Appendix E

Sample Mold Remediation Specification

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Specification For

Mold Remediation
At
[FAA Location]

FAA-[Contract Number]

[Date]

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

[Contracting Office Name and Location]

[Contact Person and Phone Number]

TABLE OF CONTENTS

Note: This model specification describes procedures to remediate building components contaminated with mold. The specification does not address replacement of those components. Additional specification sections (e.g. Section 9A – Gypsum Board Installation) will need to be added to provide details to the contractor performing that work. Also, this specification does not address the measures that will be necessary to correct water and moisture issues at the facility which caused the mold growth. Unless the underlying cause of water or moisture accumulation is corrected, mold growth will continue. This specification does not address repairs to the building envelope or mechanical systems. A general description is provided for final clearance of the mold remediation area. An independent, third-party consultant under the direction of a CIH will be required for final visual inspections and if necessary, sampling.

Bracketed items (i.e. []) throughout this document are intended to allow the facility to add detailed site-specific and project-specific information.

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 1A – GENERAL REQUIREMENTS

1A.1 **Summary of Work**. The Contractor is required to furnish all labor, materials, services, equipment, tools and insurance to remove and dispose of all microbial contaminated materials described in the scope of work. The project is located at [Facility] [City and State].

1A.2 **Scope of Work**. These specifications, together with other referenced documents, standards and drawings in the contract documents, cover the requirements for all work associated with the mold remediation. The removal method and all related work must be in conformance with FAA policies, U.S. Occupational Safety and Health Administration (OSHA) regulations and all applicable state and local regulatory requirements.

[Provide a detailed list of all areas where mold remediation will occur. Include square or lineal feet of material and material type. If the contractor will be responsible for the build-back, include the replacement material to be used. Include a schedule and sequence of work as applicable]

SECTION 1B – SPECIAL REQUIREMENTS

1B.1 **Coordination**. All contracts between the contractor and [Facility/ATO] shall be coordinated through the Resident Engineer (RE) and his/her designated representative.

1B.2 **Pre-Construction Conference**. As soon as practical after the award of the contract, the Contracting Officer will set a date for a pre-construction conference between the representatives of the Government (ATO, NATCA and PASS will be invited to attend) and the contractor at a location agreed upon by the Contracting Officer and the contractor. The contractor shall attend the conference and shall abide by all agreements reached at the conference regarding:

- Detailed procedures for administration of the project.
- Identity of the RE, authorized representatives of the Government/Contracting Officer, and the contractor's superintendent(s).
- Contractor's telephone number.
- Detailed procedures for submittals.
- Available storage areas for contractor's materials and equipment.
- Compliance with FAA safety practices, general operating procedures and security regulations.
- Availability of on site power for use by the contractor as determined by the RE.
- The FAA Pre-Construction and Maintenance Project Safety and Health Checklist, form 3900-8 will be reviewed and filled out during the meeting.
- Contractor shall provide copies of all MSDS for any products and restoration materials to be used.
- In addition to the foregoing, other subjects pertinent to the contract may be discussed.

1B.3 **Working Hours**. [Provide working hours for the project]

1B.4 **Ingress and Egress to Work Area**. The RE shall direct all ingress and egress to the work area. Security precautions against unauthorized facility entrance will be maintained.

1B.5 **Security Requirements**. The [facility] is a secured facility and access to the interior is restricted to FAA personnel only. Therefore, all work included in this contract shall be coordinated to preclude interference with the operation of the facility. The contractor shall coordinate this with the Contracting Officer through the RE. The contractor shall examine the premises and satisfy himself/herself as to the existing conditions under which he/she will be obligated to perform the work included in this contract. [Include any other site specific security requirements]

The [facility name] is under security at all times. All critical areas [location(s)] are controlled and security must be maintained. The contractor will provide a list of all personnel, which will be entering the facility to do abatement work, to the Contracting Officer/Contacting Officer's Technical Representative/RE.

