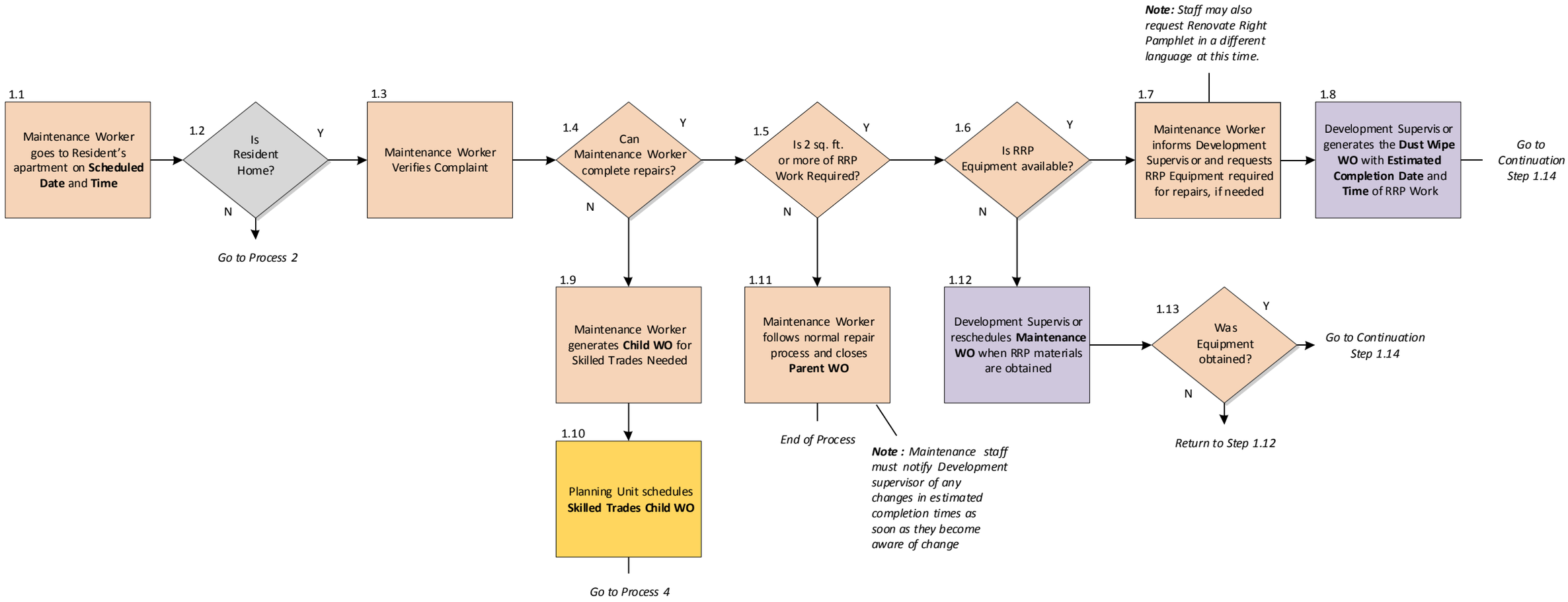
C. Human Resources Department

1. Deputy Director of Learning and Development

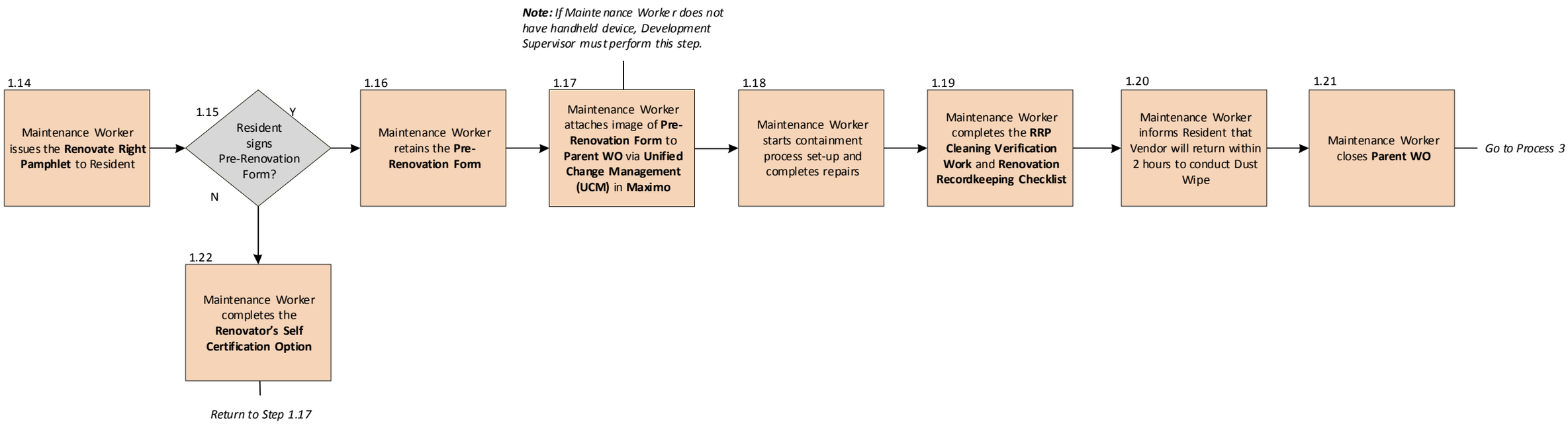
# VII. WORKFLOW

In addition to the flow charts which begin on the following page, also refer to Appendix XV.B., RRP Supplemental Workflow.

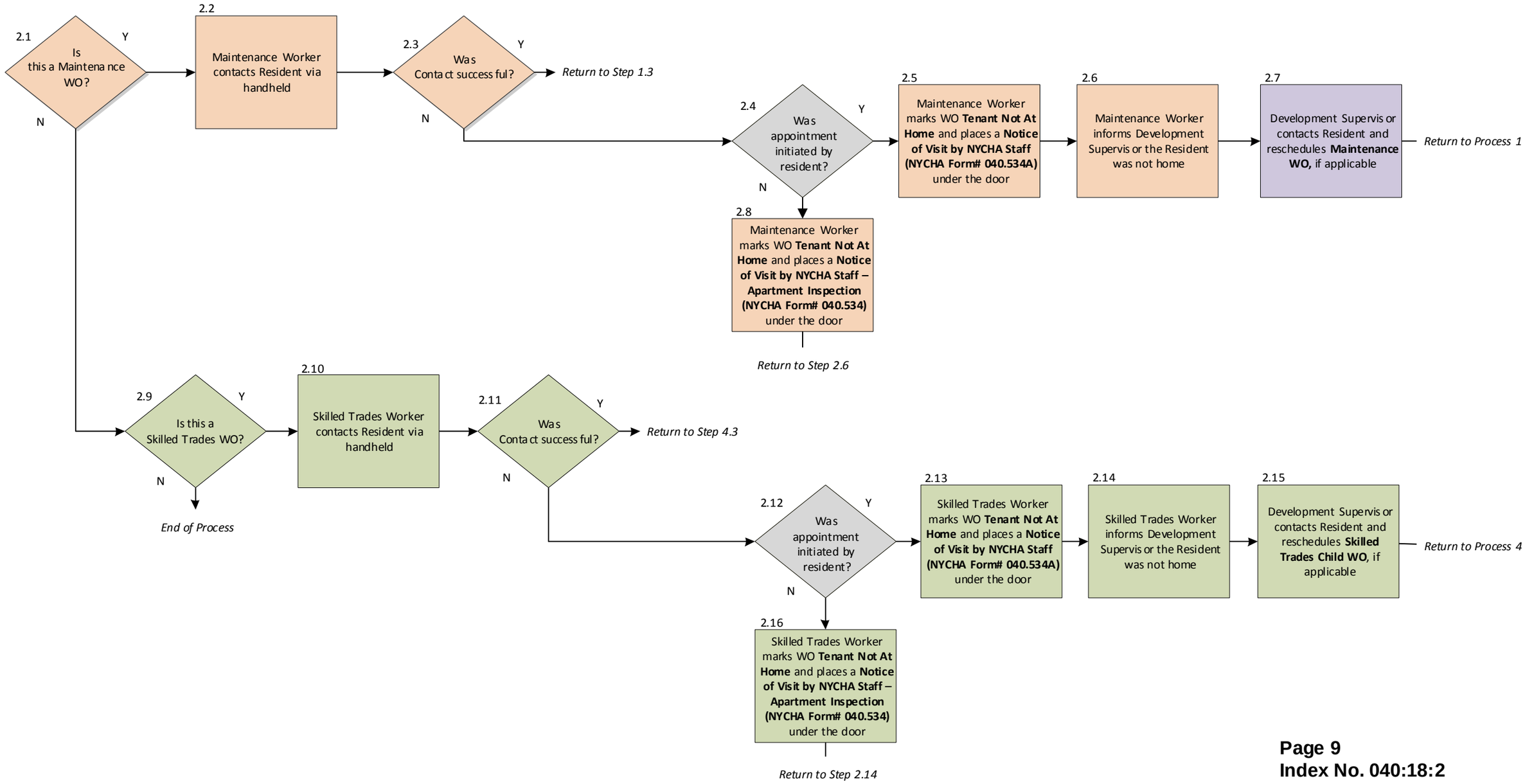
# Process 1: Maintenance Worker Verifies Complaint



