Specifications for:

Fire Alarm System Replacement:

Westdale Hi Rise

16 Melba St
Dayton, OH 45402

Park Manor Hi Rise

220 Park Manor Dr.
Dayton, OH 45410

Wilmington Hi Rise

958 Wilmington Ave
Dayton, OH 45420

Prepared for:

Greater Dayton Premier Management
400 Wayne Avenue
Dayton, Ohio 45410
937.910.7500

Website posting at www.gdpm.org

Prepared by:

RDA GROUP ARCHITECTS
7662 PARAGON ROAD | DAYTON, OH 45459 | 937.610.3440

Bid Set
April 27, 2026

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TECHNICAL SPECIFICATIONS

DRAWINGS

Site 03 – Wilmington Hi Rise

END OF DOCUMENT

SECTION 01 10 00 - SUMMARY

PART 1 GENERAL

1.1 DESCRIPTION OF THE PROJECT DOCUMENTS / SCOPE OF WORK

A. The work covered by these specifications consists of furnishing all labor, materials, and equipment necessary in connection with a Fire Alarm System Replacement Project at Westdale Hi-Rise, Park Manor Hi-Rise, and Wilmington Hi-Rise for Greater Dayton Premier Management.
   1. Work includes items as shown, subject to the terms and conditions of the contract, specifications and the drawings as listed.

B. Provide all materials and labor for work as noted herein for a complete project.
   1. IMPORTANT: Field verify all existing conditions, and coordinate all applicable requirements as related to the scope of the work.
   2. Drawings indicate general diagrammatic areas/extent of work, but in no way indicate the intricate nature of the work required for the successful completion of the project.

C. Provide any and all ancillary work related to the above work scope including repair of any Contractor damaged finishes within the work area.

D. Perform Work of Contract under a stipulated sum contract with Owner in accordance with Conditions of Contract.

1.2 CONTRACT / TEAM IDENTIFICATION

A.	Project Identification:	Fire Alarm Replacement Project
B.	Project Locations:	Westdale Hi-Rise, 16 Melba Street, Dayton, OH Park Manor Hi-Rise, 220 Park Manor Drive, Dayton, OH Wilmington Hi-Rise, 958 Wilmington Ave., Dayton, OH
C.	Owner:	Greater Dayton Premier Management [GDPM] 400 Wayne Avenue Dayton, OH 45410 937.910.7550 phone
D.	Architect:	RDA Group Architects, LLC 7662 Paragon Road Dayton, OH 45459 937.610.3440 phone
E.	PME Engineer:	Helmig Lienesch, LLC 410 S. Jefferson Street Dayton, OH 45402 937.228.4007 phone

1.3 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words “shall be” are included by inference where a colon (:) is used within sentences or phrases.

B. The term ‘RDA’ or ‘Architect’ as referenced in these contract documents is RDA Group Architects.

C. The term ‘Owner’ as referenced in this specification is Greater Dayton Premier Management.

1.4 SCOPE OF WORK

A. Work of the Project includes the replacement of the fire alarm system in the building including fire alarm panel, equipment, cabling and conduits, and end use devices at Westdale, Park

Manor, and Wilmington Hi-Rises as outlined / located on the Drawings / Specifications. All work shall be in accordance with NFPA 72 and per City of Dayton Fire Department requirements.

1. All specific scope items shall be coordinated and reviewed on the drawings and specifications as applicable.
2. Maintain existing system operational during the installation of the new fire alarm system. Coordinate all applicable requirements.
3. Remove existing fire alarm system, equipment, devices, wiring, conduits, junction boxes, etc.
4. Installation of a new digital, addressable fire alarm system with manual voice paging.
5. Installation of fire alarm equipment such as amplifiers and power extenders to support the system.
6. Installation of new audio and visual fire alarm devices in common areas and within dwelling units as outlined.
7. Repair holes in floors and walls from the removal of the existing fire alarm system. Prep and paint impacted walls / ceilings / finishes as is applicable to the work.
8. Install firestopping at wall / ceiling penetrations as is applicable to the work.
9. Prep and paint new conduits, junction boxes to match adjacent finishes [finishes vary throughout the building – multiple colors, etc. must be anticipated.]
10. Ancillary work required to accomplish the work scope as intended.

1.5 CONTRACTOR'S USE OF SITE[S] / SITE CONTROL

A. Provide and maintain a safe living environment for Residents of each of the buildings at all times during the course of work. Each of the buildings will remain OCCUPIED throughout the duration of the work.
   1. Provide fire watch as required by City of Dayton Fire Department, and in particular during any times of outages in the system.
   2. Coordinate daily with any planned outages, or the need to place the system in test mode, construction, etc.

B. Coordinate work to allow continued Occupancy of all dwelling units, adjacent parking lots, driveways, access points, etc. throughout the duration of the project. Minimize impact to Owner / Resident. Sequence the project to allow continued occupancy of all dwelling units. Develop a plan and strategy to accomplish the goal. Include all additional efforts, scheduling, construction duration, etc. in the bid amount.

C. All units will be OCCUPIED throughout the duration of the project. Take all measures necessary to minimize the impact on the residents, provide protective measures at areas of work.
   1. Work must be undertaken and scheduled to allow continued occupancy.
   2. All existing work removed in a day must have new work installed completely the same day as required to maintain life safety systems in place.

D. Assist in relocation of Resident equipment and furnishings, etc. as is applicable to the scope of the project and to allow the scheduled work.

E. Provide temporary protection to minimize the spread of dust, dirt, and debris to other portions of the building, in particular during dusty activities such as core drilling concrete floors, concrete / concrete block walls, etc.

F. Provide temporary protection of adjacent finishes at the work areas as well as any areas traversed to the building entrances, etc.

G. Use of the elevators is permitted. Provide protection of the elevator to prevent damages.

H. Coordinate with Owner any activities which have the potential to affect continued operations of the facilities or impact life safety, security, etc.

I. Work Schedules: Perform all work between the hours of 8 AM and 5 PM Monday through Friday, unless work outside these hours and days is requested and granted.
   1. No work outside these hours is permitted without explicit Owner approval.
   2. Coordinate and schedule all aspects of the work, including how various disciplines work together, are sequenced, etc.
   3. Weekend and overtime work or increasing crew size may be required by the Owner at no additional cost if the Contractor fails to meet projected dates as prescribed in the contract and the progress schedule.
   4. Coordinate schedule / activities so as not to inconvenience the Owner unnecessarily.
   5. Coordinate schedule / activities with holidays, etc. so as not to inconvenience the Owner or Residents unnecessarily over holidays, weekends, etc.

J. Provide appropriate notification of Owner and Residents prior to starting work and throughout the duration of the project.
   1. Resident notification to provide directive to have Resident relocate any resident belongings, furniture, etc. away from the work areas if they are able as necessary to facilitate the work of the contract. Notify Owner of any concerns or conflicts received. Assist in relocation of resident belongings as necessary.

K. Daily work wrap up:
   1. Plan the work and provide enough manpower to this contract to ensure that work progresses in an orderly manner and the existing fire alarm system remains in operation until such time of the system changeover after installation of the new fire alarm system. All life safety systems shall continue to be in operation throughout the duration of the project.
   2. Plan the work and provide enough manpower to this contract to ensure that the work is accomplished and life safety systems are in full operation at the end of each day's work.
   3. Functional use shall mean that the bathroom, kitchen, living room, and bedrooms are usable at the end of the day. Functional also means the ability to secure the unit.

L. Staff project every day with a full crew capable of timely completion of work. Confirm that all materials, accessories, and other components are on-site and ready for installation prior to beginning work for each work day. Advise project team if there are issues with scheduling prior to starting of work.

1.6 CONTRACT PERIOD / TIME OF COMPLETION

A. Notice to Proceed: anticipated award in **July 2025** from the Owner.
   1. Architect will issue notice to proceed with the agreed upon dates / contract period.

B. Date of Commencement: to be determined.
   1. Owner-Contractor Agreement or Notice to Proceed will be issued establishing the agreed upon construction start date.
   2. Final schedule will be coordinated with the Contractor.

C. Contract Period: **THREE HUNDRED SIXTY FIVE** [**365] Calendar Days** from Date of Commencement.
   1. Provide a work start date within [7] calendar days upon issuance of the Owner-Contractor Agreement. A start date and completion date will be negotiated and a notice to proceed will be issued stating those dates.
   2. Consideration of material lead-times and fire alarm permit issuance will be given for establishing the NTP dates as applicable.
   3. Notify the RDA, in writing, upon determination of any delay in material delivery or the issuance of building permits.
   4. Coordinate schedule, phasing, and implementation of the work.