The abatement contractor shall maintain a logbook documenting entry into and out of the regulated work area. The contractor shall not allow unauthorized personnel access to the site. Authorized personnel include the contractor and his/her workers, Contracting Officer and his/her representatives, the Environmental Monitoring contractor, representatives of regulatory agencies having jurisdiction over the project, and fire or medical response personnel in the event of emergency. No other person(s) may enter the areas occupied by the contractor or his/her equipment without submitting evidence of completion of required medical examinations , respirator training, and mold abatement training to the COTR/RE prior to entering the abatement areas.

1B.6 **Property Damage**. The contractor shall take all precautions to avoid damage to Government property or equipment. Any damage to Government property or equipment by the contractor shall be repaired by the contractor to its original state or better condition at no additional expense to the Government.

1B.7 **Parking of Contractor Vehicles**. All personnel will park their vehicles away from the building and all access doors or as authorized by the RE. Materials and tools may be off-loaded at the work site by arrangements with the RE.

1B.8 **Storage of Materials**. The contractor shall store all materials in a manner to protect them from all elements of the weather. Storage of reasonable quantities of material, supplies and tools on site is permissible providing the RE authorizes the location. The FAA is not responsible for the security of the materials, supplies and tools owned by the contractor.

1B.9 **Site Visit**. The contractor shall take steps necessary to ascertain the nature of the work and satisfy themselves to the conditions that can affect the work. No subsequent extras will be allowed due to any claim of lack of knowledge for conditions that can be determined by examining the site. Site visits can be arranged by contacting the facility manager [name and phone number], at least 24 hours prior to the planned visit.

1B.10 **Compliance with Local Codes and Other Codes**. The contractor shall comply with local and other codes of standard trade practices adopted by these contract documents. Where the requirements of the specifications and drawings exceed those of the local and adapted codes, the contractor shall comply with the requirements of the specifications and drawings.

1B.11 **Fire Protection**. The contractor shall have an equivalent of two 20 lb Class A, B and D fire extinguishers in the work area through the progress of the job.

1B.12 **Cleaning**. The contractor shall keep the working area in a clean and proper condition. All rubbish and waste resulting from the execution of the work shall be removed at the end of each day or as directed by the RE. Immediately after unpacking, all packing materials shall be removed from the building and the premises. Upon completion of work and before final inspection, the contractor shall remove his/her working tools, equipment, debris, rubbish and unused materials from the building site. Disposal of rubbish and debris will be offsite and at no additional cost to the FAA or as directed by the RE.

1B.13 **Non-interference with Existing Facility Operations**. The access to the facility shall be kept unobstructed at all times. If any interference with the existing facility operation or access seems to be unavoidable, the contractor shall advise the contracting officer through the RE 24 hours before such interference. FAA reserves the right to stop work at any time if the operation of this facility is jeopardized by the contractor's work. This facility maintains air traffic control without shutdown. Various techniques are employed to achieve maximum system availability. Mechanical and electrical systems in direct support of air traffic operation and environmental systems have redundant configurations. Shutdown of equipment shall be scheduled with the RE at least 24 hours prior to the control systems installer's need. The reliability of mechanical and electrical systems is compromised when redundant equipment is not available. Every effort will be made by the FAA to allow work to be accomplished during the installer's working hours; however, the RE will restore equipment to service immediately after this period. FAA personnel shall accomplish equipment shutdown.

1B.14 **Other Contracts**. The Government may undertake other contracts for additional work at or near the site of the work under this contract. The contractor shall fully cooperate with other contractors and with the Government employees and shall adapt scheduling and performing the work under this contract to accommodate the other work. The contractor shall not commit or permit any act that will interfere with performance of work by any other contractor or by Government employees.

1B.15 **Contractor's Liability**. Damage to the existing facility or equipment caused by the contractor shall be immediately reported to the FAA RE without delay. The contractor shall be responsible for repairing or having repaired all damaged areas of the facility or equipment directly caused by contractor related work. All repairs shall be accomplished, without delay, at the contractor's expense to the satisfaction of the RE.