# Process 1: Maintenance Worker Verifies Complaint (*Continuation*)

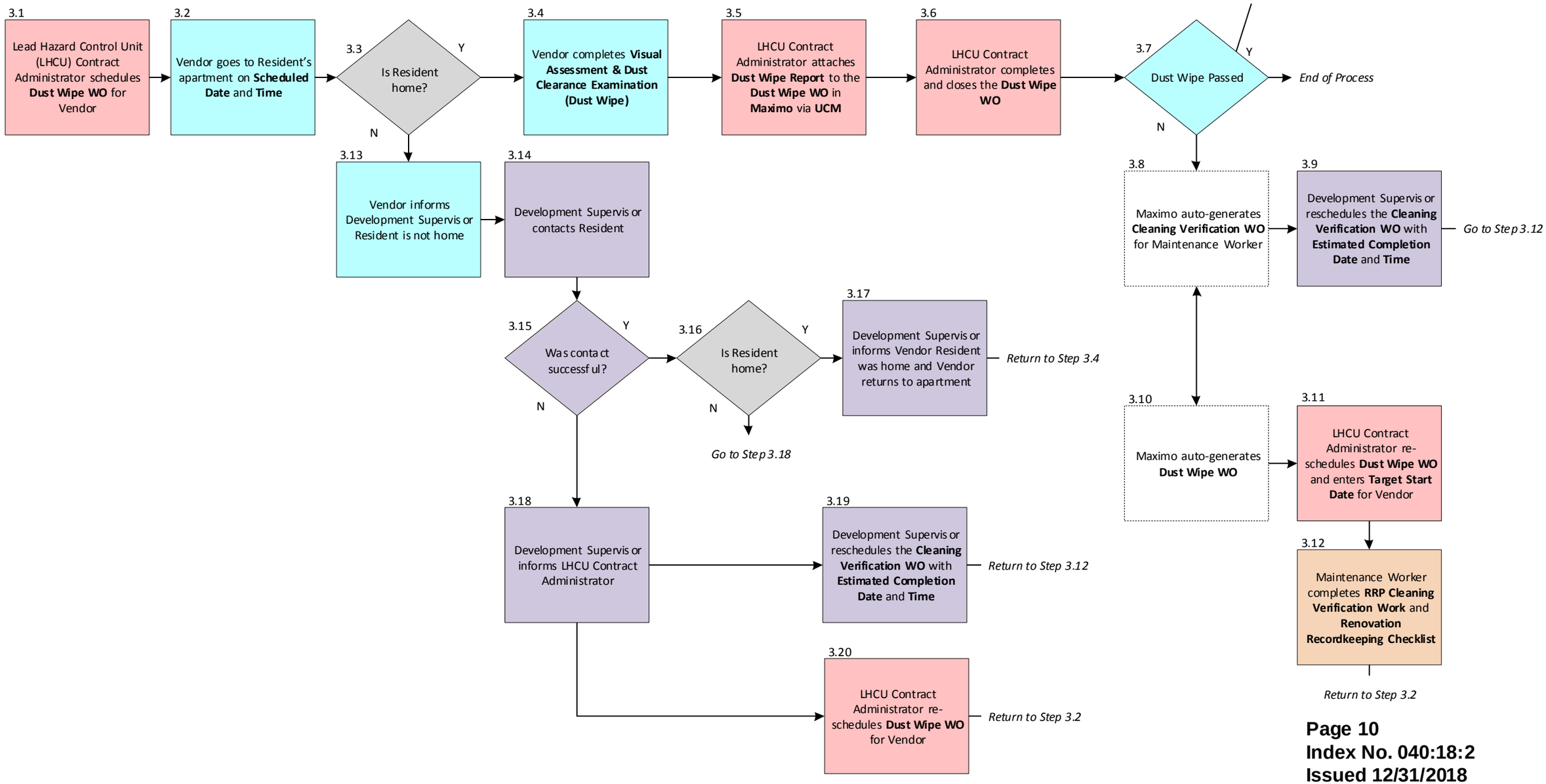


# Process 2: Tenant Not Home



# Process 3: Vendor Conducts Dust Clearance Examination

***Note:*** *Dust Clearance results may be available within 8 hours dependent on date and time of collection.*

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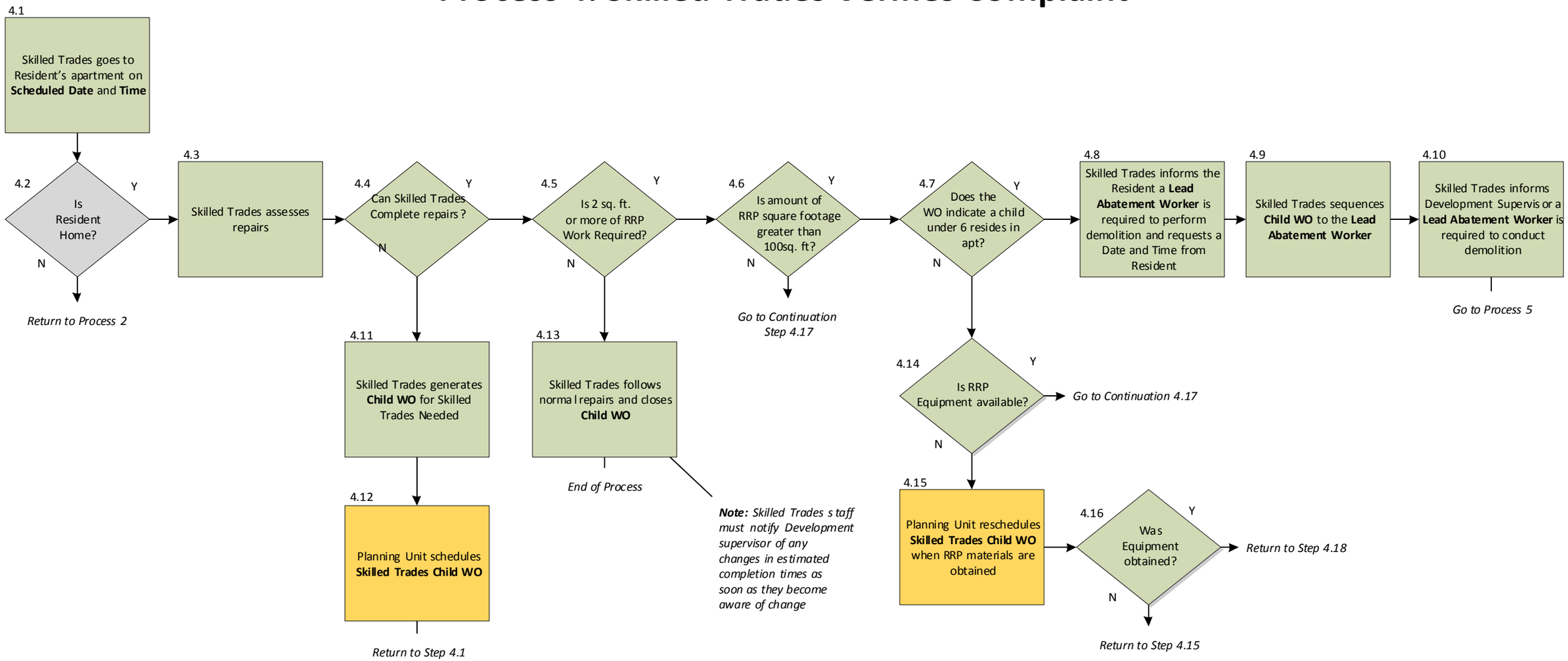
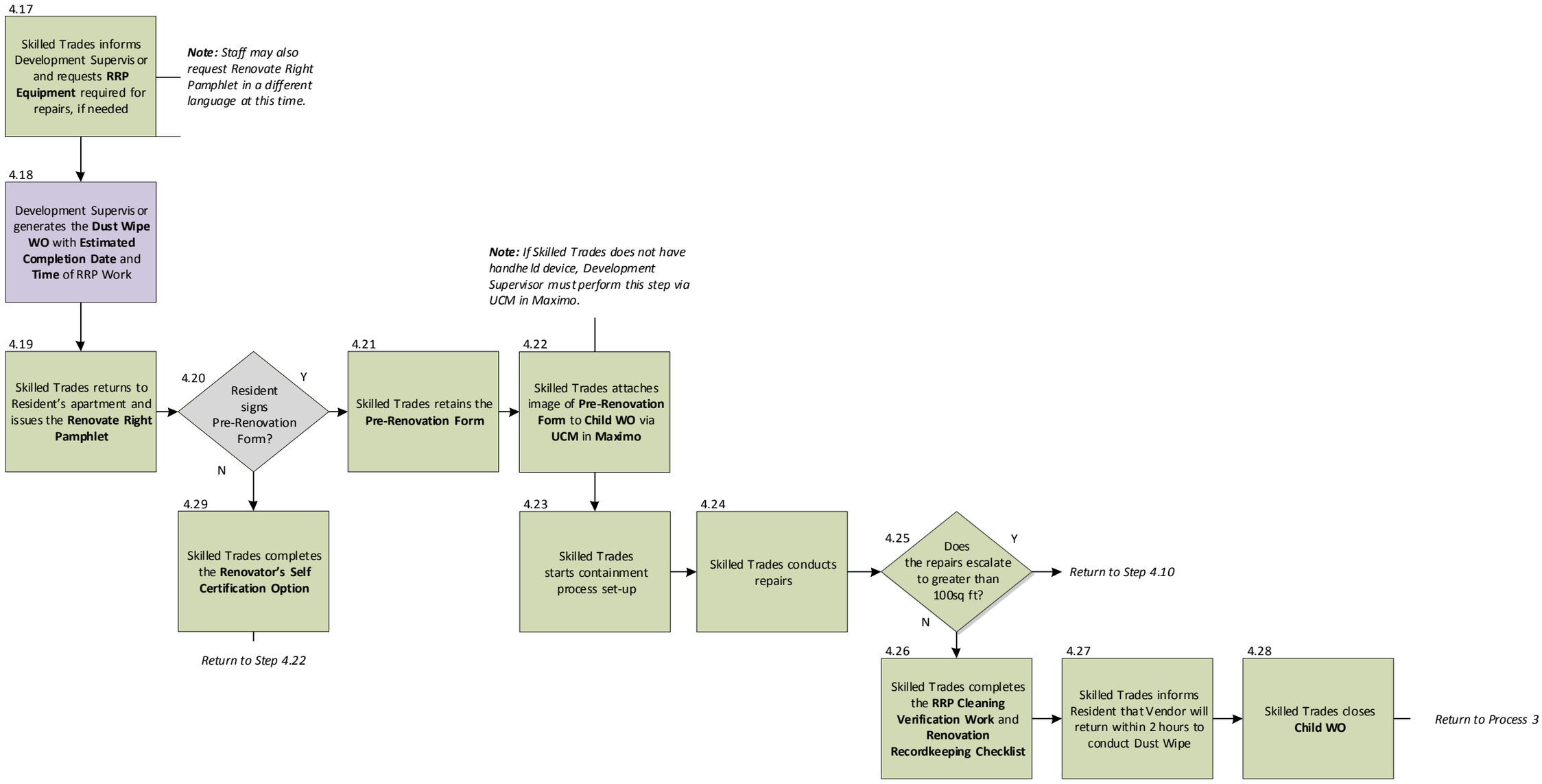
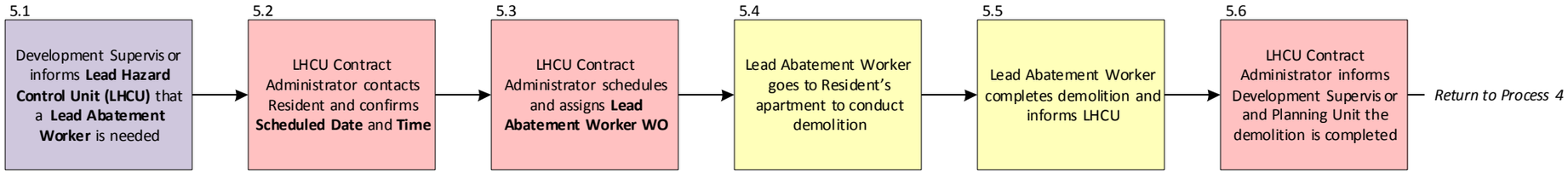
# Process 4: Skilled Trades Verifies Complaint



# Process 4: Skilled Trades Verifies Complaint *(Continuation)*



# Process 5: Lead Abatement Worker Conducts Demolition



## VIII. PROCEDURE

A. Assigning Certified Renovators

**Only Certified Renovators can perform Renovation, Repair, and Painting (RRP) work that requires RRP certification.**

1. A maintenance work order is created in Maximo.

   a. Maximo displays one of the following messages on all corrective maintenance (CM) work orders – printed or handheld – where lead-safe practices may be required:

      (1) "CAUTION: If paint is disturbed, work must be assigned to only RRP-certified staff/vendor and Lead Safe Work Practices must be followed." (Orange message)

      (2) "ACTION REQUIRED: RRP-certified staff/vendor must be used and Lead Safe Work Practices must be followed." (Red message)

   b. For the work to be performed, Maximo reflects in work order tracking the Failure Class/Problem Codes for which Certified Renovators are required. The list is available at this link: http://connect/private/Operations/PM/Interim%20Guidance1/Lead%20Safe.

   c. To locate the complete list of apartments that require RRP:

      (1) Go to the Locations application in Maximo

      (2) On the top left of the screen, expand the public queries icon

      (3) Select 'RRP required NYCHA Apartments'

