NORMI™ Professional Practices

NORMI Medically-Sound Level 4 Protocol™
January 1, 2026

This protocol has been specifically designed for, and supported by, NORMI, National Organization of Remediators and Microbial Inspectors, advanced training entitled NORMI Certified Remediator for Sensitized Individual (NCRSI™) to guide trained assessors and remediators in best practices for the practice of advanced assessing of the indoor built environment. Environmentally sensitized individuals differ in many ways from the traditional client and, in most cases, need special techniques, products and services with more detailed processes. This protocol is designed to assist the professional to complete an effective process in sanitization and remediation.

CONTRIBUTORS:
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ASSESSOR Medically-Sound Protocol for NORMI™ CERTIFIED REMEDIATION FOR SENSITIZED INDIVIDUALS (NCRSI™)
Minimum Level of Insurable Practices: These professional practices have been designed for professionals when working with clients who are, or suspected to be, environmentally sensitized individuals or those clients under the care of a medical professional. They are minimum requirements and do not constitute an actual specification or have enough site-specific details to serve as an actual microbial assessment. More detailed requirements developed by a NCRSI™ for a specific microbial assessment project may be required and shall take precedence over the provisions of this section. The NORMI™ professional shall work only under the provisions stated in a contract for services rendered, which should be presented to the client prior to the beginning of any project.

1) **Purpose.** The purpose of a microbial assessment is to determine the sources, locations and extent of microbial growth in a building and determine the condition(s) that caused microbial growth. The microbial assessment should also point out where visible microbial growth exceeds the minimum threshold of the specific governing authority under which the microbial assessor is licensed/operating. Where no threshold exists by statute or municipal regulation, the NCRSI™ performs assessment where suspect microbial, hidden or visible, exists to determine the need for either a Remediation protocol or biotoxin decontamination.
2) **Personal Protective Equipment (PPE).** If an assessor determines that PPE should be used during an assessment project, the assessor shall ensure that all individuals who engage in assessment activities and who will be, or are anticipated to be, exposed to microbial contamination shall be trained on the appropriate use and care of the specific PPE in accordance with all applicable OSHA regulations. If it is determined that respiratory protection is required, disposable respirators (e.g. N95) are considered the minimum level of protection for microbial activities.
3) **Interview and Visual Inspection**. An interview should take place, gathering information from the occupants or complainant, to identify issues, locations and history of the space that might influence the direction of the assessment. Included in this process is a visual inspection to identify the presence of visible microbial and/or excessive, unplanned moisture intrusion (past and present).
    a. A visual inspection should include all surfaces "within view" inside the building, as well as, where client accepts the risk, hidden areas where moisture sources may be present. Such hidden areas may include, but not be limited to, crawl spaces, attics, and behind vinyl wallpaper, baseboards, carpets, wallboard, and where indicators are present (discoloration, high moisture content, separated wallpaper seams, etc.).
    b. Specific indicators to note during the visual assessment include, but are not limited to the following:
        i. Suspect microbial growth;
        ii. Musty odor;
        iii. Moisture damage, including discoloration; and,
        iv. Damp building materials and/or conditions.
    c. Personal protective equipment (PPE) such as gloves and respiratory protection (e.g. N95) should be used if a visual inspection might disturb microbial materials.
    d. Efforts should be made to minimize the generation and migration of any dust which could transport microbial contamination.
    e. If visible microbial growth/residue is observed during the visual inspection, or if physical or visible indications (e.g. moisture, staining) suggest microbial may be present in areas inaccessible locations at the time of the initial visual assessment ("hidden microbial"), the microbial assessor should determine

whether additional assessment actions are appropriate. The assessor may choose to do such ancillary work under a separate or supplemental agreement.

f. If visible microbial growth is present, microbial sampling is required to establish a baseline for future post assessments.
g. When microbial sampling is performed, it should be in accordance with a project-specific designed microbial sampling protocol. Sampling methods and criteria for interpretation of results specified herein are detailed in Section 4 *Sampling and Data Collection* and the Appendix *Sampling Data Interpretation for NCRSI Level 4 Assessments*
h. Client shall be advised, in writing, of the following phases of the project in anticipation of the results of the PRV.
i. Recommended Order of Testing
    i. **PHASE ONE**: NORMI approved surface sampling (including HERTSMI-2) as a pre-test
    ii. **PHASE TWO**: NORMI approved air samples as a pre-test
    iii. **PHASE THREE**: PRE/PRV air and surface samples
    iv. **PHASE FOUR**: Consider GENIE transcriptomics if PRV passes but occupant symptoms persist

4) **Sampling and Data Collection**. It is recommended that microbial samples be taken whenever a problem or perceived problem existed, or currently exists, to create a baseline for potential improvement to that environment. When microbial samples for laboratory analysis are collected during the assessment:

Pre-Work Testing

a. It is recommended that a minimum of six (6) samples be taken in each HVAC coverage area (or 2000 square feet) to determine any systemic issues in that coverage area. Sampling should consist of a minimum of three air-o-cell spore traps, one Lisbiotech Bundle MSQPCR+Endotoxin+BacID. Assessor may recommend additional sampling to include two surface swabs for cultured analysis, and one microbial Volatile Organic Compounds (mVOC) samples. If the HVAC system and/or contents are suspected of being contaminated additional sampling will be necessary to address the HVAC air (three air-o-cell spore traps) and content surfaces (3+ tape samples from surfaces of porous, semi-porous, and non-porous contents). All sampling will be completed following the guidelines provided here.
    i. Lisbiotech Bundle MSQPCR+Endotoxin+BacID
        1. One sample will be collected from each HVAC coverage area.
        2. Sample collection will be completed with the equipment/ supplies provided by the laboratory that will conduct the analysis.
        3. If the sample is to be collected from non-carpeted surfaces, a single microfiber cloth will be used to collect dust from ten (10) different surfaces (2 square feet each totaling 20 square feet of surface area) in each HVAC coverage area.
        4. Where appropriate and prior to sample collection, a two square foot area (2 sq ft) should be identified and temporarily marked on ten (10) horizontal surfaces.
            a. Painter's tape is a convenient way to pre-mark the sample collection areas without causing damage to finishes.
            b. At least half of the surfaces that are sampled should be those that are not frequently cleaned (top of cabinets, bookshelves, vertical surfaces, top side of ceiling fan blades, etc.).
        5. Samples will be collected by wiping the marked area in one direction only.
            a. No back-and-forth wiping is permitted.

b. Overlapping strokes will be used with the wiping cloth to collect dust/debris from each marked area.