1B.16 **Permits.** The contractor shall be responsible for obtaining all city, county, etc. permits, if required, to complete the project, at no additional cost to the Government.

1B.17 **Material**. All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The contractor may, at his option, use any equipment, material, article or process that, in the judgment of the RE, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

1B.18 **Workmanship**. The contract shall be accomplished by workers experienced in each trade in accordance with the highest standards of the various trades involved. The FAA RE must approve all details to assure the professional and complete project, whether stated in the specifications or not. The RE may require, in writing, that the contractor will remove from the work site any employee the RE deems incompetent, careless or otherwise objectionable.

1B.19 **Superintendence by the Contractor**. At all times during the performance of this contract and until the work is completed and accepted, the contractor shall directly superintend the work on site or assign and have on site a competent superintendent who is satisfactory to the RE and has the authority to act for the contractor.

1B.20 **Warranties**. The contractor shall guarantee that all work performed under this contract to be free from defects in all materials and workmanship for a period of 12 months from the date of final acceptance by the Government.

1B.21 **Responsibilities**. If within the warranty period, such parts or work performed under this contract is found to be defective in materials or workmanship, that portion of work shall be replaced by the contractor immediately without any additional cost to the Government.

SECTION 1C – SUBMITTALS

1C.1 **Introduction**. Each product required for use in the contract drawings and specifications must meet the actual minimum needs of the Government as demonstrated in the salient characteristics for that product. If a brand name product is used in the drawings or specifications, it should be regarded as a "known acceptable source." The product used can be identical or equal to the brand name product or known acceptable source in meeting the salient characteristics, but it need not exceed the actual minimum requirements. Any brand name product or known acceptable source mentioned will, however, not be required for use in order to comply with the specification or drawing unless those documents make it clear that the brand name product is required, and substitution is prohibited.

1C.2 **Requirements**. Each product that a Contractor wishes to use that is not a known acceptable source must be approved before use, by the Contracting Officer or his/her designee. To gain approval, the Contractor must submit documents and/or samples that will demonstrate the product clearly will meet the Governments minimum needs, and demonstrates appropriate salient characteristics. All submittals must be in writing. The Contracting Officer shall have the right to require submittals from the Contractor where the Contractor makes an unsolicited change proposal.

1C.3 **Submittal Review**. When submitting before the Notice to Proceed date, the Contractor shall send the submittal package directly to the Contracting Officer. When submitting after contract work has begun, the Contractor shall give submittal packages to the RE, who will forward them promptly to the Contracting Officer. In either case, the submittal will return directly from the Contracting Officer to the contractor, with the Contracting Officer's approval, approval with comments, or disapproval.

1C.4 **Submittal Time Frame**. To provide adequate time for document transmission and submittal review, the FAA reserves the right to take [ten days] to complete a review, transmission date to transmission date.

1C.5 **Submittals**. The contractor shall submit all of the following:

1. Detailed Work Plan
2. Emergency Response Plan
3. Safety Program
4. Respiratory Protection Program
5. Certificate of training, accreditation, qualification
6. List of Employees
7. Proof of Insurance
8. MSDS for all chemical products
9. Respirator fit test records for employees scheduled for this project
10. Medical surveillance records
11. Negative Air HEPA filtration equipment specification sheets
12. Copies of all notifications to federal, state or local regulatory agencies

13. Detailed schedule of all remediation and restoration activities on a room by room basis.

1C.6 **Work Plan**. The contractor shall prepare a detailed work plan for this mold remediation project. This work plan shall cover all the procedures that the contractor will use to complete the project. This document shall be provided to the FAA before the mold remediation work begins and must include a specification of:

1. The rooms or area designation where work will be performed.
2. Configuration of the work area enclosures, decontamination chamber location, HEPA filtered exhaust locations, and equipment cleaning area location.
3. Quantities of materials to be removed or cleaned per each room or area designation.
4. Proposed methods for each type of remediation in each type of area in the project.
5. Listing of equipment proposed for remediation
6. Employee decontamination procedures to be used and locations of decontamination units.
7. Use of chemicals for mold remediation (if authorized).
8. Handling of mold remediation waste materials.
9. Personal protective equipment use.
10. Remediation techniques for each remediation area.
11. Any other standard operating procedures required by law.