   d. Supervisors are not permitted to assign work that requires a Certified Renovator to employees who are not Certified Renovators. If an employee who is not a Certified Renovator is assigned to complete a work order that has the ACTION REQUIRED message noted above, the employee must tell their immediate supervisor that they are not certified to complete the work order.

   e. In Assignment Manager and ESD Dispatching, the Labor List has a field to indicate which employees are Certified Renovators. The RRP certification information is imported from the Human Resources Database daily.

2. A maintenance worker verifies the work that needs to be performed.

3. If during verification, the maintenance worker disturbs more than two (2) square feet or more of presumed lead-based paint, then RRP procedure must be followed.

| NOTE: | From this point forward, the NYCHA worker performing the RRP work is referred to as the employee. |
|---|---|

4. Determination of RRP Work

   a. For all Maximo work orders where lead-safe practices may be required, the employee brings the equipment required to perform RRP work when they go to the work site. If additional supplies are needed, the employee contacts the supervisor to have it delivered to the location. See Section VIII.E., Employee Safety, and Section VIII.F., Supplies, below.

   b. When the employee goes to the work site, the employee determines if lead-based RRP work is required based on the following criteria.

      (1) Work must be performed by a Certified Renovator if an interior surface that will be disturbed is two (2) square feet or more, or more than 10 percent of a small component per room or area.

      (2) Work must be performed by a Certified Renovator if an exterior surface:

         (a) Has more than 20 square feet of lead-based paint; or

         (b) More than 10 percent of the total surface area of a component with a small surface area contains lead-based paint.