D. A contract will be issued in **July 2025**, after approval of the project by the Owner.
   1. The Contractor will be responsible to execute the project to allow shop drawings and product submittals to be prepared as quickly as possible such that the materials can be

ordered with sufficient lead time to permit the work to be executed as scheduled prior to the date of substantial completion.

E. Notify Owner in writing fourteen [14] days prior to the Contract Completion date if an extension of contract time is necessary with a request for the extension and the reasoning for such request.

F. Liquidated Damages will be enforced for the failure to complete work in the specified contract period per Owner requirements.

1.7 WORK BY THE OWNER

A. Owner will separately contract for the following: **None / Not Applicable**

B. Coordinate any / all aspects of Work by Owner as they interface with Work.

1.8 PERMITS

A. Apply for applicable building and zoning permits once fire alarm shop drawings are prepared and have been reviewed by the Project Team.

B. Pickup and pay for all applicable building and zoning permits.
   1. Refer to Project Allowances for applicable permit allowance.

C. Furnish all required contractor trade permits as well as any other required permits for work in the right of way, etc.

1.9 APPLICABLE REFERENCES AND CODES

A. References will be found in each section that applies to that section.

B. Conform to reference standards by date of issue current as of date of Contract Documents.

C. When specified reference standard conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with the Ohio Building Code requirements as they relate to the work.

1.10 CONTRACTOR / GENERAL REQUIREMENTS

A. Protect all finishes and equipment scheduled to remain.

B. Commence and complete work as noted in the contract.

C. Coordinate equipment delivery and equipment staging with Owner prior to start of project. Anticipate no on-site storage being provided by Owner.

D. Pre-determine work phases with Owner to minimize disruption to operations.

E. Furnish labor, materials, equipment, and management required to complete the project.

F. Furnish all required logistics required to accomplish the work – including lifts, scaffolding, ladders, trash chutes, safety equipment, temporary protection, daily night seals / weather protection, etc.
   1. Coordinate and receive Owner approval for all staging and laydown areas, contractor parking, etc. prior to the start of work.
   2. Provide protection of all existing pavement, turf, landscaping, etc. from damage during construction. Restore site to original / like new condition upon completion of the work.

G. Visit the site to become thoroughly familiar with all working conditions, check and verify all dimensions, and site conditions. Any dimensions given or referred to in the specification or drawing are to be used purely as approximate and not as a basis for exact amounts for bidding. Promptly advise Architect of any discrepancies, errors with the specifications and drawings before bidding the work.

H. Provide a valid Certificate of Insurance, follow all Workman's Compensation requirements and regulations.

I. Provide all bonds, payment schedule, insurance as noted in the contract documents.

J. Pay for all building permits, trade permits, ROW permits, and any other required permits and inspections necessary to complete all work related to these specifications. Comply with Federal, State, and Local Codes.

K. Provide dumpsters or trash containers needed for construction purposes. Do not use Owner dumpsters or trash containers at any time for removal of materials, trash, or debris related to the Contractor's work. Remove debris from the site regularly and be placed within appropriate trash receptacles. Keep all work areas neat at all times. Take all considerations for safety. Do not leave trash or debris on the ground / around the project site.
   1. Run magnet around work areas daily to pickup stray nails, etc. when appropriate.

L. Take special care not to allow dust and debris to fall onto any equipment, material, personnel, or any room below the deck.

M. Safety: Take all safety precautions necessary or directed to ensure public safety.
   1. Neither Architect nor Owner are safety consultants. Any and all safety provisions shall be managed and coordinated by the Contractor.
   2. Safety is paramount and all personnel on site must wear appropriate personal protection equipment [PPE]. The Contractor is responsible for means and methods to ensure that proper PPE is provided. Failure to comply may result in dismissal from site.
   3. Barricade work area with appropriate construction grade barriers to establish boundaries of work area and assure safety for all workers and general public. All work areas must be properly barricaded from the general public prior to starting any work.
   4. Maintain job site in a neat and orderly fashion at all times.

N. Conduct all work according to OSHA recognized safe work practices. **COMPLY WITH APPLICIBLE OSHA STANDARDS, INCLUDING 1926 – REGULATIONS FOR CONSTRUCTION.**
   1. Non-compliance shall be a basis for making a bid non-responsive.
   2. If Contractor or sub-contractor is found to be in **VIOLATION (NON-COMPLIANCE) AT ANY TIME**, this could be a basis for termination of the purchase order/contract.

O. IMPORTANT: Failure to show or mention petty details shall not be warranted for the omission of anything necessary for the proper completion of the work.

P. The plans and specifications are intended to depict the general scope, layout and quality of workmanship required. The documents are not an "instruction manual" to execute the work nor are they intended to show or describe in detail every item necessary for the proper installation of the work. The means and methods required to execute the work described is the sole responsibility of the Contractor. The Contractor shall include the ancillary work required, whether explicitly stated or not, for the proper completion of the work as intended. The Contractor is required to meet or exceed building code requirements, applicable industry standards, ASTM standards, and/or manufacturer installation requirements as they relate to the work.

Q. The plans and specifications represent a single complete design package indicating the intended scope of the project in its entirety. As such, the project is structured to be awarded to a single Prime Contractor. The documents do not delineate bid packages or assign responsibilities to any subsequent subcontractors, dictate construction sequencing, nor provide coordination between any "trades". Such activities are the responsibility of the holder of the construction contract. In the event of a discrepancy within the drawings or between the drawings and the specifications, the more stringent requirement represented in the documents shall prevail.

R. Do not take advantage of any clerical errors, omissions, contradictions, or conflicts that may develop in plans, specifications, or details. Report such errors, ambiguities and discrepancies to the Architect immediately for clarification, revision, or correction prior to the submission of bids. If no notification is given, it shall be assumed that all specifications and conditions will be met.

S. Submission of a bid shall be considered the Contractor's Certification that the bid is based upon equipment and/or materials that meet or exceed the standards set forth by specification or equipment and/or materials identification. Should a Contractor's product be determined not equal to that specified, the Contractor shall be required to provide and install a product acceptable as equal by the Architect at no additional cost to the Owner.

T. The submission of a bid shall indicate that the Contractor has visited the project site and is familiar with the conditions as they exist, and the modifications that may be necessary to provide a complete and professional finished project.

U. There is a strict **NO SMOKING** policy for all work. Any worker found smoking on the jobsite will be subject to removal from the project. No exceptions. Habitual offenders may be subject to a fine in the amount of $500 per occurrence.

V. Security: Contractor's Liability for Vandalism
   1. Secure and protect the project which is under the control of the Contractor. Include all such expenses for the securement and protection of the project, and for the repair and replacement of the work until that portion of the work is accepted as complete by the Owner. Take all measures necessary to provide such security.
   2. Promptly repair or otherwise remedy any and all damages, at Contractor's expense, to said portion of the project and of the accepted construction work caused by vandalism.
   3. Indemnify and hold the Owner harmless from and against all damages, liabilities, costs and expenses, including, without limitation, reasonable attorney fees, which may be imposed upon or incurred by the Owner as a result of the Contractor's failure to comply with the requirements of this section.

W. Insurance: **Refer to GDPM Terms and Conditions.**
   1. Provide copy of Certificate of Insurance to Owner.
   2. Submit evidence of Worker's Compensation Insurance coverage
   3. Submit evidence of Builder's Risk Insurance.

X. Damages: Any and all damages to Owner Property or resident property shall be repaired equivalent to the existing by the Contractor at no cost to Owner. NO EXCEPTIONS.

1.11 CONTRACTOR QUALIFICATIONS

A. Establish and provide qualifications to Owner for their ability to complete this type of work. Qualifications may be established by:
   1. Provide references of similar projects, past performance, financial disclosures, etc. in the interest of selection of the lowest and best bidder for the project.
   2. Provide a letter of approval for the installation of the products from the manufacturer.
      a. Contractor must be properly trained and approved by the manufacturer for the installation of the products.
   3. Provide a recommendation from the supplier of the products.
   4. Demonstrating to Owner the capability to do the work. Contractor must have a minimum of five years documented experience in similar work.