6. Samples will be packed and shipped for analysis as directed by the laboratory.
7. The HERTSMI-2 scoring criteria developed by Surviving Mold will be used to generate a numerical score for each sample.

ii. Spore Trap Sampling Procedure

1. Three samples will be collected from each HVAC coverage area and should consist of one outside and two inside. Where multiple HVAC coverage areas are being assessed, one outside sample is adequate.
2. Air-O-Cells cassettes are recommended for the sampling, but other similar sampling cassettes can be used as long as they have performance characteristics equal to, or greater than, the Air-O-Cells cassettes as verified by testing independent of the manufacturer.
3. Samples will be run for 10 minutes at a flow rate of 15 liters of air per minute for a total of 150 liters of air collected.
4. For HVAC related samples, the supply diffuser nearest to the HVAC mechanical equipment, the supply diffuser farthest from the HVAC mechanical equipment, and a return air diffuser near the center of the HVAC coverage area will be identified. Samples will be set up within 6 inches of the diffusers so that the cassette face is perpendicular to the air flowing to/from the diffuser.
5. Collected samples and the appropriate completed chain-of-custody form will be sent to a laboratory that is capable of detailed analysis of the cassettes.
    a. Such laboratories will utilize 1000x magnification for the analysis of the samples.

iii. Cultured Swab Surface Sampling Procedure

1. Two swabs for each HVAC coverage should be taken utilizing sterile swab with transport tube.
2. Prior to sample collection a one square each area (1 sq in) will be identified and temporarily marked two different horizontal surfaces.
    a. Painter's tape is a convenient way to pre-mark the sample collection areas without causing damage to finishes.
    b. Samples should be taken from a horizontal surfaces and the surfaces that are sampled should be those that are not frequently cleaned (top of cabinets, under beds, top side of ceiling fan blades, etc.).

iv. mVOC Sampling Procedure

1. One mVOC sample will be collected from each HVAC coverage area utilizing and approved sampling laboratory.
2. mVOC sample pump should be run between two and three hours, the proper chain of custody completed and the sample sent to the proper laboratory for analysis.

v. Tape Sampling Procedure

1. If content contamination is suspected, a minimum of three tape samples will be collected.
2. Tape samples will represent contents constructed with materials of differing porosity (porous, semi-porous, and non-porous).

3. Bio-Tape samples are recommended because they are a flexible plastic microscope slide with a predefined adhesive area, although other tape sampling materials can be used.
4. After selecting the item to be sampled and recording the information on the appropriate documents, remove the Bio-Tape from the plastic case, pull off the plastic film protecting the adhesive area, and press the adhesive firmly on the surface to be sampled.
5. Replace the Bio-Tape in the plastic holder adhesive side up and snap the lid closed for transport to the laboratory. Note: the protective plastic film should be discarded as it is not necessary/feasible to place it back on the adhesive after sampling.
6. Bio-Tape samples are suitable for all contents including clothes, bedding, cabinetry, upholstered pieces, etc.

Post-Work Testing

b. It is recommended that the same number and type of samples that were taken on the pre-sampling should be taken for the post-sampling. The original samples having been taken in each HVAC coverage area (or 2000 square feet) to determine any systemic issues in that coverage area should consist of a minimum of three spore traps and one Lisbiotech Bundle MSQPCR+Endotoxin+BacID test specifically addressing both air and surfaces following the guidelines under the Pre-Work Testing section.
c. Proper sample documentation, including the sampling method, the sample identification code, required magnification where applicable, each location and material sampled, the date collected, the name of the person who collected the sample and the project name or number must be recorded for each chain of custody.

5) **Sampling Data Interpretation Chart**. Appendix A, included at the end of this document is the criteria by which a NCRSI™ determines the health of an indoor environment. By utilizing this chart during the pre-work assessment of a project, the microbial professional shall determine whether improvement is needed. Following the completion of any remediation or other corrective actions, the effectiveness of those improvement activities can be documented by the microbial professional by comparing the resultant of post work sampling to the NORMI Sampling Interpretation Chart attached to this document as Appendix A.
6) **Microbial/Mold Assessment Report (MAR).** An assessor shall prepare a Microbial/Mold Assessment Report (MAR) on each microbial assessment project to include:
    a. The date of the assessment, the physical location and the reason for the assessment,
    b. History of the property including any previous assessment reports,
    c. All lab reports and documents obtained for review during the assessment,
    d. Interpretation of the results and findings of the microbial assessment including, but not limited to, sources and conditions which may have or currently exist and contribute to the problems in the environment,
    e. Short term solutions to reduce elevated samples, and,
    f. Long term IAQ management procedures to reduce the possibility of microbial proliferation in the future.
7) **Microbial/Mold Remediation Protocol (MRP)**. Where necessary and contracted by the client, an assessor shall prepare a MRP that is specific to each remediation project and provide the MRP to the client before the remediation project begins. The MRP must specify:
    a. The rooms or areas where the work will be performed;
    b. The estimated quantities of materials to be cleaned or removed;
    c. The methods to be used for each type of remediation in each type of area;

d. The PPE to be used by Remediators. Using professional judgment, a microbial assessor may specify additional or more protective PPE than is typically used in the mold remediation industry when warranted;
e. The suggested types of containment (limited or full) to be used during the project on each type of microbial contamination in each area;
f. Any additional information required by State statute or governing municipality or regulations
g. The proposed post-verification procedures (PRV) and minimum acceptable criteria for each type of remediation in each area.

8) **Containment and Fresh Air Makeup**. Containment must be specified in a microbial remediation protocol when the microbial contamination warrants a Level 4 project. The containment specified in the remediation protocol must prevent the spread of microbial to areas of the building outside the containment under normal conditions of use and follow the guidelines here included in the remediation protocol.
9) **Chemistries**. An assessor who suggests in a MRP the use of a disinfectant or antimicrobial for a microbial remediation project may indicate a specific product or brand if it is registered by the US Environmental Protection Agency (EPA) for the intended use and if the use is consistent with the manufacturer's labeling instruction. (This section does not apply outside of the US). When products are used, the assessor must inform the client and the building occupants of the use of such products and encourage their review/skin patch test before remediation begins due to the potential for occupant sensitivities and possible adverse reactions.
10) **Remediation Criteria.** For sensitized clients, remediation is required when any of the following conditions are identified. For other clients the following criteria shall be considered and recommendations for remediation matched to the appropriate conditions.
    a. When any visible microbial contamination is identified, or
    b. When visible microbial contamination is determined to be Stachybotrys, or any of other zero tolerance microbial, as specified in the NORMI™ Sampling Interpretation Chart, or
    c. When visible microbial contamination is Stachybotrys, and other visible microbials are also present, all areas of the HVAC coverage area must be included in the biotoxin decontamination protocol, or remediated in an effort to locate the source of moisture, and
    d. When the moisture content on building materials behind where visible microbial contamination is or was present exceeds 17%.

    Following the remediation of a visible source of microbial contamination, the NORMI™ Biotoxin Decontamination Protocol should then be recommended to insure complete removal of biological contaminants and ongoing improvement in the indoor environment.
11) **Post-Remediation Verification (PRV) Procedures and Criteria**—in the MRP for the project, the assessor shall specify:
    a. The method by which the remediation is deemed complete and adequate;
    b. It is recommended that the same number and type of samples that were taken on the pre sampling should be taken for the post sampling. The original samples having been taken in each HVAC coverage area (or 2000 square feet) to determine any systemic issues in that coverage area should consist of a minimum of three spore traps and one Lisbiotech Bundle MSQPCR+Endotoxin+BacID test specifically addressing both air and surfaces following the guidelines under the Pre-Work Testing section to use clearance and that compared to Appendix A.
    c. The PRV shall be conducted while walk-in containment is in place, if walk-in containment is specified for the project, and the air scrubber shall have been sealed and turned "off" for one (1) hour prior to the PRV assessment sampling. Air scrubber should be turned "on" immediately following the sampling.
12) **Microbial Management Plan (MMP).** When remediation is unnecessary, the NORMI™ Biotoxin Decontamination Protocol should be used to improve the indoor environment. The NORMI™ Biotoxin

Decontamination Protocol should be used after remediation to control potential issues and improve the indoor environment. The Assessor will provide an MMP for the purpose of ongoing IAQ management.