      (3) Work must be performed by a Certified Renovator if the work includes window replacement, demolition, or activities involving prohibited practices (see Section VII.H.6., below).

   c. If the employee determines lead-based RRP work is required or if the estimated completion date or time changes, they make the indication on the work order in Maximo and immediately inform the development's property maintenance supervisor. The supervisor then contacts the contract administrator, who notifies the vendor of the change.

   d. If the employee determines RRP work on an interior surface will disturb more than 100 square feet of lead-based paint per room, or will include the removal of two or more painted windows, the work must be completed by lead abatement workers if:

      (1) A child younger than six (6) years old lives in the apartment, as identified in Maximo; or

      (2) The work is in a child-occupied facility.

      For more information, see Section VIII.K., Work Disturbing More Than 100 Square Feet or Removing Two or More Painted Windows, below.

| NOTE: | Employees should follow proper safety and dust control measures even when RRP work is determined to not be required, as described in the following sections: VIII.E., Employee Safety; VIII.G., Setting Up; VIII.H., Performing Work; and VIII.I., Cleaning Up. |
|---|---|

e. If the employee determines lead-based RRP work is not required, they follow the normal repair process.

5. Vendors

   a. Property maintenance supervisors ensure vendor employees:

      (1) Are Certified Renovators.

      (2) Have their RRP certificates on file at the development.

      (3) Follow lead-safe work practices under federal and local law and regulations.

      (4) Provide the required notifications.

   b. Developments provide vendors with the vendor notice explaining these obligations. See Appendix A, Lead Safe Practices Vendor Notice.

6. Exemption for Emergency Renovations

   a. The cleaning and cleaning verification requirements set forth in this policy are required for emergency renovations.

   b. For emergency renovations immediately necessary to safeguard against imminent danger to human life, health, or safety, or to protect property from further major damage, tenants must be protected from exposure to lead in dust and debris generated by such emergency actions to the extent practicable. Such emergencies include, but are not limited to, when property is damaged by:

      (1) Natural disaster

      (2) Fire

      (3) Structural collapse

      (4) Cascading water

      (5) Lack of utilities

c. The exemptions listed below only apply to repairs immediately necessary to respond to the emergency.

(1) Emergency renovations are exempt from requiring Certified Renovators to perform the work, to the extent necessary to respond to the emergency.

(2) The RRP requirements listed in the following sections are not required to be followed during an emergency renovation, to the extent necessary to respond to the emergency:

(a) Section VIII.B., Pre-Renovation Notice to Residents

(b) Section VIII.G., Setting Up

(c) Section VIII.H., Performing Work

| | |
|---|---|
| **NOTE:** | RRP requirements apply to any work undertaken subsequent to or above and beyond such emergency actions. |

B. Pre-Renovation Notice to Residents

1. The property manager and/or the property maintenance supervisor ensures sufficient copies of the EPA pamphlets, NYCHA Form 060.632, *The Lead-Safe Certified Guide to Renovate Right*, and NYCHA Form TR060632_02, *The Lead-Safe Certified Guide to Renovate Right Spanish Translation*, are available in the management office.

2. Work cannot begin in any location without all required documentation in this section being completed.

| | |
|---|---|
| **NOTE:** | If the scope, locations, and/or scheduled work start and end dates change after NYCHA Form 060.632A, *Pre-Renovation Form*, and/or NYCHA Form 088.183, *Resident Renovation Notification Common Area* are provided, the employee provides an updated notice with the revised information. The updated notice must be provided before the work beyond what was described in the original notice begins. |

3. Apartments

   Resident notification for RRP work in apartments can be accomplished via hand delivery or via mail with a Certificate of Mailing.

a. Hand Delivery

(1) The employee provides a hard copy of NYCHA Form 060.632, *The Lead-Safe Certified Guide to Renovate Right*, or NYCHA Form TR060632_02, *The Lead-Safe Certified Guide to Renovate Right Spanish Translation*, to the affected apartment(s).

(2) The pamphlet must be provided no earlier than 60 days before, and no later than immediately before, beginning a renovation applicable to this Standard Procedure.

(3) The employee uses NYCHA Form 060.632A, *Pre-Renovation Form*, to:

(a) Obtain the written acknowledgement of receipt from an adult representative in the apartment; or

(b) Document that the pamphlet was delivered but the employee was unable to obtain written acknowledgement.

(4) The property maintenance supervisor ensures the completed form is uploaded to the Maximo work order, via either photo or scanning.

b. Mail with a Certificate of Mailing

If the pamphlet is sent via mail with a Certificate of Mailing, it must be sent no earlier than 60 days before, and no later than seven (7) days before beginning the renovation. See NYCHA Standard Procedure 005:11:1, *Mail Center Operations*, for more information.

4. Common Areas and Exteriors

A development notifies the residents of the affected apartments in a building no more than 60 days before, and no less than immediately before, beginning a renovation in a common area.

a. The information provided in the notice must include:

(1) A description of the nature and location of the work

(2) The scheduled work start and end dates

(3) Information on how to obtain a copy of NYCHA Form 060.632, *The Lead-Safe Certified Guide to Renovate Right*, and NYCHA Form TR060632_02, *The Lead-Safe Certified Guide to Renovate Right Spanish Translation*.

b. The information may be provided by the following methods:

(1) Posting copies of NYCHA Form 088.183, *Resident Renovation Notification Common Area*, where they are likely to be seen by the residents of all affected apartments; or

| | |
|---|---|
| **NOTE:** | For recordkeeping purposes, if the employee has a NYCHA-issued handheld device, the employee takes a photo of the posted forms and uploads them to the Maximo work order.<br><br>If the employee does not have a NYCHA-issued handheld device, the employee informs the property maintenance supervisor, who ensures a copy of the form is uploaded to the Maximo work order. |

(2) Hand delivery of NYCHA Form 060.632, *The Lead-Safe Certified Guide to Renovate Right*, or NYCHA Form TR060632_02, *The Lead-Safe Certified Guide to Renovate Right Spanish Translation*, to every affected apartment in the building; or

(3) Mail NYCHA Form 060.632, *The Lead-Safe Certified Guide to Renovate Right*, or NYCHA Form TR060632_02, *The Lead-Safe Certified Guide to Renovate Right Spanish Translation*, with a Certificate of Mailing, to every affected apartment in the building

(a) If the pamphlet is sent via mail with a Certificate of Mailing, it must be sent no less than seven (7) days before beginning the renovation. See NYCHA Standard Procedure 005:11:1, *Mail Center Operations*, for more information.

5. Child-Occupied Facilities

If an apartment or common area is considered a child-occupied facility, the employee:

a. Provides NYCHA Form 060.632A, *Pre-Renovation Form*, to a representative of the facility; and

b. Posts NYCHA Form 088.183, *Resident Renovation Notification Common Area*, in the work area; or

c. Provides a copy of the form to the parents or guardians of all children who use the facility.

C. Dust Wipe Work Orders

Any time RRP work is required, a dust wipe work order must be created. The dust wipe work order is created before RRP work begins to facilitate scheduling of the dust wipe vendor.

1. A dust wipe work order can be created by paper or handheld device.

    a. Paper Work Order

    The employee informs the property maintenance supervisor or assistant property maintenance supervisor of the need to create a dust wipe work order in Maximo for a vendor to perform a wipe inspection upon completion of the work.

    b. Handheld Device Work Order

    The employee selects the 'Yes' button on their handheld device. This automatically creates a dust wipe work order and sends an e-mail to the property maintenance supervisor and Lead Hazard Control Department contract administrator.

2. The property maintenance supervisor or assistant property maintenance supervisor:

    a. Generates the work order with the following codes:

    (1) Owner group: TSDECS

    (2) Failure class: Lead

    (3) Problem code: leadindustclearance

    b. Enters the estimated date and time of completion of the work in the Target Start section.

| | |
|---|---|
| **NOTE:** | If the estimated completion date or time changes, the development's property maintenance supervisor immediately contacts the contract administrator, who notifies the vendor of the change. |

3. The Lead Hazard Control Department contract administrator schedules a dust wipe work order for a vendor based on the target start date entered on the parent work order.

    a. The vendor is required to be on-site to perform a dust clearance examination in accordance with the terms of their contract.

D. Renovation, Repair, and Painting Work

1. Employees must have their certifications, including any refresher course certifications, with them on-site when they perform RRP work.

    a. Employees must carry a physical copy of the certification with them; or

    b. Must have an electronic copy of the certification on their mobile device.