B. Contractor is responsible for all work performed by the Sub-contractors.

C. Owner has the final authority to request a particular sub-contract not be engaged in the project. If this occurs, Owner and Contractor shall determine if there is an impact to the Contract amount, and negotiate, if necessary, to an adjustment in the Contract amount.

1. No change to the Contract amount will be permitted if there is a change to the sub-contractor due to them utilizing alternate manufacturers or products that were not approved substitution requests.

1.12 JOB SUPERINTENDENT/EMPLOYEES

A. Each prime contractor and subcontractor shall have a qualified foreman on the project at all times when work is being accomplished.

B. Refrain from fraternization with building occupants other than specifically designated Owner's representatives.

C. Furnish the Owner with a list of personnel with phone numbers that will be working on the project and emergency contacts names and numbers that has the authority to handle emergencies on a 24 hour/seven days a week.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Follow all applicable requirements of HUD-5370 General Conditions for Construction Contracts and Owner's Terms and Conditions. If there should be a conflict between the Owner Requirements and those herein, the higher standard shall apply.

PART 3 EXECUTION

3.1 CONTRACT ADMINISTRATION

A. Architect is providing contract administration services for this project to the Owner. However, it shall be the responsibility of the Contractor and Owner to coordinate the proposed work, schedules, installations, permits, inspections, etc. as Architect is not on-site every day.

B. Contact Architect for clarification should there be questions regarding the interpretation or intent of the documents, field discovery, etc. that would impact or affect the work as proposed. Architect shall not be liable for deviations, field changes, and Owner changes during construction.

C. Field confirm all existing conditions, proposed installations and how they interface to ensure the systems can be installed per the intent of the documents and to meet applicable building and zoning codes, local requirements, Owner requirements, provide a watertight detail, meet aesthetic requirements, etc.

D. Meet all applicable building and zoning codes requirements whether specifically noted herein or not. Building codes represent the minimum acceptable standard.

E. Install all products, materials, installations, and the like in accordance with applicable industry standards, applicable manufacturer's details and instructions, in accordance with best practices, and building code provisions. The manufacturer details / requirements are the minimum acceptable standard, Architect's drawings may require additional work.

3.2 GENERAL PROJECT REQUIREMENTS

A. Safety is paramount and all personnel on site must wear appropriate personal protection equipment [PPE]. The Contractor is responsible for means and methods to ensure that proper PPE is provided. Failure to comply may result in dismissal from site.

B. Barricade work area with appropriate construction grade barriers to establish boundaries of work area and assure safety for all workers and general public. All work areas must be properly barricaded from the general public prior to starting any work.

C. Job sites will be maintained in an orderly and neat fashion at all times.

END OF SECTION

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SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Schedule of values.

B. Applications for payment.

C. Change procedures.

D. Unit prices.

E. Alternates.

F. Project Allowances.

G. Defect assessment.

1.2 PREVAILING WAGE / PAYROLL REPORT REQUIREMENTS

A. The work of this project is subject to Davis-Bacon Prevailing Wages and applicable reporting requirements. Include in the bid amount all applicable prevailing wages.

B. Refer to the Prevailing Wage Rates included with the Bid documents. Certified Payroll Reports will be required.

C. Provide Certified payroll reports indicating compliance to the Owner on a monthly basis.
   1. Pay Applications will not be processed without approved payroll reports submitted to the Owner.

D. Employee interviews to confirm compliance with the prevailing wage requirements may be accomplished at any time by the Owner. Do not obstruct or otherwise prevent employee interviews.

1.3 TAXES

A. Pay all applicable taxes, including applicable sales and use taxes, and other taxes as required by governing law.
   1. Owner is a tax-exempt entity.
   2. Owner will provide tax exempt forms upon request.
   3. Owner will not compensate or reimburse Contractor for any taxes paid on the project.

1.4 RETAINAGE

A. Owner will withhold retainage in the amount of ten percent [10%] from the payment otherwise due [for both labor and materials] of each progress Application for Payment up to a total project completion of 50%, after which no further retainage will be withheld providing work is performing satisfactorily. Refer to HUD Form 5370.

B. Retainage will be released in accordance with the Terms of HUD Form 5370.

1.5 STORED MATERIALS [ON OR OFF SITE]

A. Owner will pay for materials stored on-site.

B. Owner will pay for materials stored off-site providing proper documentation of the stored materials is provided, including documentation of location of stored materials, supporting invoices, shipping / bill of lading, photo documentation, and proper insurance [paid for by the Contractor] is in place at the location of stored materials.

1.6 SCHEDULE OF VALUES

A. Submit schedule of values on HUD Form 51000 or AIA G702 / G703 forms.

B. Submit Schedule of Values three [3] days prior to the Pre-Construction meeting for approval by Architect and Owner.

C. Approved Schedule of Values will be signed at the Pre-Construction meeting.

D. Format:
   1. Utilize Table of Contents of this Project Manual [CSI Divisions].
   2. Identify each line item with number and title of major specification Section.
   3. Identify each applicable CSI division / defined work scope / component.
   4. Identify site mobilization, general conditions, bonds and insurance.
   5. Identify separate line item for each allowance and alternate [as applicable]

E. Schedule of values should be broken down by building / address.

F. Revise schedule to list approved Change Orders, with each Application for Payment.

1.7 APPLICATIONS FOR PAYMENT

A. Submit each application for payment on HUD Form 51001 or AIA G702/G703 forms.
   1. Provide an invoice number on the application for payment, or provide a cover letter invoice on company letterhead with an invoice number.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
   1. Complete every entry, notarize and execute by a person authorized to sign document on behalf of the Contractor. Include amounts for work completed following previous Application for Payment whether or not payment has been received, include amounts of Change Orders issued before last day of construction period covered by application.
   2. Stored materials included in application must have supporting documentation that verifies amount required, do not include overhead and profit on stored material.
   3. Each application for payment following the initial Application for Payment shall be consistent for payment with previous applications.

C. Payment Period: Monthly.

D. “Pencil Copy”: Submit one week prior to application for payment for review and approval by Architect and Owner. Submit Electronically to Architect in PDF format unless directed otherwise.

E. “Application for Payment”: Upon acceptance of the “Pencil Copy”, submit the “Application for Payment. Submit Electronically to Architect in PDF format unless directed otherwise. Architect will review, certify for payment, and submit to Owner.
   1. Submit updated construction schedule with each Application for Payment as applicable to the work.
   2. Submit all required waivers of lien / partial release of lien [including applicable subcontractors] in accordance with Owner requirements.
   3. Submit certified payroll reports for all contractors.

F. Failure to submit required paperwork, including supporting documents can delay the processing of the Application for Payment.

1.8 CHANGE PROCEDURES

A. Construction Bulletin: Architect / Owner may issue a Construction Bulletin [Proposal Request] including a detailed description of proposed change with supplementary or revised Drawings and specifications. Prepare and submit estimate within 7 days.

B. Stipulated Sum/Price Change Order: Based on Proposal Request / Construction Bulletin and Contractor's fixed price quotation.

C. Unit Price Change Order: For contract unit prices and quantities, the Change Order must be executed prior to beginning any work. The Change Order will be based on fixed unit price basis provided in the Bid Form.

D. Architect will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on Architect's approved forms.

E. Architect will issue a Change Order for all changes to Contract Sum and for all changes to the Contract Time upon Owner's approval of a proposal from Contractor.

F. Change Order Forms: HUD / AIA G701 or other approved forms with all required backup documentation.
   1. No "change order" will be prepared for costs expended from project allowances which do not require a change to contract sum or time.

G. Correlation Of Contractor Submittals:
   1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
   2. Promptly revise construction progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
   3. Promptly enter changes in Project Record Documents.

H. Important: All change orders must be fully executed prior to beginning any work. Failure to comply will result in contractor request being denied and completed at no cost to Owner.

1.9 UNIT PRICES

A. Document unit price quantities. Architect / Owner will confirm quantities as required. Contractor may not be paid for unit cost work without documentation of the work accomplished.

B. Unit Price Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of item of the Work; overhead and profit.

C. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Architect / Owner multiplied by unit price for Work incorporated in or made necessary by the Work.

1.10 UNIT PRICE SCHEDULE

A. None

1.11 ALTERNATES

A. Alternates listed on Bid Form will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work.

1.12 SCHEDULE OF ALTERNATES

A. None

1.13 PROJECT ALLOWANCES

A. Contingency Allowance:
   1. Provide in bid a draw down allowance in the amount of **$100,000 [one hundred thousand dollars]** for use as a project contingency allowance.