All required submittals shall be provided to the Contracting Officer at the following address:

FEDERAL AVIATION ADMINISTRATON
[Give address]

SECTION 1D – MOLD ABATEMENT

1D.1 **Contractor Mobilization Requirements**. The contractor shall provide all the services, equipment, supplies, materials, and labor required to remediate, remove, [replace] [mold contaminated components] and dispose of all waste. The abatement contractor must comply with the following:

1. All work shall be done under the direct supervision of a professional with experience and training in mold remediation.
2. All work shall be conducted by trained individuals following the requirements of Section 1D.3.
3. The contractor shall coordinate and prepare a schedule to be approved by the RE for conducting the remediation at the site.
4. Prior to the scheduled pre-construction meeting, the contractor shall provide copies of all MSDS for any chemicals and other products that have been authorized by the FAA that will be brought on site and used during this project.
5. The contractor shall hold a pre-work briefing with [bargaining unit]. The briefing will include a description of work to be done. The contractor will schedule and coordinate the meeting through the facility manager.
6. No chemical cleaners, disinfectants, mold inhibitors, fungicides, encapsulants, spray adhesives, odor masking agents, air fresheners or similar materials are authorized for use during this project unless there is a strong justification to do so and when approved in advance by the FAA. Also, when approved by the FAA prior to use, small quantities of low odor consumer type hand dishwashing detergent may be used when mixed with water for the purpose of wetting cleaning cloths used for damp wiping surfaces.
7. Equipment and furnishings in [remediation location] shall be HEPA vacuumed or damp wiped. If directed by the FAA, the cleaned equipment shall be removed to a location designated by the FAA. The surface of all remaining equipment and material in each room shall be HEPA vacuumed or damp wiped, and then covered with 6-mil polyethylene prior to the start of any mold remediation work on each floor.
8. All 6-mil polyethylene sheeting is to be fire retardant.
9. The contractor shall notify the RE immediately if any conditions are identified during the remediation, which may require immediate attention to prevent potential exposure to mold at the facility.

1D.2 **Worker Safety**. Worker protection for all abatement work shall be, at a minimum, half face air purifying respirators equipped with HEPA filters, full body disposable clothing for mold abatement, gloves, boots, and eye protection. Double suiting will be utilized by contractor's employees in areas where a decontamination unit can not be provided directly adjacent to the abatement area. In those cases, the contractor shall provide a means outside the containment where the workers may wash their hands and face prior to leaving the site. Respirators used to provide protection from mold and mold spores must be certified by the National Institute for Occupational Safety and Health (NIOSH). As specified by OSHA in 29 CFR 1910.134, individuals who use respirators must be properly trained, have medical clearance, and be properly fit tested before they begin using a respirator. In addition, use of respirators requires the employer to develop and implement a written respiratory protection program, with work site specific procedures and elements.

1D.3 **Worker Training**. All workers involved in mold-related activities shall be trained to conduct that abatement. Completion of a mold abatement course such as that provided by the Indoor Air Quality Council or equivalent shall be mandatory. Workers shall be familiar with all relevant federal, state and local standards. Workers shall also receive training in Hazard Communication in accordance with CFR 1910.1200.

1D.4 **Work Plan**. The contractor shall prepare a use detailed work plan for this mold remediation project as described in Section 1C.6.

1D.5 **Required Procedures for Remediation and Dust Control**.