13) **NORMI™ Biotoxin Decontamination Protocol**. This protocol shall be used on all projects where mold counts are elevated, but no visible mold present, as interpreted by the NORMI™ certified professional, and after a remediation project once containment is removed so that the entire indoor environment can be decontaminated.
    a. Recommendation, where necessary, that the HVAC system be cleaned by an approved and trained mechanical contractor and/or duct cleaner. Where ducts are cleaned the NADCA guidelines should be followed.
    b. The installation of air filtration and purification equipment in accord with NORMI™ IAQ training recommendations. This holistic approach to IAQ will improve any environment and reduce contaminants including the potential growth of microbial and bacteria.
    c. The installation of passive fresh-air makeup to reduce randomized air infiltration and enhance the effectiveness of air filtration and purification equipment is highly recommended but not required.
    d. The installation of electrical outlet cover insulators on all perimeter walls of the building envelope should be included to help mitigate air infiltration issues that could negatively impact IAQ.
    e. Sanitization Application Options (Client Authorization Required)
        i. Fogging / Dry Fogging Application
        When authorized in writing by the client, the professional may apply fogging or dry fogging techniques, followed by a wipe-down of affected surfaces, using antimicrobial products that have been tested and verified for their intended application and efficacy. Where applicable, a secondary application intended to reduce the potential for post-project microbial proliferation may be performed, provided such products have also been tested and verified for efficacy.
        ii. Chemical-Free Sanitization Application
        When authorized in writing by the client, the professional should implement a chemical-free, fog-free sanitization process utilizing a combination of HEPA filtration, photocatalytic oxidation (PCO), and ionization technologies. These technologies should be employed in a complementary manner to address airborne and surface-associated contaminants.
    f. Small particle cleaning (SPC) on all surfaces and contents to remove biotoxin and biofilm contamination.
    g. Recommend ongoing use of water-based green chemistries to reduce VOCs and odors. These chemistries should be bio-degradable, water-based and used as an all-purpose cleaner.
    h. Microbial Professional should consider the value of delivering to the client the NORMI™ Sanitization Protocol which includes “36 Ways to Have a Healthier Indoor Environment” from *Mold-Free Construction*.
    i. Recommend post screening after the Sanitization Protocol is in place and that on an annual basis ensure maintenance of a clean, healthy environment.

<u>REMEDIATION</u> Medically-Sound Protocol for NORMI™ CERTIFIED REMEDIATION FOR SENSITIZED INDIVIDUALS (NCRSI™) Minimum Level of Insurable Practices: These general standards and practices are minimum requirements and do not constitute complete or enough specifications for mold remediation in all cases. More detailed remediation requirements developed by a NORMI™ Certified Mold Remediator (hereafter referred to as “Remediator”) for a mold remediation project may be required and may take precedence over the provisions of this section. The NORMI™ professional shall work only under the provisions stated in a contract for services rendered.

14) **Purpose.** The purpose of microbial remediation is to remove and/or clean microbial -impacted materials utilizing standards and safe work practices that protect the occupants and the building. This result is achieved by controlling the dispersion of microbials from the remediation area as well as protecting remediation workers from exposures to microbials. These minimum standards and practices are based on principles used to remediate common indoor environmental microbials. These minimum standards and practices are not intended for use in critical care facilities such as medical facilities, nursing homes or care facilities where they may be supplemented with more exact procedures.
15) **Environmental Impacts.** Prior to any microbial remediation, consideration must be given to the potential presence of other recognized environmental hazards and associated regulations. These hazards may, include, but not be limited to: asbestos, lead-based paint, hazardous chemicals (hazard communication/right-to-know), fire risks, si0tuations requiring Personal Protective Equipment, (especially respiratory protection), heat/cold extremes, Blood borne Pathogens, confined spaces, lockout/tag out, electrical safety, slip, trip and fall protection, noise exposure, scaffolding, waste disposal, project documentation/recordkeeping and OSHA general duty clause.
16) **Microbial/Mold Remediation Work Plan (MRWP)**. The remediator shall prepare a written Microbial/Mold Remediation Work Plan (MRWP), also called a Microbial/Mold Work Plan (MWP), consistent with the Microbial/Mold Remediation Protocol (MRP) created by the assessor. The plan will be site specific for each project, fulfill the NORMI™ minimum standards and practices for mold remediation and provides specific instructions and/or standard operating procedures for how the mold remediation project will be performed. A MRWP should include a method to find and stop the source of moisture intrusion and/or humidity within the building (which may require an appropriate building moisture expert, plumber, roofer, air conditioning/mechanical contractor and/or drying contractor/tradesperson to address the moisture intrusion problem). The MRWP should also outline steps to physically remove the microbials while protecting the health and safety of the building occupants and remediation workers. The following items shall be evaluated in preparing the MRWP:
    a) If a mold assessment report (MAR) has not been performed, and the project qualifies as a regulated mold project, evaluate the need for a mold assessment based upon current site-specific conditions. It is recommended in all cases that baseline sampling be done as the basis of comparing pre and post conditions and to assist in objectively evaluating any work performed during the project.
    b) Request and review all (where applicable) mold assessment report(s).
    c) Assess/confirm the MAR information is representative of the size and/or moisture intrusion problems based upon current site-specific conditions.
    d) Determine if current site-specific conditions require updating of the MAP and/or MRP, to include additional remediation worker training and/or unique/special hazard communication requirements.
    e) Evaluate whether the procedures used to remediate the underlying cause of the mold identified for the project has been effective so that it is reasonably certain that the mold will not return from the same cause.
    f) If the remediator determine the MAR and/or the MRP is incomplete or inadequate, the remediator should seek clarification from a certified mold assessor.
    g) A mold remediator shall inform the client and building occupants (or the remediator shall inform the client who will then inform the building occupants) of mold-related activities that will disturb or will have the potential to disturb areas of mold contamination before remediation begins. The need to temporarily relocate building occupants during the remediation process must be determined by the remediator prior to onset of the remediation tasks.
    h) The highest priority of the remediation plan must be to protect the health and safety of the building occupants and the remediation workers.
    i) Set the schedule so that whenever possible, remediation activities should be scheduled during off-hours when the building occupants are less likely to be affected.
    j) Establish a project schedule with a milestone time-line as needed

k) Determine if building contents are to be relocated and/or cleaned and/or protected in place.
l) Evaluate HVAC system operations, on/off impacts and/or isolation requirements to seal critical barriers.
m) Determine requirement for building containment area(s) and/or isolation requirements.
n) Identify various mold remediation/cleaning methods, equipment, and techniques consistent with the MRP.
o) Determine remediation worker personal protective equipment (PPE) requirements.
p) Ensure that the MRWP specifies that performance of post-verification (PRV) will be completed by a third party, independent certified mold assessor. In the absence of a third-party assessor, the remediator should have clear written permission (in writing or electronically) from the client with whom the contract was executed to do the PRV.