B. Building Permit Allowance:
   1. Provide in bid a draw down allowance in the amount of **$20,000 [twenty thousand dollars]** for securing applicable building / fire alarm permits.

C. Contractor's costs for Products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit are included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

D. Do not expend or proceed with work outside of the scope of the project which utilizes the contingency allowance without authorization and approval of Architect and Owner.

E. Identify and track actual expenditures as they occur over the duration of the project not afterward. Any work commenced without Owner approval is at Contractor's risk. Maintain a running tally of the remaining balance of each allowance.

F. Credit back to the Owner any unused funds at the end of the project via a Change Order.

1.14 FINAL APPLICATION FOR PAYMENT

A. Refer to provisions in Section 01 77 00 for Application for Payment at Substantial Completion.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Architect / Owner, it is not practical to remove and replace the Work, the Architect / Owner will direct appropriate remedy.

C. Authority of Architect / Owner to assess defects and identify payment adjustments is final.

D. Non-Payment For Rejected Products: Payment will not be made for rejected products.

END OF SECTION

SECTION 01 25 00 – SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 WORK INCLUDES

A. Includes administration and procedural requirement for Substitutions.
   1. Substitutions' for Cause: Changes due to project conditions, such as unavailable of product.
   2. Substitutions' for Convenience: Changes that may offer advantages to the Owner.

1.2 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions / Approved Equal: Submit request for substitution as outlined in this section for manufacturers not named.
   1. Architect / Owner is the decision maker if the proposed "approved equal" is in fact equal and approved. Any decision rendered is final.
   2. Any Contractor, Sub-contractor, or Supplier who makes their own judgement as to "approved equal" and includes within their bid without a formal approval is doing so at their own risk.

1.3 SUBSTITUTIONS PROCEDURES

A. The materials, products, and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. The burden of proof of the merit of the proposed substitution is upon the Bidder. Absolutely no substitutions shall be considered after the Contract award unless specifically noted in the Contract Documents. All substitution requests must come from a bidding Contractor [not materials suppliers, etc].

B. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

C. A request constitutes a representation that the Bidder:
   1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
   2. Will provide same warranty for Substitution as for specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.

D. Substitution Procedure
   1. **Submit copy of request for Substitution for consideration to Architect no later than seven [7] days before bid opening date**.
   2. Submit shop drawings, product data, and applicable certified test results attesting to proposed product equivalence. Burden on proof is on proposer.
   3. Architect will notify Contractor in writing of decision to accept or reject request within five [5] days of receipt of request or request additional information or documentation for evaluation.
   4. Limit each request to one proposed Substitution.
   5. Requests shall include the name of the material or equipment for which it is to be substituted and a completed description of the proposed substitution.
   6. Architect/Owner will notify Contractor in writing of decision to accept or reject request.
   7. Substitution requests shall only be submitted by registered bidders for the project.

E. Substitutions will not be considered when they are indicated or implied on Submittals, without written request or when acceptance will require revision to the Contract Documents.

F. If the Substitution requires modifications to the Contract / Bidding Documents, the cost for updating the documents shall be paid by the Contractor making the request.

G. Substitutions will not be considered after award of the project without justification.

H. Approved substitutions will be identified by Addenda.
   1. Bidders shall not rely upon approvals made in any other manner.

I. In submission of substitutions to Products specified, Bidders shall include in their Bid, changes required in the Work and Contract Price to accommodate such approved substitutions. Later claims by the Bidder for an addition to the Contract Time or Contract Price because of changes in Work necessitated by use of substitutions will not be considered.

END OF SECTION

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination and project conditions.

B. Construction Progress Schedules

C. Preconstruction meeting.

D. Progress meetings.

E. Pre-installation meetings.

F. Daily Job Logs.

G. Cutting and patching.

H. Special procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various sections of Project Manual / Specifications and Drawings to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
   1. Coordination Drawings: Prepare as required to coordinate all portions of Work.
   2. Coordination Meetings: In addition to other meetings specified, hold coordination meetings with personnel and subcontractors to ensure coordination of Work.

D. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements. Coordinate rough in locations for accessibility, clearances, maneuvering, etc.

E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD VERIFICATION

A. Prior to ordering materials, verify the actual dimensions of existing conditions and assume responsibility for workable solutions for all new work. Verification that new work and items are workable for existing conditions while providing adequate clearances is the responsibility of the Contractor.

1.4 CONSTRUCTION PROGRESS SCHEDULES

A. Illustrate order and interdependence of activities and sequence of work; how start of given activity depends on completion of preceding activities, and how completion of activity may restrain start of subsequent activities. Illustrate complete sequence of construction by activity.

Arrange schedule on a weekly basis identifying the first work day of each week. [Critical Path Schedule]

1. Work Sequences, order of operations, constraints, and milestones for the project, including all applicable Subcontract Work.
2. Material / equipment lead times.
3. Punchlist Activities
4. Substantial Completion and Contract Completion Dates.
5. Move-in and other preliminary activities.
6. Equipment and equipment system test and startup activities.
7. Project closeout and cleanup.

B. Submit initial progress schedule within seven [7] days after date of Owner-Contractor Agreement for Architect / Owner review.
   1. Include written certification that major subcontractors have reviewed and accepted proposed schedule.

C. Submit revised and updated schedules with each Application for Payment and as appropriate throughout the duration of the project.
   1. Indicate estimated percentage of completion for each item of Work at each submittal.

D. Review and Evaluation
   1. Participate in joint review and evaluation of schedules with Architect / Owner at each submittal.
   2. Evaluate Project status to determine Work behind schedule and Work ahead of schedule.
   3. Indicate changes required to maintain Date of Substantial Completion.
   4. After review, revise schedules incorporating results of review, and resubmit within three [3] days.

E. Distribute copies of updated schedules to Subcontractors, suppliers, Architect, Owner, and other concerned parties.

1.5 PRECONSTRUCTION MEETING

A. Architect / Owner will schedule preconstruction meeting after Notice of Award for affected parties.

B. Attendance: Architect, Owner, Contractor Project Manager, Foreman / Superintendent

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
   5. Designation of personnel representing parties in Contract, and Architect.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Scheduling.
   8. Use of premises by Owner and Contractor.
   9. Owner requirements for procedures and inspections
   10. Construction facilities and controls provided by Owner.
   11. Security and housekeeping procedures.
   12. Application for payment procedures.
   13. Procedures for maintaining record documents.
   14. Requirements for start-up of equipment.
   15. Inspection and acceptance of equipment put into service during construction period.

D. Architect will record minutes and distribute copies via email after meeting to participants and those affected by decisions made.

1.6 PROGRESS MEETINGS

A. Architect will be providing periodic observation of the work. Architect will issue field reports at each site visit. Architects will be observing the work for compliance with the specifications and will not be responsible for the ways, means and methods of constructing the project or managing the day to day operations.

B. Schedule and administer meetings throughout progress of the Work at bi-weekly intervals.
   1. Provide suitable accommodations for holding meetings on-site with a layout table, chairs, etc.

C. Architect will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.

D. Attendance Required: Job superintendent, major subcontractors and suppliers, Architect, Owner, as appropriate to agenda topics for each meeting.

E. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems impeding planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Maintenance of progress schedule.
   8. Corrective measures to regain projected schedules.
   9. Planned progress during succeeding work period.
   10. Coordination of projected progress.
   11. Maintenance of quality and work standards.
   12. Effect of proposed changes on progress schedule and coordination.
   13. Other business relating to Work.

F. Architect will record minutes and distribute copies via email after meeting to participants and those affected by decisions made.

1.7 PRE-INSTALLATION MEETINGS

A. Determine any and all necessary pre-installation meetings and schedule the same.

B. When required in individual specification sections, convene pre-installation meetings at Project site prior to commencing work of specific section.

C. Require attendance of parties directly affecting, or affected by, Work of specific section.

D. Notify Architect / Owner one week in advance of meeting date.

E. Prepare agenda and preside at meeting:
   1. Review conditions of installation, preparation and installation procedures.
   2. Review coordination with related work.