2. The employee sets up containment of the work area. See Section VIII.G., Setting Up, below.

3. The employee performs the work. See Section VIII.H., Performing Work, below.

4. The employee cleans the work area. See Section VIII.I., Cleaning Up, below.

5. The employee begins the clearance process. See Section VIII.J., Clearance, below.

| **NOTE:** | If a tenant is not home during any part of the work process, refer to the Tenant Not Home flow chart above in Section VII.B. |
|---|---|

E. Employee Safety

1. Personal Protective Equipment (PPE)

   a. All employees performing work under this Standard Procedure are recommended to use the following:

      (1) Disposable coveralls, including hood and shoe covering

      (2) Gloves

      (3) Head covering

      (4) Respiratory protection (Disposable N-100, P-100, or R-100 respirators)

      (5) Safety goggles

2. Make It Safe

   If an employee recognizes a hazard that could cause harm to themselves or co-workers, they must stop the hazardous task, or stop working in the hazardous condition. Please refer to NYCHA Standard Procedure 001:15:3, *Make It Safe Process*, for more information.

F. Supplies

1. The property manager and property maintenance supervisor ensure an adequate amount of supplies from the list below are maintained. It is recommended that each HEPA vacuum be packaged as a set by including all the items listed below and assigned to employees as needed.

   a. HEPA vacuum and filters

b. 6 mil polyethylene sheeting (for floors)

c. 2 mil polyethylene sheeting (for furniture and fixtures)

d. 6 mil polyethylene bags

e. Flip mops

f. Wet disposable soft wipes

g. 2 string mops

h. 2 buckets and wringer(s)

i. Lead-specific cleaning detergent

j. Water mister or spray bottle

k. Duct tape

l. Painters tape

m. Utility knife

n. Paper towels / rags

o. NYCHA Form 060.632, *The Lead-Safe Certified Guide to Renovate Right*

p. NYCHA Form 088.182, *Renovation, Repair, and Painting Safety Sign*

2. Employees can check with the property maintenance supervisor or assistant property maintenance supervisor for the location of the required supplies at the development.

   a. If all of the required supplies are not available, the employee changes the status of the work order to ‘awaiting material,’ and reschedules the work.

   b. If the work is an emergency renovation and all of the required supplies are not available, the employee ascertains if the work can be completed with the materials that are present.

G. Setting Up

1. Signage

a. Outside the Work Area

(1) Employees post NYCHA Form 088.182, *Renovation, Repair, and Painting Safety Sign*, before work begins.

(2) The signs are posted at each entrance to a work area to define the work area, and/or at each main and secondary entrance to a building.

(3) The signs must remain until cleaning verification is completed.

(4) Translations of NYCHA Form 088.182, *Renovation, Repair, and Painting Safety Sign*, are kept in the Property Management Office. They are provided to any resident who requests one.

(a) Spanish: NYCHA Form TR088182_02

(b) Russian: NYCHA Form TR088182_03

(c) Chinese: NYCHA Form TR088182_04

b. Inside the Work Area

The employees post NYCHA Form 088.182, *Renovation, Repair, and Painting Safety Sign*, inside each contained work area.

2. Site preparation

Before beginning the RRP work, the employees prepare the work area using the following actions.

a. Apartments, Common Areas, and Child-Occupied Facilities

(1) In apartments, discuss the following with the resident:

(a) Extent of containment needed

(b) How the containment area will be prepared

(c) Advise residents not to enter the containment area until after clean-up

(d) Direct residents not to allow children to enter any area in which plastic sheeting is being used or stored due to the risk of suffocation

(2) Secure the apartment and/or work area against unauthorized entry.

(3) Move all objects out of the room, if possible.

(4) Cover all items which were not moved from the work area with one layer of disposable polyethylene sheeting. The sheeting must be taped together with duct tape, and taped to the floors or bottom of the walls or baseboards, to form a continuous barrier to the penetration of dust.

(5) Cover the floor of the work area with one layer of six-mil disposable polyethylene sheeting, and tape the sheeting down to prevent movement. The floor sheeting must extend six (6) feet in all directions from the work area where practical, unless vertical containment is installed. Use two layers of sheeting to cover wall-to-wall carpeting, overlapping the seams by at least six (6) inches.

   (a) If vertical containment is used, the floor covering may stop at the vertical barrier, if it is impermeable, extends from the floor to the ceiling, and is tightly sealed at all floors, ceiling, and walls.

(6) Cover the work area entrance or vertical containment doorway with one layer of sheeting. Tape the sheeting to the top of the door frame or vertical containment high point and weigh down the bottom to create a seal. Create a door flap on the sheeting that allows access into the work area.

(7) Close and cover all forced air systems (HVAC) in the work area with one layer of disposable polyethylene sheeting, including bathroom vents, common area vents, exhaust vents, and hall vents.

(8) Close windows, and where applicable, cover the windows with one layer of sheeting to prevent dust and debris from settling on windowsills.

(9) In kitchens and bathrooms, cover counter tops, cabinets, sink base cabinets, and all other horizontal surfaces with sheeting, to ensure that all doors and drawers are sealed.

(10) In kitchens:

   (a) Cover the stove with sheeting and seal. Ensure that the stove is off and cool to the touch before covering.

   (b) Cover and seal the refrigerator with sheeting. Prior to covering, cut slits in the sheeting to allow for ventilation.

b. Exteriors

(1) Work Area Perimeter

(a) Create a 20-foot perimeter around the work area if space allows.

(b) Use signs with orange cones, saw horses, warning tape, and/or ropes to mark off the work area.

(c) Extend the work area farther if needed; for example, when paint on the second story of a building is disturbed.

(d) Cover nearby vegetable gardens and children's play areas.

(2) Doors and Windows

(a) Close all doors and windows on the same floor within 20 feet of the work area, and all windows on all floors below that are the same horizontal distance from the renovation.

(b) If the doors and windows of apartments are less than 20 feet from the work area, consider asking the residents of those affected apartments to close the affected windows and doors. If this is not possible, erect a vertical containment wall at the property line.

(c) Doors Used as Entrances to the Work Area

Cover any doors used as entrances to the work area or vertical containment doorway with one layer of sheeting. Tape the sheeting to the top of the door frame or vertical containment high point and weigh down the bottom to create a seal. Create a door flap on the sheeting that allows access into the work area.

(3) Ground

(a) Cover the ground with plastic sheeting or other impermeable material

(b) If there is enough space, extend the sheeting a minimum of 10 feet beyond the perimeter of surfaces being worked on or to a sufficient distance to contain dust, whichever is greater, unless the property line prevents 10 feet of such ground cover in which case the employee must erect a vertical containment.

i. If a vertical containment is erected closer to the work area than the minimum ground containment distance, the ground containment may stop at the edge of the vertical containment.

(4) Vertical Containment

Vertical containment must be erected when work is done within 10 feet of the property line.

(5) Other Items

(a) Cover any items that cannot be relocated out of the work area.

(b) Tape the protective sheeting to the wall of the building or use a 2x4 wrapped in protective sheeting to hold the material next to the wall. Use heavy objects to weigh the other edges of the protective sheeting to the ground to secure.

(c) When using ladders on plastic sheeting, place a sturdy piece of plywood on the plastic and then set the ladder on the plywood to prevent the ladder from puncturing the plastic and to provide a stable surface for the ladder. If plywood is used, take special care to secure it to the ground so that it does not move.

H. Performing Work

While performing the work, employees observe the following guidelines:

1. Using the spray water bottle, spray the surfaces that will be disturbed to limit the creation and dispersal of dust. Periodically rewet the area while working.

2. For painted surfaces, if a component is to be removed from an underlying surface, score the perimeter/edge of the component with a utility knife to minimize the quantity of painted surface that is impacted.

3. If power tools are used that impact lead-based paint, only those equipped with a vacuum attachment connected to a HEPA vacuum are allowed to be used.

4. Observe safety precautions in contained work areas:

   a. Do not eat or drink in the work area.

   b. Keep polyethylene sheeting away from open flames, e.g. stoves and blowtorches.

   c. Exercise caution when spraying in the vicinity of electrical outlets.

   d. Prevent children and pets from entering the work area.

5. Immediately repair torn sheeting using duct tape for minor tears. Total sheet replacement may be necessary for major tears.