17) **Moisture Resolution.** Whenever possible, the active moisture and/or humidity problem(s) should be resolved prior to performing remediation. Further, it is the remediator's responsibility to identify and repair, or cause to be fixed, the moisture intrusion source that required the remediation project.
18) **Water Damage Cleanup.** Appendices B and C provide general guidelines and strategies to address water impacted/damaged contents (Appendix B) and building materials (Appendix C) within 24-48 hours of an occurrence to prevent mold growth and avoid the need for additional remediation.
    a) Even if materials are dried within 48 hours, mold growth may have occurred. Dormant/inactive microbial colonies can be an irritant for immune-compromised clients.
    b) When the assessor knows, or suspects, that the water source is contaminated with sewage, chemical or biological pollutants, then PPE and containment are required by OSHA for any cleanup/remediation activities. An experienced professional should be consulted if the assessor or remediator does not have expertise in the remediation of contaminated water.
19) **HVAC Systems.** Prior to performing remediation activities, the mold remediator should determine whether the building HVAC system(s) should be shut down and/or isolated/sealed-off from the remediation work area(s). The mold remediator may need to consider temporary heating/cooling/humidity control depending on climatic conditions.
20) **Remediation Project Levels.** The assessor/remediator must consider possible additional site-specific conditions during the final selection of appropriate remediation procedures. Remediation procedures should be determined based upon the uniqueness of the project, the conditions found in the onsite assessment, and the likelihood of cross-contamination.

    Level Four. Special containment for environmentally sensitive or immuno-compromised occupants. Remediation areas, regardless of the square footage, should be established using the remediation and construction protocols and guidelines established here. This level of project requires special training on these guidelines and may significantly limit the ability of a project to be completed on time and within a traditional remediation project pricing structure.

    i. The work area should be unoccupied at all times, by any person, or persons, who are not directly supervised to work within the contained area. Special care may need to be taken to advise occupants and other non-workers of the potential dangers, including fungal infection, associated with contamination within containment. Special emphasis should be placed on informing those who care for infants (<12months), persons recovering from recent surgery, immune-suppressed individuals, or people with respiratory diseases.
    ii. Respiratory protection should consist of full-face respirators with HEPA cartridges or, where specifically recommended by the assessor, powered air purifying respirators (PAPR). Respirators must be used in accordance with the OSHA respiratory protection standard. Gloves and eye protection are also required to be worn by all workers or those non-workers who enter containment.
    iii. Full containment of the work area is required. Surfaces within containment that are not being disturbed as part of the remediation efforts should be covered with a layer of 6-mil polyethylene (fire retardant is recommended but not required). This protective sheeting should cover the

walls and the ceiling. A second layer of 6-mil polyethylene sheeting should be installed on the floors in a manner that minimizes slip/trip hazards.

iv. Construct a two-room decontamination chamber for entry and egress (clean room adjacent to the non enclosed portion of the structure separated from an equipment room next to the containment with a barrier in between with flap or zipper pass-through).

v. All decontamination chamber entryways should consist of air restricting entry/egress opening (slit "T" or "Z" flap or zipper door) with a cover flap on the outside of the containment area.

vi. The decontamination chamber equipment room should be large enough to hold a waste container and allow for the removal of protective clothing (i.e. disposable coveralls, gloves, head and foot coverings). All PPE except respirators should be removed and placed in the waste container while in this chamber. The decontamination chamber clean room side should be large enough to allow remediation workers to put on and remove PPE as they enter and exit the equipment room.

vii. AFD—Air Filtration devices brought onsite will cleaned prior to being set in place, "naked" with no filters installed. The units will be visually inspected for cleanliness after being set in place. New filters shall be installed on each project and checked for a proper fit prior to operation.

viii. Maintain containment area under negative pressure (i.e. recommended -0.02" water column (wc) ≈ -15 psi ≈ -4.68 pascals (Pa) relative to the surrounding area outside containment. This can be accomplished with a HEPA-filtered air filtration device (AFD) as a negative air machine (NAM). General practices recommend a minimum of four (4) to six (6) room air exchanges per hour (AEH) for containment ventilation and dilution. *Note*: utilizing negative-pressure differentials within building structure can create unintended airflow hazards in both hot/humid and cold climate conditions, therefore the remediator should exercise caution to prevent/minimize these unintended airflow hazards.

ix. Fresh air makeup will be provided to the contained area in order to dilute contaminants, create additional airflow, and reduce the possibility of establishing an oxygen deficient environment. This may be accomplished by installing a 1" thick paper or fiber filter on the containment wall in a position far from the AFD.

x. Remediation practices that create excessive dust such as cutting, grinding and/or resurfacing of materials require the use of wet methods and/or High-Efficiency Particulate Air (HEPA) vacuum-shrouded tools; or using HEPA vacuum equipment at the point of dust generation.

xi. Mold contaminated materials that cannot be cleaned in-place should be removed from the building in sealed impermeable plastic bags and/or wrapped in 6-mil polyethylene sheeting for either disposal or off-site cleaning, thus avoiding any contamination to the non-containment areas of the building. When being taken out of containment area, through non-containment areas of the structure, removed building materials, plastic sheeting, and other debris should be placed in sealed impermeable plastic bags. Sealed bags should be wiped clean in the equipment room prior to removal from the building for disposal. There are no special requirements for disposal of mold impacted materials.

xii. Upon completing remediation activities each day, the work area and access/egress should be HEPA vacuumed and then cleaned with a damp cloth (or mop) and mild detergent or enzyme cleaner.

xiii. Negative air machine should remain on during the entire remediation process. Air scrubbing (allowing an AFD to exhaust in the same area where the machine intake is located) should utilize lengths of perforated plastic tubing secured to the exhaust port to diffuse the air stream coming from the machine. It is strongly recommended that supplemental air purification equipment, such as the MCI PRV24K or comparable, be used with the exhaust tubing to make the air scrubbing process more efficient.

xiv. Prior to requesting, or performing, the PRV, and with both negative air and air scrubbing present, the entire contained area should be agitated with a low pressure air washing process in order to direct any remaining submicron particulate to the air scrubber.
xv. All areas and surfaces should be left dry and visibly free of contamination and debris.
xvi. For PRV sampling the negative air machine should be remain on but air scrubber should be turned "off" one (1) hour prior to sampling. Immediately following the completion of the sampling the negative air and air scrubbing should be turned back "on" and run continuously until information regarding the success of the PRV is reported to the remediator in writing (either electronically or hard copy)
xvii. When completed, all documentation, including a NORMI Certificate of Decontamination™, should be filed for future reference and a copies provided to the client of record.