F. Record minutes and distribute to participants after meeting, and those affected by decisions made.

1.8 DAILY JOB LOGS

A. Maintain a daily job log that indicates the personnel on-site and activities performed (including all sub-contractors)

B. Indicate any safety concerns and incidents.

C. Indicate weather conditions.

D. Indicate any visitors or other personnel visiting the project site.

E. Job log shall be accessible to Architect / Owner upon request.

F. Coordinate activities / work progress with Architect / Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching; restore Work with new Products.

B. Submit written request in advance of cutting or altering elements affecting:
   1. Structural integrity of element.
   2. Integrity of weather-exposed or moisture-resistant elements.
   3. Efficiency, maintenance, or safety of element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching [including excavation and fill,] to complete Work, and to:
   1. Fit the several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

E. Cut masonry and concrete materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Documents.

G. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

H. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

J. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated materials, to full thickness of penetrated element. Follow applicable UL assemblies.

K. Refinish surfaces to match adjacent finishes.
   1. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.
   2. For painted surfaces, paint entire wall from corner to corner, floor to ceiling.

L. Identify hazardous substances or conditions exposed during the Work to Architect for decision or remedy.

3.2 SPECIAL PROCEDURES

A. Materials: As specified in product sections; match existing with new products for patching and extending work.

B. Employ skilled and experienced installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to permit installation of new work and finishes.

G. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original or specified condition.

H. Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with neat transition to adjacent finishes.

I. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

J. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect for review.

K. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

L. Finish surfaces as specified in individual product sections.

END OF SECTION

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SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures.

B. Proposed products list.

C. Product data.

D. Shop drawings.

E. Samples.

F. Safety Data Sheets

G. Manufacturer's Instructions

H. Manufacturer's Certificates

I. Construction Photographs

1.2 SUBMITTAL PROCEDURES

A. Submit product data and shop drawings for all applicable components of the project. Refer to individual sections for additional requirements.
   1. Provide a submittal log at the beginning of the project for review by Architect / Owner. Identify proposed submittals by Spec Section.
   2. Architect / Owner review of the submittals will be general in nature and does not relieve the Contractor in any way of the responsibility in compliance with the contract requirements, manufacturer requirements, and/or applicable codes.

B. Accomplish all submittals in a digital [PDF format].
   1. Any hard copies received will be scanned and returned electronically.
   2. Provide those submittals required to maintain orderly progress of the work and those required for early lead time for manufacturer fabrication.
   3. Do not simply download information directly from a manufacturer’s website without a review of the information and **identifying the particular products being utilized**.
   4. Mark each component to identify applicable products, models, options, and other data. Supplement manufacturer’s standard data to provide information unique to this project. Non-identified submittals will be rejected.

C. Provide a Submittal form / cover sheet to identify Project, Contractor, subcontractor or supplier; and pertinent Contract Document references.
   1. Allow space on submittal form / cover sheet for Contractor and Architect review stamps.
   2. Sequentially number transmittal forms.
   3. Mark revised submittals with original number and sequential alphabetic suffix.
   4. Sign off on submittals indicating Contractor review of the data provided.

D. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of completed Work.

F. Revise and resubmit submittals as required; identify changes made since previous submittal.

G. Schedule / complete all submittals at the beginning of the project / with adequate time to allow the proper ordering of materials for the project.

1. Failure by the Contractor to provide submittals in a timely fashion does not change the project start date nor contract period.
2. Failure by the Contractor to order materials timely is not a reason for selection of an alternate material.

H. Any materials on the job site that have not been reviewed as part of the submittal process are subject to rejection / removal from the job-site. Any work undertaken without review of the submittal data is at the Contractor's risk and subject to rejection or replacement at no cost to the Owner if submittals are not in conformance with the project documents.

I. For each submittal for review, allow seven [7] days excluding delivery time to and from Contractor.

J. Architect will return the annotated submittal file via email as PDF electronic files.

K. Submittals will be marked as follows:
1. NO EXCEPTIONS TAKEN: Distribute copies to subcontractors and related trades.
2. NOTE MARKINGS: Final Release; Proceed with fabrication, taking into account the necessary corrections on submittal and with Contract Documents.
3. NOTE MARKINGS/RESUBMIT: Proceed with fabrication, taking into account the necessary corrections. Resubmit corrected shop drawings before fabrication of this work is complete to obtain a different action marking. Do not allow drawings marked "Resubmit" to be used in connection with installation of the Work.
4. REJECTED: Resubmit shop drawings in their entirety. No fabrication or installation shall be started until shop drawings so marked have been completely revised, resubmitted, and marked by Architect according to preceding Paragraphs.

L. Distribute copies of reviewed submittals as appropriate [electronically as appropriate]. Instruct parties to promptly report inability to comply with requirements.

1.3 PROPOSED PRODUCTS LIST

A. Within fourteen [14] days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.4 SUBMITTALS / PRODUCT DATA / SHOP DRAWINGS

A. Product Data/Shop Drawings:
1. Submitted to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
2. All shop drawings shall be to scale, submit drawings on sheets no larger than 24-inch x 36 inch, all other product data can be on 8 ½ X 11-inch sheets.

B. Samples for Review:
1. Submitted to Architect for review and selection for aesthetic, color, or finish.
2. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns for Owners selection.
3. Submit samples to illustrate functional and aesthetic characteristics of Product.

C. Personnel/Other Contractors
1. Submit a list of all subcontractors and on-site personnel with the list of lead contact and associated phone numbers.
2. Submit emergency contact sheet with contacts for an emergency – 24/7 call list.

D. Contract Items:

1. Submit Certificate of Insurance, Worker's Comp Certificates as required by Owner.
2. Submit bonds if applicable to the contract.
3. Submit a written Construction Schedule / Implementation and Sequencing Plan outlining starting points and length of time to complete work in each section.

E. Site Specific Safety Plan
   1. Provide to Owner for their Review.

F. Site Logistics Plan
   1. Provide to Owner for their Review.

1.5 SAMPLES

A. Physical Samples: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   1. Physical samples are required to allow Architect to make selections for color and finish. Electronic images of colors/finishes, etc. are not sufficient.

B. Samples For Selection as Specified in Product Sections:
   1. Submit to Architect for aesthetic, color, or finish selection.
   2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Architect selection.

C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

D. Include identification on each sample, with full Project information.

E. Submit 2 copies of each sample, Architect will retain 1 copy.

F. Reviewed samples which may be used in the Work are indicated in individual specification sections.

1.6 SAFETY DATA SHEETS

A. Submit Safety Data Sheets [SDS] on all products directly to the Owner – DO NOT submit to Architect.
   1. Safety Data Sheets [SDS] shall not be submitted to the Architect for review.
   2. Any SDS submitted to Architect will be returned with no action taken. Architect does not review / approve any SDS sheets. Any submittals provided to Architect with SDS will be rejected, or have the SDS removed / crossed out from the submittal.

B. Safety Data Sheets relate directly to construction safety, which is the sole responsibility of the Contractor.

C. In compliance with the OSHA Hazard Communication Standard (1910.1200, 08-24-1987), Post at the site SDS [Safety Data Sheets] for ALL products classified as hazardous that their firm has knowledge that they will be furnishing, using, or storing on the jobsite during the duration of this Project in accordance with OSHA standards.

1.7 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, [start-up,] adjusting, and finishing, in quantities specified for Product Data.

B. Indicate special procedures, conditions requiring special attention, and special environmental criteria required for application or installation.

1.8 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification sections, submit certifications by manufacturer to Owner, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Products, but must be acceptable to Architect / Owner.

1.9 CONSTRUCTION PHOTOGRAPHS

A. Provide digital photographs of construction throughout progress of Work as taken by project superintendent as applicable to document the existing conditions, work in progress, completed work, project wrap up, etc. It is in the best interest of the contractor to document the conditions as this is an occupied unit project.

B. Deliver photographs to Architect / Owner upon request. Catalog and index in chronological sequence with date indexed.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

A. Electronic CAD Files of Project Drawings: May only be used to expedite production of Submittal / Shop Drawings for the Project. Use for other Projects or purposes is not allowed.

B. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
   1. Use of files is solely at receiver's risk. Architect does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Architect of discrepancy and use information in hard-copy Drawings and Specifications.
   2. CAD files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
   3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.
   4. Receiver shall not hold Architect responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.
   5. Receiver shall understand that even though Architect has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
   6. Receiver shall not hold Architect responsible for such viruses or their consequences, and shall hold Architect harmless against costs, losses, or damage caused by presence of computer virus in files or media.
   7. Architect reserves the right to assess a fee for the release of the electronic CAD files. Coordinate with Architect as appropriate.