6. The following work practices are prohibited:

    a. Open flame burning or torching of painted surfaces.

    b. Use of machines that remove paint or other surface coatings through high-speed operation, unless they have shrouds or containment systems and are equipped with a HEPA vacuum attachment.

    c. Operating a heat gun on painted surfaces above 1100 degrees Fahrenheit or charring the paint.

    d. Paint stripping using a volatile stripper in poorly ventilated space.

    e. Dry sanding or scraping, except within one (1) foot of electrical fixtures (e.g. switches, outlets, light fixtures, breaker boxes).

I. Cleaning Up

1. Work That Exceeds Eight Hours

    If work is not completed at the end of an eight-hour shift, at the end of work on each day:

    a. The work area must be contained to prevent the release of leaded dust and debris into other areas and other safety, health, or environmental hazards; and

    b. The work area must be cleaned within at least 10 feet of the containment area to remove any visible dust or debris, and so other areas of the apartment or common area are accessible.

| | |
|---|---|
| **NOTE:** | If after the above containment and cleaning is performed tenants still do not have access to sleeping areas, bathrooms, and kitchens, employees must refer to NYCHA Standard Procedure 002:06:01, *Planned Relocation*. |

2. After work is completed, employees clean up in the following sequence:

    a. Worksite

    b. Vacuuming

    c. All horizontal surfaces except floors

    d. Floors, including two (2) feet beyond the containment area in all directions from the work area

3. Worksite

    a. Remove all containment that interferes with cleaning the work area. Any containment that does not impact cleanup must remain in place until after clearance.

        (1) Instruct the resident to not enter the work area until containment is removed.

    b. Pick up all debris too large for a vacuum cleaner and place it in six-mil polyethylene bags and/or a covered cart. Avoid puncturing bags with pointed or jagged pieces of debris.

    c. With a spray bottle, moisten the polyethylene sheeting and fold it inward.

    d. Place the plastic sheeting into six-mil polyethylene bags and/or a covered cart.

        (1) Close all bags with an airtight gooseneck seal:

            (a) Twist the bag

            (a) Fold it over on itself

            (b) Wrap it with duct tape

            (c) Dispose of it with regular household waste

    e. Clean all tools.

4. Vacuuming

    a. Vacuum remaining dust and debris in the work area at a moderate speed. A HEPA vacuum is required. Never dry sweep dust or debris.

    b. First, vacuum every inch of all horizontal surfaces except floors, such as window sills, window troughs, countertops, light fixtures, cabinets, cabinet door edges, and any other horizontal surface where dust can accumulate.

    c. Then, vacuum floors starting at the far end of the room, working toward the entrance.

    d. If work was performed in kitchen, vacuum the condenser and fan area underneath the refrigerator.

    e. Avoid stepping on already vacuumed floors when moving to a new section.

5. Cleaning of Horizontal Surfaces Except Floors

    a. Use the disposable soft wipe method (preferred) or the two-bucket method.

b. Wipe all horizontal surfaces except floors, such as window sills, window troughs, countertops, light fixtures, cabinets, cabinet door edges, and any other horizontal surface where dust can accumulate.

c. Clean all horizontal surfaces except floors until wipes are clear of dust.

6. Cleaning of Floors

a. Use the disposable soft wipe method (preferred) or the two-bucket method.

(1) If using the two-bucket method, before mopping, dump the water from the clean rinse bucket used for the horizontal surfaces and refill it with clean cold water.

b. Mop all floors starting at the far end of the room, working towards the entrance.

c. Avoid stepping on already mopped floors when moving to a new section.

d. If using the two-bucket method, discard dirty water in the toilet.

(1) For work in common areas, discard dirty water in empty five-gallon pails, put lids on them, and transport them to the nearest toilet to discard.

e. Clean all floors until wipes are clear of dust.

7. Employees close the work order after completing cleaning activities.

J. Clearance

1. Apartments, Common Areas, and Child-Occupied Facilities

a. The employee who performed the RRP work fills out NYCHA Form 088.184, *Staff Renovation Recordkeeping Checklist*.

(1) If a vendor performed the RRP work, the vendor fills out NYCHA Form 088.181, *Vendor Renovation Recordkeeping Checklist*.

b. The dust wipe vendor performs a dust clearance examination within two (2) hours of completion of the work order.

| | |
|---|---|
| **NOTE:** | If a vendor performed the RRP work, a separate vendor must perform the dust clearance examination. |

c. The Lead Hazard Control Department contract administrator closes the dust wipe vendor work order.

d. Dust wipe results may be available within eight (8) hours of completion of a dust clearance examination dependent on the date and time of the examination.

e. If the dust wipe vendor does not clear the work site, or the tenant is not home, the Lead Hazard Control Department contract administrator generates a new clearance work order for staff to re-clean the work area, as outlined above in Section VIII.C., Dust Wipe Work Order. Employees then must repeat the tasks outlined above in Section VIII.I., Cleaning Up.

2. Exteriors

For exterior work, HUD requires only a visual assessment of the work area to pass clearance. No dust or soil testing is required.

a. Visual inspection

(1) A vendor conducts a visual inspection after cleaning is completed.

(2) If dust, debris, or residue is present on surfaces in and below the work area, including window sills and the ground, these conditions must be eliminated by re-cleaning.

(3) After re-cleaning, the vendor conducts another visual inspection.

(4) After all areas pass inspection, warning signs may be removed.

K. Work Disturbing More Than 100 Square Feet or Removing Two or More Painted Windows

For more information, refer to the Lead Abatement Worker Conducts Demolition flow chart above in Section VII.E.

1. Identifying Work Area

a. When the employee verifies the work that needs to be performed as outlined above in Section VIII.A.4., they determine the total square footage of the painted area that will be disturbed in each room, and whether any work areas have two or more painted windows that will be removed.

b. If the total area being disturbed in any room is more than 100 square feet of lead-based paint, or involves the removal of two or more painted windows, the employee confirms if a child younger than six (6) years old lives in the apartment, as identified in Maximo, or if the room is in a child-occupied facility.

c. If a child younger than six (6) years old lives in the apartment, as identified in Maximo, or the room is in a child-occupied facility, the employee does not proceed with the work in that room.

d. The employee informs the property maintenance supervisor of the need for a lead abatement worker.

e. The property maintenance supervisor creates a work order for lead abatement worker demolition and contacts the Lead Hazard Control Department.

| | |
|---|---|
| **NOTE:** | If the work order includes work in additional rooms that have less than 100 square feet of lead-based paint being disturbed, and/or areas that do not involve removing two or more painted windows, employees proceed with the RRP work in those rooms and areas. |

**2. After RRP work begins, if an employee determines the size of the area will exceed the original scope of work and now will exceed 100 square feet of lead-based paint being disturbed, or will involve the removal of two or more painted windows, the employee immediately stops work in that room and refers to Sections VIII.K.1.b.-VIII.K.1.d. directly above.**

3. The property maintenance supervisor coordinates with the relevant trade(s) for restoration work after the lead abatement workers complete their work.

4. Notice of Commencement

   a. The Lead Hazard Control Department environmental health and safety coordinator files a notice of commencement of work with the New York City Department of Mental Health and Hygiene (DOHMH) not less than 10 days prior to beginning the work. The form is found at: https://www1.nyc.gov/assets/doh/downloads/pdf/lead/lead-notificationform.pdf.

   b. If work is required to begin in less than 10 days, the notice of commencement must be filed as soon as practicable but prior to beginning the work.

   c. The notice must be filled out completely and submitted according to the instructions on the form.

      (1) Fill in the 'Building Owner Information' section with the following: New York City Housing Authority, 250 Broadway, New York, NY, 10007, 212-306-3000.

   d. A copy of the notice of commencement of work must be posted between 24 and 96 hours before work begins. It must be posted at the entrance to the building and the entrance of the specific apartment where work will take place.

   e. Any changes to the information included in the notice of commencement of work must be filed with DOHMH prior to starting work, or if work already started, within 24 hours of any such change.

## IX. OUTPUTS, REPORTS, AND RECORDKEEPING

A. Outputs

1. Completing identified tasks within required timelines and compliance standards

2. Providing all required notifications to residents, including posting all required notices

3. Retaining all required documents in identified locations

B. Reports

Reports related to this Standard Procedure are maintained in the NYCHA Data Warehouse on NYCHA Connect. Reports are generated upon request or as needed.