21) **Containment Types.** The primary purpose of containment during remediation is to control/limit the dispersion of mold during remediation activities thereby limiting exposure to building occupants and remediation workers in occupied spaces outside of containment. Determining which containment type should be used on a specific project shall be determined and established by the NORMI™ CMA or the NORMI™ CMR of record. In all containment installations where negative air is present, Fresh Air Makeup (FAM) shall be used to maintain pressure equilibrium and provide fresh air to the remediation workers.
    a. **Limited Containment** is not used for Level 4 projects.
    b. **Full Containment** is recommended for all Level 4 projects and should be constructed as follows:
        i. Form the containment area by enclosing the remediation area with a double layer of 6-mil polyethylene (fire retardant is recommended but not required) sheeting on the walls and, where necessary, the ceiling with a single layer of 6-mil polyethylene (fire retardant is recommended but not required) sheeting on the floors.
        ii. If remediation activities involve and/or expose a space above the ceiling used as a return air plenum (i.e. mold impacted ceiling tile removal), the containment area should be installed from the floor to the roof deck to contain the entirety of the building envelope.
        iii. Construct a double-sided decontamination chamber (i.e. with dirty and clean side airlock rooms) for entry and egress.
        iv. Decontamination chamber entryways (i.e. remediation area and clean room sides) should consist of entry/egress slit opening ("T" or "Z" flap or zipper door) with a cover flap on the outside of the containment area.
        v. The decontamination chamber dirty room side should be large enough to hold a waste container and allow for the removal of protective clothing (i.e. disposable coveralls, gloves, head and foot coverings). All PPE except respirators should be removed and placed in the waste container while in this chamber.
        vi. The decontamination chamber clean room side should be large enough to allow remediation workers to put on and remove PPE as they enter and exit the dirty room.
        vii. Shut down and/or isolate HVAC system(s) operation within the containment area, sealing all critical barriers.
        viii. When using a remediation work area enclosure, seal all HVAC supply and return air vents, exhaust systems, doorways, electrical outlets, ceiling fixture outlets, chases, risers and other critical barriers within the containment area with a single layer of 6 mil polyethylene sheeting, and,
        ix. Maintain containment area under negative pressure (i.e. recommended 0.02" wc or -15 psi = 4.68 Pa) relative to the surrounding area outside containment. This can be accomplished with a HEPA-filtered air filtration device (AFD) as a negative air machine (NAM). General practices recommend a minimum of four (4) to six (6) air exchanges per hour (AEH) for containment ventilation and dilution. *Note*: utilizing negative-pressure differentials within building structure can create unintended airflow hazards in both hot/humid and cold climate

conditions, therefore the remediator should exercise caution to prevent/minimize these unintended airflow hazards.

22) **Notice Signs.** Signs advising that a mold remediation project is in progress shall be displayed at all accessible entrances to remediation areas to protect others from entering the containment area without PPE. The signs shall be at least eight (8") inches by ten (10") in size and shall bear the words: "NOTICE: Biotoxin Decontamination project in progress" in black on a yellow background and the text of the signs shall be legible from a distance of ten (10) feet.
23) **Interim Evaluations**. To ensure the quality and effectiveness of the remediation activities having been performed in accordance with the MRWP, interim evaluations should be done during the remediation. Then, prior to the PRV, an initial pre-PRE sampling should be conducted by the remediator to evaluate and anticipate the success of the PRV. The initial PRE process involves implementing and documenting internal quality assurance and quality control procedures which begin with, but are not limited to, the following general criteria:
    a. If a limited or full containment system was used during remediation, the post remediation evaluation must be conducted while the containment system is in place, negative air system and air scrubber turned "off" one (1) hour prior to sampling but turned back "on" and running continuously until PRE is passed and reported to the remediator in writing (either electronically or in writing),
    b. Where visual evidence reveals deficiencies sufficient to fail the evaluation, analytical methods need not be used,
    c. Confirmation that the underlying moisture problem (whether water or humidity) was identified and eliminated,
    d. Isolation of the work area was appropriate and effective with no breaches,
    e. Mold removal and remediation cleanup was performed according to the MRWP,
    f. Any additional moisture or mold damage/impacts discovered during the remediation project were properly addressed/resolved,
    g. Upon completion of remediation, surfaces are free from visible dust and debris,
    h. Upon completion of remediation, building materials/contents are dry and do not have elevated moisture content or malodors,
    i. Any other necessary corrective measures have been identified to mitigate deficiencies.

24) **Post-Remediation Verification (PRV)**. PRV should be performed by a third-party assessor and is required for all Level Two, Level Three and Level Four remediation projects. If a containment system was used during remediation, the post remediation verification must be conducted while the containment system is in place and air scrubbing/air washing utilized in addition to the containment negative pressure for at least four (4) hours.
    a. PRV should take place after air washing has been completed.
    b. The negative air system and air scrubber should be turned "off" one (1) hour prior to sampling but turned back "on" following sampling and running continuously until PRV is passed and reported to the remediator in writing (either electronically or hard copy),
    c. The criteria and process used in the post-verification must be documented in writing in the MRP and approved by the assessor and/or building owner prior to performing the remediation.
    d. Provide written documentation confirming success or failure of the PRV. If the PRV results indicate failure of the site-specific remediation plan criteria, the certified assessor will provide to the building owner and/or responsible party, a written report identifying the deficiencies noted during the evaluation.
25) **Restoring Remediated Areas**. Upon successfully completing the post-verification process (as needed), the building owner may have the remediator replace the building materials/contents that were removed. In some governing jurisdictions, this rebuilding process may require separate licensure.
26) **Final Remediation Project Documentation**. After successfully achieving the PRV, it is recommended that the remediator take appropriate action(s) to close the project, complete/finalize all paperwork and documentation.

A written Final Remediation Report (FRR) must be provided to the building owner and/or responsible party from the remediator which will include, but is not limited to, the following:

a. Certificate of Completion clearly stating the remediation has been successfully completed (NORMI™ recommends the NORMI Certificate of Sanitization™ or NORMI Certificate of Decontamination™),
b. Documentation of the pre-PRE activities performed by the independent certified remediator of record (including any ATP measurements using a luminometer for screening),
c. Documentation of the PRV performed by an independent certified mold assessor,
d. PRV results presented to the building owner and/or responsible party with FRR.