END OF SECTION

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SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality control.

B. Construction Procedures

C. Tolerances

D. References.

E. Labeling

F. Mock-up requirements.

G. Examination & Inspection.

H. Testing and Inspection Services [Special Inspections]

1.2 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 CONSTRUCTION PROCEDURES

A. Architect / Owner intends to routinely monitor the Contractor’s work and progress. Quality control is an important element which is the responsibility of the Contractor. Provide full cooperation with all inspection steps through the construction process and include such coordination in the base bid of the project.

B. Provide accessibility to the work, including but not limited to ladders, scaffolding, hoisting, etc in order to make all areas of the work available to Architect / Owner. Provide staffing to support these operations.

C. Inspect the Work prior to requesting a punchlist inspection. Address / correct any deficiencies and provide written confirmation of such with the request to schedule the punchlist inspection by the Architect / Owner. Refer to Section 01 77 00.

D. Owner will coordinate and schedule an anniversary inspection for the one year interval following acceptance of the project.

1.4 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.5 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.6 LABELING

A. Attach label from agency approved by Authority having Jurisdiction for products, assemblies, and systems required to be labeled by Applicable Code.

B. Label information: include manufacturer’s or fabricator’s identification, approved agency information, and the following information, as applicable, on each label.
   1. Model number
   2. Serial number
   3. Performance characteristics

C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.7 MOCK-UP REQUIREMENTS

A. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes as directed by Architect / Owner.

B. Accepted mock-ups shall be comparison standard for remaining Work follow requirements of individual sections.

C. Where mock-up has been accepted by Architect / Owner and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

1.8 TESTING AND INSPECTION SERVICES [SPECIAL INSPECTIONS]

A. Owner will employ and pay for specified services of on an independent firm to accomplish Third Party Special Inspections as outlined on the Drawings.

B. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
   1. Notify independent firm **24** hours before expected time for operations requiring services.
   2. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.

C. Employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.

D. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Architect. Payment for retesting or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum.

E. Agency Reports: After each test, promptly submit an electronic copy of report to Architect, Contractor, and Owner. When requested by Architect, provide interpretation of test results.

F. Limits on Testing Authority:
   1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency or laboratory may not approve or accept any portion of the Work.
   3. Agency or laboratory may not assume duties of Contractor.
   4. Agency or laboratory has no authority to stop the Work.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

E. Contact Utility Protection Services [Call 811] a minimum of 48 hours prior to beginning work to verify location of existing utilities, coordinate requirements as applicable.
   1. Contact private utility locating services as required by the conditions. Locate all public and private utilities that may be impacted by the work.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

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SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities

B. Construction Facilities

C. Temporary Controls

D. Removal of utilities, facilities, and controls

1.2 TEMPORARY ELECTRICITY

A. Refer to GDPM's Terms and Conditions

B. Utilize existing utilities at the building as required to facilitate work. Maintain existing utilities operational throughout the duration of the project. If systems need to be out of service, schedule this work for off-hours, coordinate with Owner. DO NOT use Resident utilities.

1.3 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide temporary lighting for construction operations as required by conditions and where existing lighting has been removed to facilitate work.

1.4 TEMPORARY HEATING / COOLING / VENTILATION

A. Shut down HVAC systems during dusty activities. Provide and maintain filtration media at all HVAC systems.

B. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

C. Provide temporary fan units as required to maintain clean air for construction operations.

1.5 TEMPORARY WATER SERVICE

A. Not Applicable.

1.6 TEMPORARY PROTECTION OF FIRE SPRINKLER / FIRE ALARM SYSTEMS

A. Coordinate with fire sprinkler system and fire alarm system / monitoring company to maintain systems operational. This includes temporary protection and coordination of monitoring company to put system in test mode as applicable to the work.
   1. Provide and maintain a proper fire watch within the building at any time when systems are in test mode.

1.7 TEMPORARY SANITARY FACILITIES

A. Provide temporary sanitary facilities for use during construction. Maintain daily in clean and sanitary condition.
   1. Do not use building toilet facilities for temporary facilities unless specifically authorized.
   2. Do not use new plumbing fixtures for temporary facilities.
   3. Do not use other Owner facilities without explicit approval.
   4. Protect temporary facilities from vandalism.

B. Provide potable drinking water for workers.

1.8 TEMPORARY BARRICADES

A. Erect temporary barricades as applicable to the work to maintain security, dust control, protect residents, etc.

B. Provide additional barricades, barriers, or protection necessary to protect work areas at traffic lanes, parking lots, etc.

C. Provide all applicable signage to limit non-construction personnel from entering the construction area.

D. Provide temporary emergency egress and exit signage as required by conditions and where existing has been temporarily removed to facilitate work.

1.9 STAGING AREA / MATERIAL STORAGE

A. Coordinate with Owner on acceptable location of project staging and material storage area.

B. Do not anticipate any space for storage of materials in the building / work areas or adjacent building areas.

C. Provide secured, portable storage containers for temporary / construction storage as required by the Contractor.
   1. Do not anticipate any space for storage of materials in the building / work areas or adjacent building areas.
   2. Coordinate location of storage containers with Owner.
   3. Protect / restore site as applicable to the conditions to original conditions.

D. Owner will make reasonable effort to provide suitable space on the site for the Contractor to set up operations. Moving from this space may be necessary when instructed by the Owner and shall be accomplished without charge to the Owner. Cooperate with Owner to minimize conflict from Owner's operations.

1.10 FIELD OFFICE

A. Provide securable on-site space for storage as required by the Contractor. Coordinate with Owner for approved location of such storage space.

B. Provide field office for construction operations as deemed necessary by Contractor. Pay for field offices and related expenses.

1.11 VEHICULAR ACCESS

A. Utilize existing street parking / driveways / parking areas for construction activities. Do not block or prohibit vehicular access to adjacent buildings / parking areas. Do not allow driving/parking in turf areas.

B. Provide unimpeded access for emergency vehicles. Maintain 20 feet wide driveways with turning space between and around combustible materials.

C. Provide and maintain access to fire hydrants and control valves free of obstructions.

1.12 CONSTRUCTION ACCESS DRIVE

A. Not Applicable.

1.13 PARKING

A. Park Contractor vehicles in areas designated by the Owner. Construct temporary gravel parking areas as necessary to accommodate construction personnel.

B. Use of designated existing on-site driveways, parking areas, and / or street parking used for construction traffic is permitted. Tracked vehicles not allowed on paved areas.
   1. Do not block access to existing parking lots, driveways, etc. with construction equipment, material laydown, or storage areas.
   2. Do not block resident vehicles or those of adjacent buildings with a shared driveway.

C. Do not allow heavy vehicles or construction equipment in parking areas.

D. Maintenance:
   1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
   2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

E. Removal, Repair:
   1. Repair existing and permanent facilities damaged by use, to original or specified condition.

1.14 PROGRESS CLEANING AND WASTE REMOVAL

A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition to the satisfaction of the Owner. Clean up shall occur on a DAILY basis.
   1. Failure to provide routine and daily cleanup may result in a back charge from the Owner to accomplish this work.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from site daily and dispose off-site. Sort and recycle as applicable.

E. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the work. Keep all work areas and project sites neat and free of trash and clutter at all times. Project site consists of occupied apartment units. Do not leave trash around the project site. Take all considerations necessary for safety.

1.15 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections. Restore any damaged work to new condition.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Protect finished pavement, concrete, stairs, finish flooring, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

D. Prohibit traffic or storage upon waterproofed or roofed surfaces, finished surfaces, etc as is applicable to the work. When traffic or activity is necessary, obtain recommendations for protection from the material manufacturer and provide all required protection as determined necessary. Any damage caused shall be repaired to like new condition.

E. Prohibit traffic from landscaped areas.

1.16 FIRE PREVENTION FACILITIES

A. Prohibit smoking within building or on site under construction. **NO SMOKING IS PERMITTED ON HUD PROPERTY [INTERIOR OR EXTERIOR]. NO EXCEPTIONS.**
   1. Contractor / Crew found to be smoking will be subject to a $500 fine per occurrence. Any habitual offenders will be dismissed from the project.

B. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

C. Portable Fire Extinguishers: NFPA 10; 10 pound capacity, 4A-60B: C UL rating.
   1. Provide one fire extinguisher at each building under construction.
   2. Provide minimum one fire extinguisher in storage shed.
   3. Supplement as necessary per the local fire department requirements for construction operations.

1.17 BARRIERS

A. Provide barriers [construction fencing] to prevent unauthorized entry to construction areas.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

C. Protect Work existing premises from theft, vandalism, and unauthorized entry.

1.18 SECURITY

A. Security Program:
   1. Protect Work and existing premises from theft, vandalism, and unauthorized entry.
   2. Maintain program throughout construction period until Owner occupancy

B. Entry Control:
   1. Restrict entrance of persons into Project site.
   2. Allow entrance only to authorized persons with proper identification.
   3. Maintain log of workers and visitors, make available to Owner on request.

1.19 DAILY JOB LOGS

A. Maintain a daily job log that indicates the personnel on-site and activities performed (including all sub-contractors)

B. Indicate any safety concerns and incidents.

C. Indicate weather conditions.

D. Indicate any visitors or other personnel visiting the project site.

E. Job log shall be accessible to Owner and Architect upon request.

1.20 DUST CONTROL

A. Execute work by methods to minimize raising dust from Construction operations.

B. Provide positive means to prevent air-borne dust from dispensing into atmosphere and to other areas of the project as applicable.

C. Provide temporary visqueen dust control measures to minimize the spread of dust and debris. Provide drop cloths, protective coverings as necessary.

D. Provide protection of existing HVAC / distribution systems.

1.21 POLLUTION AND ENVIRONMENTAL CONTROL

A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

B. Provide dust control, erosion and sediment control, etc. to allow for proper execution of the Work.

C. Provide protective coverings, etc. as necessary to protect work.

1.22 EROSION AND SEDIMENT CONTROL

A. Not Applicable.

1.23 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove existing utilities, connections, finishes, etc. as applicable to the work. Remove back to the nearest termination, junction box, etc. as applicable to the work. Coordinate with requirements on the drawings.

B. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Product requirements.

B. Product options and substitution procedures.

C. Equipment electrical characteristics and components.

1.2 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.
   1. All products used on this project shall be new, unless otherwise noted on the drawings or as specified herein as salvaged or reused.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by the Contract Documents.

C. Provide interchangeable components of same manufacturer for components being replaced.

D. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.

E. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.

F. Furnish interchangeable components from same manufacturer for components being replaced.

G. **Order Products in the first 30 days of the contract**. **Provide documentation of orders upon request.**

H. **It shall be solely the Contractor's responsibility to order products to allow timely delivery for installation. The failure to order materials early in the project shall not be a reason for a contract time extension or additional costs related to expedited shipping and/or delivery. Nor shall this be a reason for a product substitution.**

1.3 BUILD AMERICA, BUY AMERICA [BABA] REQUIREMENTS

Build America, Buy America Requirements do not apply to this project.

~~A. BABA is the Build America, Buy America Act. BABA requires any "infrastructure project" funded by any "Federal Financial Assistance" (FFA) apply a domestic content procurement preference, meaning that all iron, steel, manufactured products, and construction materials used in the infrastructure project have been produced in the United States, unless the awarding agency has issued a waiver of this requirement. This is called the "Buy American Preference" (BAP)~~

~~B. HUD Hyperlink: https://www.hud.gov/program_offices/general_counsel/build_america_buy_america~~

~~C. BAP is not applicable to projects less than $250,000.~~

1.4 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.

1. Model number.
2. Serial number.
3. Performance characteristics.

1.5 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

D. Coordinate material delivery to minimize Owner involvement.

1.6 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products in accordance with manufacturers' instructions.
   1. Remove any damaged materials from the site.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

F. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

H. Secure all products to prevent blow off / blow over during weather events, wind, etc.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.7 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions / Approved Equal: Submit request for substitution as outlined in this section for manufacturers not named.
   1. Architect / Owner is the decision maker if the proposed “approved equal” is in fact equal and approved. Any decision rendered is final.
   2. Any Contractor, Sub-contractor, or Supplier who makes their own judgement as to “approved equal” and includes within their bid without a formal approval is doing so at their own risk.

1.8 PRODUCT SUBSTITUTION PROCEDURES – REFER TO SECTION 01 25 00

PART 2 PRODUCTS

2.1 EXTRA MATERIALS

A. Provide attic stock of finish materials totaling 5% [or as noted herein] of the total installation.

B. Provide minimum of [1] gallon of each finish paint color.

C. Coordinate turnover of extra materials to Owner, assist in placing materials in a location suitable to the Owner.

2.2 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.

B. Deliver to Owner and place in location as directed; obtain receipt prior to final payment. Items shall be boxed and labeled with contents.

2.3 EQUIPMENT ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Include lugs for terminal box.

B. Cord and Plug: Furnish minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.4 TOLERANCES

A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply fully with manufacturer’s tolerances.

C. Adjust products to appropriate conditions. Position before securing products in place.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 73 00 - EXECUTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Construction Safety / Safety Program

B. Construction Layout

C. General Installation of Products

D. Starting of Systems

E. Demonstration and Training

F. Removals and Cleanup

G. Protection of Installed Construction

1.2 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this project in material, design, and extent.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturers written recommendations and instructions for installation of products and equipment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. **Beginning new Work means acceptance of existing/job-site conditions.**

B. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

C. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water service piping.
2. Verify the location of underground electrical services, natural gas piping and other utilities.
3. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

D. Contact OUPS a minimum of 48 hours prior to beginning work to verify location of existing utilities, coordinate requirements as applicable.
   1. Contact private utility locating services as required by the conditions. It is the Contractor's responsibility to locate all public and private utilities that may be impacted by the work.

E. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

F. Examine and verify specific conditions described in individual specification sections.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Architect / Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a RFI request to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

E. Clean substrate surfaces prior to applying next material or substance.

F. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.3 FIELD VERIFICATION

A. Prior to ordering materials, Contractor shall verify the actual dimensions of existing conditions and assume responsibility for workable solutions for all new work. Verification that the new work and items are workable for existing conditions while providing adequate clearances is the responsibility of the Contractor.

3.4 CONSTRUCTION SAFETY / SAFETY PROGRAM

A. Develop, implement, and maintain a written safety program for all operations/ work performed on this project. Keep these documents at the job site and make available to the Architect / Owner upon request.

B. Assume all responsibility for project safety, ways, and means and methods of constructing the project. Engage safety consultant as may be necessary for the execution of the work.

C. In addition, the Owner may require special safety requirements to be performed by the Contractor, these requirements will be provided prior to commencement of work.

3.5 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect / Owner promptly.
   1. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction. Do not change or relocate benchmarks or control

points without prior written approval. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.

2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.

B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.
   1. Establish permanent benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
   2. Verify setbacks and esasements.
   3. Establish limits on use of Project Site.
   4. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
   5. Inform installers of lines and levels to which they must comply.
   6. Check the location, level and plumb, of every major element as the Work progresses.
   7. Notify Architect / Owner when deviations from required lines and levels exceed allowable tolerances.
   8. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

3.6 INSTALLATION, GENERAL

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
   4. Maintain minimum headroom clearance, coordinate with Architect.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Contract Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   1. Mounting Heights: Coordinate with Architect as applicable.
   2. Allow for building movement, including thermal expansion and contraction.

3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
4. Electrical wiring and associated metallic conduit shall not be embedded within roof assemblies or placed directly below roof decks. Electrical wiring or metallic conduit located near roof assemblies shall be positioned and supported at least 10 inches away from the bottom side of the metal roof deck or other substrate to which a roof system has been or will be applied.
5. Suspension wires, straps, chains, and metal framing such as those used to support the following shall not be attached to or through steel roof decks.
    a. Bulkheads.
    b. Suspended ceilings.
    c. Fire-suppression systems.
    d. Ductwork.
    e. Lighting.
    f. Similar items.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

3.7 PROTECTION

A. Accomplish all work in accordance with the provision of Federal, State American Standard Safety Code for Building Construction and OHSA safety requirements.
    1. Provide all aspects of project safety including protective railings and guards, tie-offs, fall protection, and other safety measures as required by OSHA, even if not specified. Fall protection is required. Architect is not a safety consultant and as such does not direct the means and methods of compliance with safety regulations.

B. Protect and maintain all building entrances, interior contents, building exterior and grounds.
    1. Return all surfaces to their original condition after all work is complete.