C. Recordkeeping

1. Developments retain hard copies of all forms associated with this Standard Procedure for no less than 10 years from the completion date of work.

   a. The vendor provides hard copies of NYCHA Form 088.181, *Vendor Renovation Recordkeeping Checklist*, to the property maintenance supervisor.

2. Digital forms associated with this Standard Procedure are retained in Maximo.

## X. TRAINING REQUIREMENTS

A. The Human Resources Department Learning and Development-Registration Unit:

1. Serves as a liaison for obtaining training.

2. Tracks training certifications.

3. Schedules new employees for training.

B. All new employees who this Standard Procedure applies to are required to:

1. Attend Renovation, Repair, and Painting training.

2. Receive their certification by achieving a successful result on the exam administered at the end of the training. The training certification is valid for five (5) years.

## XI. PERFORMANCE METRICS

A. Pass/fail rate of dust wipes

B. Average number of days to close a dust wipe work order

C. Percentage of dust wipe work orders closed within established timelines

D. Percentage of work orders delayed caused by a lack of RRP materials

E. Percentage of RRP compliance observations in complete adherence to the RRP rule

## XII. NON-COMPLIANCE

A. NYCHA staff performing or overseeing RRP work are required to comply with this Standard Procedure and any federal, state, or city regulations pertaining to the work described in it.

B. Departments are required to take corrective action to bring NYCHA into compliance.

## XIII. FORMS

The following forms and signs are located on the Forms and Reference Library.

A. NYCHA Form 060.632, *The Lead-Safe Certified Guide to Renovate Right*

B. NYCHA Form TR060632_02, *The Lead-Safe Certified Guide to Renovate Right Spanish Translation*

C. NYCHA Form 060.632A, *Pre-Renovation Form*

D. NYCHA Form 088.181, *Vendor Renovation Recordkeeping Checklist*

E. NYCHA Form 088.182, *Renovation, Repair, and Painting Safety Sign*

F. NYCHA Form TR088.182_02, *Renovation, Repair, and Painting Safety Sign, Spanish Translation*

G. NYCHA Form TR088.182_03, *Renovation, Repair, and Painting Safety Sign, Russian Translation*

H. NYCHA Form TR088.182_04, *Renovation, Repair, and Painting Safety Sign, Chinese translation*

I. NYCHA Form 088.183, *Resident Renovation Notification Common Area*

J. NYCHA Form 088.184, *Staff Renovation Recordkeeping Checklist*

# XIV. REVIEW/REVISION HISTORY PAGE

## LEAD SAFETY FOR RENOVATION, REPAIR, AND PAINTING

## 040:18:2

| Review/ Revision | Review/ Revision Date | Sections Amended |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 8. | | |
| 9. | | |

# XV. APPENDICES

A. Lead Safe Practices Vendor Notice

Appendix appears on following page.

# Lead Safe Practices Vendor Notice

Dear Vendor:

Please be advised that your firm and your staff are required to comply with Lead Safe Work practice requirements as part of general maintenance and repair in accordance with NYC Local Law 1 and/or HUD requirements and must be RRP certified.

If vendor employees enter the apartment and determine that the amount of painted surface being disturbed is greater than 2 square feet or 10% of the component, vendor employees are required to follow Lead Safe Practices and:

- Provide a paper copy of the EPA Renovate Right Brochure to the resident before commencing work.
- Collect the completed Occupant Confirmation form (found in the brochure) from the resident.
- Indicate the work order # on the Occupant Confirmation form.
- Immediately inform the Property Maintenance Supervisor or Assistant Property Maintenance Supervisor of the need for clearance dust wipes.
- Return the Occupant Confirmation form to the Property Maintenance Supervisor.

Please be advised that your staff can obtain copies of the Renovate Right Brochure from the Development Office.

B. RRP Supplemental Workflow

Appendix begins on following page.

| Row # | Step # | Action Description | YES | Go to Process | NO | Go to Process |
|---|---|---|---|---|---|---|
| **PROCESS 1:Maintenance Worker Verifies Complaint** | | | | | | |
| 1 | 1.1 | Maintenance Worker goes to Resident's apartment on Scheduled Date and Time | | | | |
| 2 | 1.2 | Is Resident Home? | YES | Go to Step 1.3 | NO | Go to Process 3 |
| 3 | 1.3 | Maintenance Worker Verifies Complaint | | | | |
| 4 | 1.4 | Can Maintenance Worker complete repairs? | YES | | NO | Go to Step 1.9 & 1.10 |
| 5 | 1.5 | Is 2 sq. ft. or more of RRP Work Required? | YES | Go to Step 1.7 | NO | Go to Step 1.11 |
| 6 | 1.6 | Is RRP Equipment available? | YES | | NO | Go to Step 1.12 & 1.13 |
| 7 | 1.7 | Maintenance Worker informs Development Supervisor and requests any additional RRP Equipment required for repairs to be brought to apartment, if needed. (HEPA Vac, resporator, additional sheathing, duct and painters tape etc.) | | | | |
| 8 | 1.8 | Development Supervisor generates the Dust Wipe WO with Estimated Completion Date and Time of RRP Work | | | | |
| 9 | 1.9 | Maintenance Worker generates Child WO for Skilled Trades Needed | | | | |
| 11 | 1.10 | Planning Unit schedules Skilled Trades Child WO | | Go to Process 4 | | |
| 12 | 1.11 | Maintenance Worker follows normal repair process and closes Parent WO. Note: Maintenance staff must notify Development supervisor of any changes in estimated completion times as soon as they become aware of change | | | | |
| 13 | 1.12 | Development Supervisor reschedules Maintenance WO when RRP materials are obtained | | End | | |
| 14 | 1.13 | Was Equipment obtained? | | | | |
| 15 | 1.14 | Maintenance Worker issues the Renovate Right Pamphlet to Resident Note: Staff may request different language pamphlet. | YES | Go to Step 1.15 | NO | Return to Step 1.13 |
| 16 | 1.15 | Resident signs Pre-Renovation Form? | | | | |
| 17 | 1.16 | Maintenance Worker retains the Pre-Renovation Form | YES | Go to Step 1.17 | NO | Go to Step 1.22 |
| 18 | 1.17 | Maintenance Worker attaches Pre-Renovation Form to Parent WO via Unified Change Management (UCM) in Maximo Note: If Maintenance Worker does not have handheld device, Development Supervisor must perform this step. | | | | |
| 19 | 1.18 | Maintenance Worker starts containment process set-up and completes repairs | | | | |
| 20 | 1.19 | Maintenance Worker completes the RRP Cleaning Verification Work and Renovation Recordkeeping Checklist | | | | |
| 21 | 1.20 | Maintenance Worker informs Resident that Vendor will return within 2 hours to conduct Dust Wipe | | | | |
| 22 | 1.21 | Maintenance Worker closes Parent WO | | Go to Process 3 | | |
| 23 | 1.22 | Maintenance Worker completes the Renovator's Self Certification Option | | Return to Step 1.17 | | |

| Row # | Step # | Action Description | YES | Go to Process | NO | Go to Process |
|---|---|---|---|---|---|---|
| **PROCESS 2:Tenant Not Home** | | | | | | |
| 29 | 2.1 | Is this a Maintenance WO? | YES | Go to Step 2.2 | NO | Go to Step 2.9 |
| 30 | 2.2 | Maintenance Worker contacts Resident via handheld | | | | |
| 31 | 2.3 | Was Contact successful? | YES | Return to Step 1.3 | NO | Go to Step 2.4 |
| 32 | 2.4 | Was appointment initiated by resident? | YES | Go to Step 2.5 | NO | Go to Step 2.8 |
| 33 | 2.5 | Maintenance Worker marks WO Tenant Not At Home and places a Notice of Visit by NYCHA Staff (NYCHA Form# 040.534A) under the door | | | | |
| 34 | 2.6 | Maintenance Worker informs Development Supervisor the Resident was not home | | | | |
| 35 | 2.7 | Development Supervisor contacts Resident and reschedules Maintenance WO, if applicable | | | | |
| 36 | 2.8 | Maintenance Worker marks WO Tenant Not At Home and places a Notice of Visit by NYCHA Staff – Apartment Inspection (NYCHA Form# 040.534) under the door | | | | |
| 37 | 2.9 | Is this a Skilled Trades WO? | YES | Go to Step 2.10 | NO | End of Process |
| 38 | 2.10 | Skilled Trades Worker contacts Resident via handheld | | | | |
| 39 | 2.11 | Was Contact successful? | YES | Return to Step 4.3 | NO | Go to Step 2.12 |
| 40 | 2.12 | Was appointment initiated by resident? | YES | Go to Step 2.13 | NO | Go to Step 2.16 |
| 41 | 2.13 | Skilled Trades Worker marks WO Tenant Not At Home and places a Notice of Visit by NYCHA Staff (NYCHA Form# 040.534A) under the door | | | | |
| 42 | 2.14 | Skilled Trades Worker informs Development Supervisor the Resident was not home | | | | |
| 43 | 2.15 | Development Supervisor contacts Resident and reschedules Skilled Trades Child WO, if applicable | | | | |
| 44 | 2.16 | Skilled Trades Worker marks WO Tenant Not At Home and places a Notice of Visit by NYCHA Staff – Apartment Inspection (NYCHA Form# 040.534) under the door | | Return to Step 2.14 | | |