27) **NORMI™ Biotoxin Decontamination Protocol**. This protocol shall be used on all projects where mold counts are elevated, but no visible mold present, as interpreted by the NORMI™ certified professional, and after a remediation project once containment is removed so that the entire indoor environment can be sanitized.

a. Recommendation, where necessary, that the HVAC system be cleaned by an approved and trained mechanical contractor and/or duct cleaner. Where ducts are cleaned the NADCA guidelines should be followed.
b. The installation of air filtration and purification equipment in accord with NORMI™ IAQ training recommendations. This holistic approach to IAQ will improve any environment and reduce contaminants including the potential growth of microbial and bacteria.
c. The installation of passive fresh-air makeup to reduce randomized air infiltration and enhance the effectiveness of air filtration and purification equipment is highly recommended but not required.
d. The installation of electrical outlet cover insulators on all perimeter walls of the building envelope should be included to help mitigate air infiltration issues that could negatively impact IAQ.
e. Sanitization Application Options (Client Authorization Required)
    i. Fogging / Dry Fogging Application
    When authorized in writing by the client, the professional may apply fogging or dry fogging techniques, followed by a wipe-down of affected surfaces, using antimicrobial products that have been tested and verified for their intended application and efficacy. Where applicable, a secondary application intended to reduce the potential for post-project microbial proliferation may be performed, provided such products have also been tested and verified for efficacy.
    ii. Chemical-Free Sanitization Application
    When authorized in writing by the client, the professional should implement a chemical-free, fog-free sanitization process utilizing a combination of HEPA filtration, photocatalytic oxidation (PCO), and ionization technologies. These technologies should be employed in a complementary manner to address airborne and surface-associated contaminants.
f. Small particle cleaning (SPC) on all surfaces and contents to remove biotoxin and biofilm contamination.
g. Thorough fogging or dry fogging with wiping down of the entire environment with an approved anti-microbial being careful to avoid spotting leather, marble, tile, glass and/or other surfaces which might be prone to spotting.
h. Following the initial fogging and wipe down, a second fogging or dry fogging of a protectant, or approved micro biostatic product, as a second step, to reduce the possibility of mold proliferation in the indoor environment.
i. Recommend ongoing use of water-based green chemistries to reduce VOCs and odors. These chemistries should be bio-degradable, water-based and used as an all-purpose cleaner.
j. Microbial Professional should consider the value of delivering to the client the NORMI™ Sanitization Protocol which includes “36 Ways to Have a Healthier Indoor Environment” from *Mold-Free Construction*.

k. Recommend post screening after the Sanitization Protocol is in place and that on an annual basis ensure maintenance of a clean, healthy environment.

28) **DEFINITIONS/ACRONYMS**. These definitions are specific to this document and in accordance with NORMI™, National Organization of Remediators and Microbial Inspectors. These definitions are not necessarily definitions used industry-wide and do not take precedence over any licensing rules or regulations published by a specific State or governing body.

- Air Scrubber—this is an AFD when operating inside containment recirculating the air for the purpose of removing contaminants prior to the PRV. This is a process, not a machine. The same AFD is also used as a NAM
- Air Washing—required for containment area prior to final PRV testing, this is an agitation of the air, using a low-pressure process, to push remaining particulates toward the air scrubber.
- AFD – Air Filtration Device: A sealed fan unit that puts air through a HEPA filter. Most AFDs have two or three filters in order to prolong the life of the HEPA filter.
- ASHE- American Society for Healthcare Engineering
- ASHRAE—American Society of Heating, Refrigeration and Air Conditioning Engineers
- Building Envelope—Unless otherwise defined by the governing municipality, the building envelope shall be defined as the perimeter surfaces surrounding and limiting conditioned living space. NOTE: New York defines the building envelope as all areas within the footprint of the structure, whether conditioned or non-conditioned, living and non-living space.
- Certified—a professional who has taken the appropriate field-specific training, taken a proctored proficiency examination and met additional requirements by a nationally recognized certifying agency like IICRC, NORMI™ and/or ACAC.
- Certificate of Completion—a document that includes a statement from the mold professional that, based on visual, procedural and analytical evaluation, the indoor mold growth identified for the project has been remediated as specified in the MRP and that the underlying cause(s) and condition(s) have been addressed and resolved so that it is reasonably certain that the mold will not return from those same causes. The NORMI Certificate of Sanitization™ and NORMI Certificate of Decontamination™ documents could be used as this certificate of completion.
- Certificate of Decontamination™--a trademarked document that includes a statement from the mold professional that, based on visual, procedural and analytical evaluation, the indoor mold growth identified for the project has been sanitized or remediated as specified in the MRP and that the underlying cause(s) and condition(s) have been addressed and resolved so that it is reasonably certain that the mold will not return from those same causes. The NORMI Certificate of Decontamination™ document could be used exclusively as this certificate of completion for Level 4 projects.
- CMA—Certified Mold Assessor
- CMR—Certified Mold Remediator
- CMS—Certified Mold Screener
- CMAT—Certified Mold Assessment Technician
- CMW—Certified Mold Worker
- Containment—a component or enclosure designed or intended to prevent the release of mold, microbial contamination, biotoxins, or contaminate-containing dust or materials into surrounding areas in the building during remediation or cleaning activities.
- Containment Area—an area that has been enclosed by a containment and usually placed under negative pressure.
- Contiguous—in proximity; neighboring; ~~most often~~, adjoining.

- Cumulative—a total of areas contaminated by visible mold in a single HVAC system coverage area (i.e. heated or air conditioned by a single HVAC unit)
- Directly Supervise—licensee will follow the specific guideline(s) given by the regulating agency under whom he is licensed. In the absence of such direction, NORMI™ defines the phrase as to direct and exercise control over the activities of an individual(s) by being physically present at the job site or, if not physically present, accessible by telephone within ten minutes and able to be at the site within one hour of being contacted.
- Dry Fogging--a process of delivering an approved sanitizing agent within an indoor environment that has a verifiable droplet size of 7.5 microns or below, whereby the aerosolized dwell time of the disinfecting agent is 45 minutes to one hour and can produce air and surface viability testing of zero growth. The process and agent should have a documented history of excellent material compatibility
- FAM—Fresh Air Makeup, which is the process by which air outside the containment area is brought in through a filter to help balance the pressure irregularities and provide fresh air to the remediation workers.
- FRR—Final Remediation Report
- HEPA—High Efficiency Particulate Air sometimes referred to as a High Efficiency Particulate Arrestor. Generally, a thick pleated filter with a MERV rating above 17.
- HVAC—Heating, Ventilation and Air Conditioning.
- HVAC Coverage Area—Whether by zoned distribution system or individual unit, that area covered by a single HVAC air handler. Judgment must be used by the NORMI™ professional to determine the method used and reasoning behind the definition of an HVAC coverage area on each project.
- IAQ Management Plan—The document prepared by an indoor mold assessor for a client that provides guidance on how to prevent and control indoor mold growth at a location, also referred to as a Mold Management Plan.
- ICRA—Infection Control Risk Assessment: a set of guidelines developed by the American Society for Healthcare Engineering (ASHE) to assess and mitigate infection risks during construction, maintenance, and other activities within healthcare facilities
- Indoor Mold Growth—mold that exists on an interior surface of a building or in the air that was not purposely grown or brought into the building and having the potential to affect the indoor air quality.
- Mold Remediation Professional—a person who conducts mold assessment or remediation as defined in this section and who is licensed, where governing authorities require such, and/or certified by a nationally recognized certifying agency such as IICRC, NORMI™ and/or ACAC.
- License—any license issued by any state or municipality for the purpose of regulating the mold industry.
- Licensee—an individual licensed by any state or municipality to perform mold assessment, remediation or work associated with the mold profession.
- MAR—Microbial/Mold Assessment Report. The document prepared by an indoor mold assessor for a client based on information gained from the onsite mold assessment which interprets the result of said investigation and draws conclusions regarding mold sanitization or remediation recommendations. This does not necessarily include a mold remediation protocol which may be produced as a separate document.
- Microstatic—inhibiting the growth of microbials which products could include the organo siloxane molecule, chitosan, or other semi-permanent inhibitors.
- Mold—living or dead fungi or related mVOCs, bi-products or parts, including spores, hyphae and mycotoxins.
- Mold Analysis—the examination of a sample collected during the mold assessment when microscopy is performed for the purpose of:

- Determining the amount or presence of or identifying the genus and/or species of any living or dead mold or related parts (including spores and hyphae) present in the sample;
- Identifying or determining the amount or presence of any fungal products, present in the sample by microscopy.