1. The contractor shall isolate the HVAC system, stair access door, pipe chase and other floor to floor penetrations. Isolation will be accomplished by the installation of two layers of 6-mil thick polyethylene sheeting. FAA personnel will shut down or redirect the HVAC system or any mechanical air movement systems for these rooms if possible. Proper lockout/tagout procedures shall be followed when shutting down the HVAC system.
2. Place mold remediation warning signs that restrict access to authorized persons at all entrances to the work area.
3. Pre-clean the area that will be house the two-stage decontamination unit and then install the decontamination unit. The decontamination shall have water available for the contractor's employees and authorized visitors to wash their hands and face.
4. A two-stage decontamination unit shall be used for the decontamination of non-porous materials, construction equipment, personnel and safety equipment. The two-stage unit will have a clean room and a dirty room. Personnel and equipment shall enter and exit the work area through the decontamination unit.
5. Designate an equipment cleaning area at a location to permit cleaned equipment to be removed directly from the cleaning area to a designated storage area. The cleaning area should be immediately adjacent to the designated storage area. Isolate the equipment cleaning area and designated storage area with 6-mil polyethylene sheeting. Equipment shall be cleaned using HEPA vacuums and damp wiping techniques. Cover and protect cleaned equipment with 6-mil polyethylene sheeting for the duration of the project.

6. Pre-clean all fixed surfaces in the work area with a HEPA vacuum and damp wiping techniques.
7. Erect enclosures around the immediate area where mold contaminated components will be removed to prevent the release of dust to the remaining work area.
8. Place removed materials in 6-mil polyethylene bags or wrap in two layers of 6-mil polyethylene sheeting.
9. Clean all surfaces within the remediation area with a HEPA filtered vacuum and damp wiping.
10. [If the project dictates the establishment of a full containment system, use the following wording: Establish negative pressure within the erected work areas through the use of HEPA filtered exhaust units that discharge outside the enclosure, preferably to the outside of the building. Negative pressure within the erected enclosure work area is to be maintained with a minimum of 0.02 inches of water column differential relative to the work area outside of the enclosure. This shall be demonstrated with the use of a manometer or similar device.]
11. [Provide any additional site specific requirements]

Note: The following sections 1D.6 to 1D.11 are to be added/tailored based upon the specific mold remediation project to be performed.

1D.6 **Removal of Mold Contaminated Drywall**. Remove drywall to the extent indicated on the drawings. Drywall shall be cut away through the use of spiral cutting saw equipped with a close capture exhaust system attached to a HEPA filtered vacuum for dust control. The cutting depth of the spiral saw will be adjusted to a depth slightly less than the thickness of the drywall. Final cutting of the scored drywall will be made with a razor knife to avoid release of dust into the wall cavity and to prevent damage to concealed equipment, or additional layers of wall board that are present. In areas where access restrictions prevent use of spiral saws, hand saws may be used, but only while a HEPA vacuum is used to capture dust at the point of generation. Reciprocating saws shall not be used. If a second layer of drywall is encountered, notify the FAA RE. If, upon inspection by the FAA, visual evidence of mold growth on the remaining previously concealed layer is discovered, then the second layer will be removed. If the second layer is removed, the amount of the second layer will not exceed the area of the first section as indicated on the drawings, unless authorized by the RE.

1D.7 **Ceiling Tile Removal.** The following procedures shall be used for removal of mold contaminated suspended ceiling tiles:

1. Cover the floor and any equipment or furniture under the ceiling tile(s) to be removed with 6 mil polyethylene sheeting.
2. Vacuum lower surface of the tile to be removed with a HEPA filtered vacuum.
3. Carefully remove the ceiling tile and place it directly into a 6-mil plastic bag and seal.
4. Clean the exposed grid with a HEPA filtered vacuum.
5. HEPA vacuum the floor to remove any visible debris.
6. Remove the 6 mil floor covering.
7. Replace with new ceiling tiles.