| Row # | Step # | Action Description | YES | Go to Process | NO | Go to Process |
|---|---|---|---|---|---|---|
| **PROCESS 3: Vendor Conducts Dust Clearance Examination** | | | | | | |
| 51 | 3.1 | Lead Hazard Control Unit (LHCU) Contract Administrator schedules Dust Wipe WO for Vendor | | | | |
| 52 | 3.2 | Vendor goes to Resident's apartment on Scheduled Date and Time | | | | |
| 53 | 3.3 | Is Resident home? | YES | Go to Step 3.4 | NO | Go to Step 3.13 |
| 54 | 3.4 | Vendor completes Visual Assessment & Dust Clearance Examination (Dust Wipe) | | | | |
| 55 | 3.5 | LHCU Contract Administrator attaches Dust Wipe Report to the Dust Wipe WO in Maximo via UCM | | | | |
| 56 | 3.6 | LHCU Contract Administrator completes and closes the Dust Wipe WO | | | | |
| 57 | 3.7 | Dust Wipe Passed Note: Dust Clearance results may be available within 8 hours dependent on date and time of collection. | YES | End of Process | NO | Go to Step 3.8 |
| 58 | 3.8 | Maximo auto-generates Cleaning Verification WO for Maintenance Worker | | | | |
| 59 | 3.9 | Development Supervisor reschedules the Cleaning Verification WO with Estimated Completion Date and Time | | | | |
| 60 | 3.10 | Maximo auto-generates Dust Wipe WO | | | | |
| 61 | 3.11 | LHCU Contract Administrator re-schedules Dust Wipe WO and enters Target Start Date for Vendor | | | | |
| 62 | 3.12 | Maintenance Worker completes RRP Cleaning Verification Work and Renovation Recordkeeping Checklist | | Return to Step 3.12 | | |
| 63 | 3.13 | Vendor informs Development Supervisor Resident is not home | | | | |
| 64 | 3.14 | Development Supervisor contacts Resident | | | | |
| 65 | 3.15 | Was contact successful? | | | | |
| 66 | 3.16 | Is Resident home? | YES | Go to Step 3.17 | NO | Go to Step 3.18 |
| 67 | 3.17 | Development Supervisor informs Vendor Resident was home and Vendor returns to apartment | | Return to Step 3.4 | | |
| 68 | 3.18 | Development Supervisor informs LHCU Contract Administrator | | | | |
| 69 | 3.19 | Development Supervisor reschedules the Cleaning Verification WO with Estimated Completion Date and Time | | Return to Step 3.12 | | |
| 70 | 3.20 | LHCU Contract Administrator re-schedules Dust Wipe WO for Vendor | | Return to Step 4.2 | | |

| Row # | Step # | Action Description | YES | Go to Process | NO | Go to Process |
|---|---|---|---|---|---|---|
| **PROCESS 4: Skilled Trades Verifies Complaint** | | | | | | |
| 76 | 4.1 | Skilled Trades goes to Resident's apartment on Scheduled Date and Time | | | | |
| 77 | 4.2 | Is Resident Home? | YES | Go to Step 4.3 | NO | Return to Process 3 |
| 78 | 4.3 | Skilled Trades assesses repairs | | | | |
| 79 | 4.4 | Can Skilled Trades Complete repairs? | YES | Go to Step 4.8 | NO | Go to Step 4.11 & 4.12 |
| 80 | 4.5 | Is 2 sq. ft. or more of RRP Work Required? | YES | | NO | Go to Step 4.13 |
| 81 | 4.6 | Is amount of RRP square footage greater than 100sq. ft? | YES | | NO | Go to Step 4.17 |
| 82 | 4.7 | Does the WO indicate a child under 6 resides in apt? | YES | | NO | Go to Step 4.14 |
| 83 | 4.8 | Skilled Trades informs the Resident a Lead Abatement Worker is required to perform demolition and requests a Date and Time from Resident | | | | |
| 84 | 4.9 | Skilled Trades sequences Child WO to the Lead Abatement Worker | | | | |
| 85 | 4.10 | Skilled Trades informs Development Supervisor a Lead Abatement Worker is required to conduct demolition | | | | |
| 86 | 4.11 | Skilled Trades generates Child WO for Skilled Trades Needed | | | | |
| 87 | 4.12 | Planning Unit schedules Skilled Trades Child WO | | Return to Step 4.1 | | |
| 88 | 4.13 | Skilled Trades follows normal repairs and closes Child WO. Note: Skilled Trades staff must notify Development supervisor of any changes in estimated completion times as soon as they become aware of change | | | | |
| 89 | 4.14 | Is RRP Equipment available? | YES | Go to Step 4.17 | NO | Go to Step 4.15 |
| 90 | 4.15 | Planning Unit reschedules Skilled Trades Child WO when RRP materials are obtained | | | | |
| 91 | 4.16 | Was Equipment obtained? | YES | Return to Step 4.18 | NO | Return to Step 4.18 |
| 92 | 4.17 | Skilled Trades informs Development Supervisor and requests RRP Equipment required for repairs, if needed | | | | |
| 93 | 4.18 | Development Supervisor generates the Dust Wipe WO with Estimated Completion Date and Time of RRP Work | | | | |
| 94 | 4.19 | Skilled Trades returns to Resident's apartment and issues the Renovate Right Pamphlet Note: Staff may request different language pamphlet. | | | | |
| 95 | 4.20 | Resident signs Pre-Renovation Form? | | | | |
| 96 | 4.21 | Skilled Trades retains the Pre-Renovation Form | | | | |
| 97 | 4.22 | Skilled Trades attaches photo of Pre-Renovation Form to Child WO via UCM in Hand Held Device Note: If Skilled Trades does not have handheld device, Development Supervisor must perform this step via UCM in Maximo. | | | | |
| 98 | 4.23 | Skilled Trades starts containment process set-up | | | | |
| 99 | 4.24 | Skilled Trades conducts repairs | | | | |
| 100 | 4.25 | Does the repairs escalate to greater than 100sq ft? | YES | Return to Step 4.10 | NO | Go to Step 4.26 |
| 101 | 4.26 | Skilled Trades completes the RRP Cleaning Verification Work and Renovation Recordkeeping Checklist | | | | |
| 102 | 4.27 | Skilled Trades informs Resident that Vendor will return within 2 hours to conduct Dust Wipe | | | | |
| 103 | 4.28 | Skilled Trades closes | | Return to Process 3 | | |

| Row # | Step # | Action Description | YES | Go to Process | NO | Go to Process |
|---|---|---|---|---|---|---|
| **PROCESS 5: Lead Abatement Worker Conducts Demolition** | | | | | | |
| 105 | 5.1 | Development Supervisor informs Lead Hazard Control Unit (LHCU) that a Lead Abatement Worker is needed | | | | |
| 106 | 5.2 | LHCU Contract Administrator contacts Resident and confirms Scheduled Date and Time | | | | |
| 107 | 5.3 | LHCU Contract Administrator schedules and assigns Lead Abatement Worker WO | | | | |
| 108 | 5.4 | Lead Abatement Worker goes to Resident's apartment to conduct demolition | | | | |
| 109 | 5.5 | Lead Abatement Worker completes demolition and informs LHCU | | | | |
| 110 | 5.6 | LHCU Contract Administrator informs Development Supervisor and Planning Unit the demolition is completed | | Return to Process 4 | | |