- Mold Assessor—a person who conducts mold assessment as defined in this section and who is, when required, licensed as a mold assessment professional (CMA).
- Mold Assessment—an inspection, investigation, assessment, taking of samples and/or survey of a dwelling unit or other structure to provide the owner or occupant with information regarding the presence, identification, or evaluation of mold that include a mold assessment report and may include one or more of the following;
  - The development of a mold biotoxin decontamination protocol;
  - The development of a mold remediation protocol;
  - The development of a mold and/or IAQ Management plan; and,
  - The collection of a mold, bacteria, particulate and mVOC sample(s).
- Mold Screener—a person who takes samples of visible or hidden mold for the purpose of controlling the sampling process and as a service for the client as further described in the appropriate section.
- Mold Screening—a process of sampling that excludes the writing of a report, the interpretation of samples or recommendations for resolution of a possible issue.
- MMP—Microbial/Mold Management Plan. The document prepared by an indoor mold assessor for a client that provides guidance on how to prevent and control indoor mold growth at a location, also referred to as an IAQ Management Plan.
- Mold Related Activities—the performance of a mold assessment, remediation or related activities, including the prevention of future mold growth.
- Mold Remediator—a person who conducts mold remediation as defined in this section and who is, when required, licensed as a mold remediation professional (CMR).
- Mold Remediation—the removal, cleaning, sanitizing, demolition or other treatment, including preventative activities, of mold or mold-contaminated matter.
- MRP—Microbial/Mold Remediation Protocol. This document, prepared by the mold assessor for the client, includes, but is not limited to the following processes:
  - Provides photograph(s) of the scene of mold remediation prior to remediation;
  - Specifies the estimated cost of the project, where feasible,
  - Specifies the proposed remediation methods for each area to be remediated, and,
  - Establishes the PRV criteria for each area of the mold remediation project.
- MRWP—Mold Remediation Work Plan. This document, prepared by a mold remediator, fulfills all the requirements of the MRP and provides specific instructions or standard operating procedures for how a mold remediation project shall be performed.
- mVOC—Microbial Volatile Organic Compounds: Semi volatile or volatile chemicals produced by actively growth mold growth.
- NAM—Negative Air Machine. This is an AFD when operating inside containment filtering the air and exhausting to an area outside of containment, thus establishing a negative pressure area. This is a process, not a machine. The same AFD is also used for air scrubbing.
- NCRSI™-- NORMI Certified Remediator for Sensitized Individuals: A professional trained to assess, manage and/or remediate projects for environmentally sensitized individuals, CIRS patients or others referred to the professional by a medical physician or clinician.
- PAPR respirator—a powered air-purifying respirator used to safeguard workers against contaminated environments.

- PPE—Personal Protective Equipment. Items worn on an individual that limit their exposure to mold, including but not limited to gloves, goggles, respirators and body suits.
- PRE—Post Remediation Evaluation. The process by which a remediation contractors evaluates the level of cleanliness of a project prior to contacting the assessor for a PRV or clearance.
- Preventative Activities—actions intended to prevent future indoor mold growth at a remediated area, including repairing leaks and other sources of water intrusion and/or humidity and, therefore, includes the NORMI™ Decontamination Protocol.
- Project—mold-related activities at a specific address.
- PRV Report—a document that an indoor mold assessor issues when the indoor mold assessor determines that a project's remediation has been successful.
- PRV24K—an air purification device developed by Best Living Systems, LLC to be connected to the AFD when used as an air scrubber or when used as a NAM discharging into occupied space designed to reduce airborne particulates and reduce microbial contamination on surfaces.
- SPC—small particle cleaning, also known as surface and content cleaning, is performed to address mold spores and biotoxins that have traveled throughout the indoor environment as the result of a mold event. This is typically done after all the water damaged and mold-infested material is properly removed from the property and remediation on the impacted space is complete.
- Supervise, directly—licensee will follow the specific guideline(s) given by the regulating agency under whom he is licensed. In the absence of such direction, NORMI™ defines the phrase as to direct and exercise control over the activities of an individual(s) by being physically present at the job site or, if not physically present, accessible by telephone within ten minutes and able to be at the site within one hour of being contacted.
- Visible—exposed to view; capable of being seen with the naked eye. *NOTE*: Mold professionals understand that hidden mold outlies the perimeter of visible mold and may make determination regarding sanitization, decontamination, or remediation based on their own expertise and experience.

Appendix A
Sampling Data Interpretation for NORMI Medically-Sound Level 4 Protocol™ Assessments[i]

Mold[ii]

Sample Type	Result	NORMI™ Interpretation[iii]	NOTES:
Mold Air (non-viable)	Total Spore Count per m^3	<500 Normal	Other molds may be found that have significance in some environments such as Cladosporium, which can be found as indoor sources and can be prevalent outdoors. These are guidelines only.
	Aspergillus/Penicillium	<100 Normal	
	Target Molds (Stachybotrys, Chaetomium, Trichoderma, Fusarium, Memnoniella)	NO Target Molds	
Mold Surface Tape or Swab (non-viable)	1-10 spores per field[iv]	Rare	Normal
	11-100 spores per field	Low	Caution
	101-1000 spores per field	Medium	Contamination Probable
	>1000 spores per field	High	High Contamination
Mold Surface Swab (viable)	0-30 cfu[v]	Normal	NOTE: Any presence of target molds is unacceptable (Stachybotrys, Chaetomium, Trichoderma, Fusarium, Memnoniella. These are considered water-sensitive or reliant molds.
	31-150 cfu	Low	
	151-300 cfu	Moderate	
	300+ cfu	High	
TMVOC (Total Mold Volatile Organic Compounds)	<8 ng/L[vi]	Minimal	"Finally, mold VOCs (MVOCs) are produced during the metabolic or digestive processes of mold and therefore can be used an n indicator of actively growing mold" Enthalpy Analytical Technologies
	8-30 ng/L	Active-Moderate	
	30-80 ng/L	Active-Elevated	
	80-150 ng/L	Active-High	
	150+ ng/L	Active-Severe	
HERTMI-2	7-10	Acceptable	HERTSMI—Health Effects Roster of Type-Specific Formers of Mycotoxins and Inflammagens (Second Version is 2)
	<6	Desired	
Endotoxins	<100 EU/mg	Acceptable	Endotoxin exposure is associated with Increased respiratory symptoms[vii]
	zero	Desired	
Actino	< 2 Dominance Index	Acceptable	
	< 2 Prevalence Index	Acceptable	
Beta Glucan	zero	Desired	Based on AirAnswers™ sampling device
ATP Luminometer	Luminometer System	Acceptable/Desired	Critical Notes
Hygiena	SystemSURE Plus (UltraSnap)	30/10	Factory defaults; 11–29 = 'Caution.' Users should validate.
	EnSURE / EnSURE Touch (food & bev)	60/20	More sensitive than SystemSURE; preset defaults.
	EnSURE Touch – Healthcare preset	100/50	Healthcare implementation guide recommendation.
Kikkoman	Lumitester Smart (A3) – Smooth/direct surfaces	400/200	201–400 = 'Caution' range.
	Lumitester Smart (A3) – Unsmooth/indirect surfaces	1,000/500	501–1,000 = 'Caution' range.
	Lumitester Smart (A3) – Hands	4,000/2,000	2,001–4,000 = 'Caution' range.
3M	Clean-Trace Hygiene Monitoring System	300/150	150–299 = 'Caution.' Validation study advised.
LuminUltra	PhotonMaster + ATP kits	100/10	Preventive action required = 10-100. Users set site-specific levels.