1D.8 **HVAC System Decontamination.** [Decontamination of mold inside HVAC systems is typically a complex project and is to be designed by a CIH.] The following procedures shall be used for the decontamination of mold inside HVAC systems:

1. The HVAC system shall be shut down prior to work.
2. The work area shall be completely isolated from other areas of the HVAC system using 6 mil polyethylene sheeting and duct tape. The access areas for the duct work shall be enclosed in a negative pressure enclosure.
3. A two-stage decontamination system shall be used.
4. Remove all mold contaminated materials including interior insulation of interior lined ducts and filters.
5. If contaminated interior insulation can not be adequately removed, or if the interior sections can not be adequately cleaned, those HVAC system components are to be removed in entirety.
6. HEPA vacuum all interior and exterior surfaces of the HVAC system in the work area.
7. Clean all surfaces with a damp cloth and/or mop and a detergent solution. A biocide may be used in certain areas of the HVAC system, such as cooling coils and condensate pans. The type used will depend on recommendations from the HVAC manufacturer. The contractor shall provide information on any biocides proposed to be used to the RE prior to initiation of work.
8. Allow all areas to thoroughly dry.
9. All areas shall be left dry and visibly free of mold contamination and debris.

ID.9 **Plumbing Components.** Mold has been identified on the insulating materials (fiberglass) of various piping systems associated with the air handling units (AHU) and may also be present on the bare pipe. The contractor shall follow the procedures as described in Section 1D.5 to isolate and demarcate the area. The contractor shall carefully remove the pipe insulation with wet techniques to minimize dust generation and containerize in 6 mil thick plastic bags. The bare pipe shall be wiped down with an appropriate fungicide. The pipe system shall be inspected for leaks by FAA or their representative prior to re-insulation activities. Replacement insulation will be a flexible elastomeric insulation such as Armaflex approved by the RE.

1. D.10**Concrete Block Wall Decontamination.** [The following procedure is for cleaning the interior side of cement block wall]

1. HEPA vacuum the wall surface to remove loose surface mold.
2. Scrub off any remaining visible contamination with a stiff brush while keeping the area wet using a detergent or bleach solution.
3. After the area dries, HEPA vacuum the surface again.
4. Wipe the surface with a damp sponge containing a detergent or bleach solution.
5. Let the area thoroughly dry.

1D.11 **Wooden Building Components.** Mold has been identified on wooden building components. The contractor shall follow the procedures as described in Section 1D.5 to isolate and demarcate the area. The affected wooden building components shall be replaced, if structurally feasible, or cleaned and treated with an approved fungicide. If the components are to

be removed, replacement components will be approved by the RE. If the components are to be cleaned and treated, the contractor will clean, disinfect, and apply a suitable surface coating. Any areas of visible mold shall be manually removed and appropriate repairs made prior to the application of an anti-microbial surface coating. The RE shall approve the contractor's work plan and all cleaning, disinfection, and coating products prior to the start of the remediation.

1D.12 **Waste Disposal.** The mold contaminated waste is to be double sealed or bagged in labeled 6 mil polyethylene sheeting or bags. Each bag shall be adequately sealed. The seams of the sheeting shall be sealed with duct tape. The outside of the bags or sheeting shall be visibly clean before transporting to the outside of the abatement areas. Finally, the bags shall be transported to the remediation contractors vehicle and then disposed of in a [State] approved landfill. The contractor is responsible for proper packaging, temporary storage, transport, and disposal of all waste generated as the result of this project.

1D.13 **Remediation Area Completion.** The work area must be free of visible mold, mold damaged materials, and accumulation of dust as determined by visual examination. The inspection will be performed by a third party Certified Industrial Hygienist (CIH) hired by the FAA. The CIH will determine the need for post-remediation air sampling. If sampling is performed, the following verification criteria will be utilized:

1. Sampling will be performed only after the remediation area has passed a thorough visual inspection and before the containment barriers are removed.
2. All air sampling pumps will be calibrated before and after use.
3. Airborne concentrations of mold spores within the work area must not exceed outdoor concentrations. The mean of at least 3 samples collected from each work area will be compared to the mean of 3 samples collected from outside the building. The genera of mold spores within the work area must be similar to those found outside.

1D.14 **Restoration.** [Include details on restoration work to be performed by the contractor. This may include installation of replacement materials (such as gypsum board, insulation, vinyl-base, etc.) painting, additional cleaning, etc. Pay particular attention to items that are unique to FAA facilities and operations].