Other Important IAQ Data

Test	ASHRAE	OSHA PEL[viii]	ACGIH TLV[ix]	NORMI
Temperature	Winter 68-75°F Summer 73-79°F	N/A	N/A	Winter 68-75°F Summer 73-78°F
Relative Humidity[x]	30%-60%	N/A	N/A	40%-60%

Particles	N/A	PM_{10}<150ug/m3; $PM_{2.5}$ ***<65ug/m3	15mg/m3 Total	PM_5<5000/ft^{3}[xi]
Carbon Dioxide	1000ppm	5000ppm	5000ppm	1000ppm
Carbon Monoxide	9ppm	50ppm	25ppm	0ppm
Ozone (used for sanitization only)	N/A	.1ppm	.05ppm	≤.05ppm (occupied) ≤0.1ppm (unoccupied)

[i] Interpretation of sampling should take into consideration overall assessment findings and other sampling data per NORMI training. These are simply guidelines to help both pre and post remediation to determine if there is a problem and/or if the problem has been resolved. Since mold is in every environment, sampling is only one factor that should be considered in an overall environmental assessment.

[ii] There is currently no standard for mold levels in an indoor environment. The above interpretations are a consensus of both field experts and laboratories. The licensed mold assessor must use professional discretion in defining indoor sources and extent of contamination present, taking into consideration the varied sensitivities to mold amongst individual occupants.

[iii] "NORMAL" does not indicate there no problem but rather suggests an acceptable range under normal occupied space environments. These based on conditioned space and may be modified dependent on onsite conditions.

[iv] "field" indicates the area which the laboratory determined to carve out for its direct read sample and varies with each lab.

[v] Colony forming units

[vi] Nanograms per liter, interpreted by Prism Labs.

[vii] According to Lisbiotech interpretation, certified lab.

[viii] OSHA—Occupational Safety and Health Administration Permissible Exposure Limit – Typical 8 hr. day/40hr. week

[ix] American Conference of Governmental Industrial Hygienists Threshold Limit Value – 10 hrs. day/40 hr. week

[x] NORMI recommends 40-60%

[xi] Based on Dylos interpretation Excellent <2500/ft^3 or Very Good 5000/ft^3. Dylos.com

ADDITIONAL DISCLAIMER: This chart should not be used as an absolute, sole or final determinator when evaluating indoor environments.

Appendix B
Guidelines for Contents Damaged from Clean Water within 24-48 Hours

Books and papers	□ For non-valuable items, discard books and papers. □ Photocopy valuable/important items, discard originals. □ Freeze (in frost-free freezer or meat locker) or freeze-dry.
Carpet and backing – dry within 24-48 hours	□ Remove water with water extraction vacuum. □ Reduce ambient humidity levels with dehumidifier. □ Accelerate drying process with fans.
Ceiling tiles	□ Discard and replace.
Cellulose insulation	□ Discard and replace.
Concrete or cinder block surfaces	□ Remove water with water extraction vacuum. □ Accelerate drying process with dehumidifiers, fans, and/or heaters
Fiberglass insulation	□Discard and replace.
Hard surface, porous flooring (Linoleum, ceramic tile, vinyl)	□Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary. □ Check to make sure subflooring is dry; dry subflooring if necessary.
Non-porous, hard surfaces (Plastics, metals)	□ Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.
Upholstered furniture	□ Remove water with water extraction vacuum. □ Accelerate drying process with dehumidifiers, fans, and/or heaters. □ May be difficult to completely dry within 48 hours. If the piece is valuable, you may wish to consult a restoration/water damage professional who specializes in furniture.
Wallboard (Drywall and gypsum board)	□ May be dried in place if there is no obvious swelling and the seams are intact. If not, remove, discard, and replace. □ Ventilate the wall cavity, if possible.
Window drapes	□ Follow laundering or cleaning instructions recommended by the manufacturer.
Wood surfaces	□ Remove moisture immediately and use dehumidifiers, gentle heat, and fans for drying. (Use caution when applying heat to hardwood floors.) □Treated or finished wood surfaces may be cleaned with mild detergent and clean water and allowed to dry. □ Wet paneling should be pried away from wall for drying.
Air Purification Process	In all cases, proactive air purification equipment is recommended during the cleaning processes to reduce biological contaminants in the air and on surfaces. This could also include the implementation of establishing negative pressure and the use of the PRV24K equipment to reduce airborne contaminants and keep surfaces cleaner.

Appendix C
Guidelines for Building Materials Damaged from Clean Water within 24-48 Hours

Material or Furnishing Affected	Cleanup Methods	Personal Protective Equipment	Containment
LEVEL **ONE** – Total Surface Area Affected Less Than 10 square feet (ft²)			
Books and papers	3	Minimum N95 respirator, gloves, and goggles	None required
Carpet and backing	1, 3		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3		
Wallboard (drywall)	3		
Wood surfaces	1, 2, 3		
LEVEL **TWO** – Total Surface Area Affected Between 10 and 100 (ft²)			
Books and papers	3	Use professional judgment, consider potential for remediator exposure and size of contaminated area	Limited Use professional judgment, consider potential for remediator exposure and size of contaminated area
Carpet and backing	1, 3, 4		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3, 4		
Wallboard (drywall)	3, 4		
Wood surfaces	1, 2, 3		
LEVEL **THREE** – Total Surface Area Affected Greater Than 100 (ft²)			
Books and papers	Client choice	Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area	Full Use professional judgment, consider potential for remediator exposure and size of contaminated area
Carpet and backing	Client choice		
Concrete or cinder block	Client choice		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	Client choice		
Non-porous, hard surfaces (plastics, metals)	Client choice		
Upholstered furniture & drapes	Client choice		
Wallboard (drywall)	Discard		
Wood surfaces	Client choice		

Cleanup Methods Key

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried). Steam cleaning may be an alternative for carpets and some upholstered furniture.

Method 2: Damp-wipe surfaces with water and detergent solution (except wood – use wood floor cleaner); scrub as needed.

Method 3: High –efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

Method 4: Discard – remove water-damaged materials and seal in plastic bags while inside of containment, if present. Dispose of as normal waste. HEPA vacuum area after it is dried.