C. Replace / Repair any damages [including interior or exterior equipment / finishes] at no expense to the Owner in the event of damages of any kind caused by improper protection.

D. Comply with all regulations of the Local Fire Department and the Owner's requirement regarding storage and handling of flammable materials, etc. Comply with the safety provisions of the National Fire Code pertaining to such hot work. Contractor is responsible for all damage or fines resulting from failure to comply.

3.8 STARTING OF SYSTEMS

A. Coordinate schedule for startup of various equipment and systems.

B. Notify Architect / Owner seven [7] days prior to startup of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

G. Adjust operating components for proper operation to ensure smooth and unhindered operation in accordance with manufacturer requirements.

H. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.9 TESTING, ADJUSTING, AND BALANCING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.10 DEMONSTRATION AND TRAINING

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled times, at equipment location.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner’s personnel in detail to explain all aspects of operation and maintenance.
   1. Prepare and insert additional data into the operations and maintenance manuals when the need for additional data becomes apparent during instruction.

3.11 REMOVALS AND CLEANUP

A. Remove and demolish of items that are required for proper completion of the work as applicable in each section. All debris resulting from the work not designated for reuse becomes the property of the Contractor unless stated otherwise.

B. Keep all work areas and project sites neat and free of trash and clutter at all times.

C. Maintain the work areas, including all subcontractor’s work, clean of all debris to the satisfaction of the Owner at the completion of each work day [daily cleanup].

D. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the work.
   1. No Debris, materials, etc. may be left unprotected on the grounds.
   2. All exterior staging / dumpster areas must be fenced / protected.

3.12 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Contract Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished pavement, concrete, floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces, finished surfaces, etc as is applicable to the work. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer and provide all required protection as determined necessary. Any damage caused shall be repaired to like new condition.

G. Prohibit traffic from landscaped areas.

3.13 CORRECTION OF WORK

A. Repair or remove and replace damaged, defective, or nonconforming work. Restore damaged substrates and finishes.
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with watching materials, and properly adjusting operating equipment.

B. Repair work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 01 77 00 - CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 WORK INCLUDES

A. Punchlist Requirements

B. Substantial Completion

C. Final Contract Completion

D. Project Record Documents

E. Warranties

F. Final Cleaning

G. Repair of Work

1.2 PUNCHLIST REQUIREMENTS

A. Review and inspect all Work prior to notifying Architect / Owner for a Punchlist inspection of the work.
   1. Provide seven [7] day notice prior to work being complete to establish desired inspection date. Architect / Owner will either proceed with the inspection or notify Contractor of unfulfilled requirements.
   2. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for punch list inspection.

B. Architect / Owner will inspect the completed project and notify the Contractor of any deficiencies. Deficiencies will form 'punch list' for final acceptance.

C. If work is clearly not complete, the Punchlist will be suspended until such time that it is evident that the Contractor has completed and reviewed / inspected their own work.
   1. Architect anticipates [1] punchlist inspection and [1] back-punch / final inspection as part of services to the Owner.
   2. Failures by the Contractor to complete the work, complete punchlists, etc. may result in a backcharge to the Contractor for the additional time to closeout the project.

D. Review and provide the noted repairs and corrective work necessary at each of the Punchlist inspections to allow project close out.
   1. Back-punch walk through may result in additional punchlist items which need to be addressed by the Contractor.

E. Provide / allow adequate time in the construction schedule to accomplish punchout work within the overall contract period indicated within the bid documents.

F. The failure to identify any punchlist item during a walk through / inspection does not release the Contractor from contractual responsibility to address any item during the warranty period.

1.3 SUBSTANTIAL COMPLETION

A. A Certificate of Substantial Completion [AIA Form G704] will be issued upon completion of all the work. Certificate of Substantial Completion will set forth the date of warranty commencement, work yet to be completed, timeline for completion of that incomplete work, and value of that incomplete work.

1.4 FINAL CONTRACT COMPLETION

A. Provide the following items to the Owner prior to acceptance and final payment
   1. Evidence that any open claims or disputes are resolved.

2. Notarized affidavit of waiver of liens [contractor of record], sub-contractors and material suppliers
3. Final Permit approval / inspection / Certificate of Occupancy from authorities having jurisdiction
4. Final Application for Payment.
   a. Submit a final Application for Payment according to Section 01 29 00, Payment Procedures.
5. Documented evidence of completing 'punch list' as applicable.
6. Manufacturer's original warranties, including contractor maintenance agreements and warranties as applicable.
7. O+M Manuals
8. Manufacturer's maintenance and repair instructions.
9. As-Built / Record Drawings.
10. Final cleaning.
11. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

1.5 PHOTOGRAPHIC DOCUMENTATION

A. When requested by the Owner, photos of the completed punch list along with any supporting documentation can be submitted, in lieu of a final walkthrough.

1.6 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Construction Bulletins / Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings: Legibly mark each item to record actual construction as follows:
   1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
   2. Include locations of concealed elements of the Work.
   3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
   4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
   5. Identify and locate existing buried or concealed items encountered during Project.
   6. Measured depths of foundations in relation to finish first floor datum.
   7. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

8. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
9. Field changes of dimension and detail.
10. Details not on original Drawings.

G. Submit documents to Architect / Owner upon completion of Work.

1.7 WARRANTIES AND GUARANTEES

A. Refer to Owner Contract Requirements / Terms and Conditions for Additional information and requirements.

B. General: The warranty and guarantee provisions of the General Conditions apply to all work of the contract, including but not limited to the following specific categories related to individual units of work specified in various sections of these specifications:
1. Special Project Warranty (Guarantee): A warranty specifically written and signed by the Contractor for a defined portion of the work, and, where required, countersigned by sub-contractor, installer, manufacturer, or other entity engaged by the Contractor.
2. Specified Product Warranty: A warranty which is required by the contract documents, to be provided for a manufactured product incorporated in the Work, regardless of whether manufacturer has published a similar warranty without regard for specific incorporation into the work, or has written and executed a special project warranty as a direct result of contract document requirements.
3. Coincidental Product Warranty: A warranty which is not specifically required by the Contract Documents (other than as specified in this Section); but which is available on a product incorporated into the work, by virtue of the fact that the manufacturer of the product has published a warranty in connection with purchases and users of the product without regard for specific applications except as otherwise limited by terms of the warranty.

C. All work undertaken as part of the project shall be warranted for a period of not less than [1] year. Individual sections / products may have specific additional warranty requirements.

D. Provide notarized copies of warranty documents to the Owner.
1. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers.

E. Original warranties are required to be provided to the Owner prior to final payment.

PART 2 PRODUCTS

Not Required

PART 3 EXECUTION

3.1 FINAL CLEANING AND SITE REPAIR

A. Provide final cleaning of all work areas:
1. Execute final cleaning prior to final inspection.
2. Clean Project site, yard, and grounds in areas disturbed by Construction activities.
3. Sweep paved areas broom clean. Remove all spills, stains, and foreign deposits.
4. Rake grounds that are neither planted or paved to a smooth, even textured surface.
5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
6. Remove debris and surface dust from roofs, plenums, values, attics, and similar spaces.
7. Sweep concrete floors broom clean in non-occupied spaces.
8. Vacuum carpet and soft surfaces to remove debris. Shampoo if conditions warrant.

9. Clean transparent materials including glass in doors and windows. Remove glazing compounds.
10. Remove all labels which are not permanent.
11. Clean plumbing fixtures to sanitary condition, free of all stains.
12. Replace air filters.
13. Clean ductwork if utilized during construction without proper protection.
14. Clean light fixtures, globes, reflectors.
15. Clean interiors of all cabinetry.
16. Remove waste and surplus materials, rubbish, and construction facilities from site.

B. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Contract Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION

SECTION 01 78 00 – OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Operation and Maintenance Manuals.

1.2 OPERATION AND MAINTENANCE MANUALS

A. Organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system.

B. Binder cover: printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project. Label on the front and spine of the binder.

C. Title Page: Include the following information:
   1. Subject matter included in manual.
   2. Name and address of Project.
   3. Name and address of Owner.
   4. Date of submittal.
   5. Name and contact information for Contractor.
   6. Name and contact information for all Sub-Contractors.
   7. Name and contact information for all Major Suppliers.
   8. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.

D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
   1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

E. Manual Organization:
   1. Organize into sets of manageable size. Arrange contents by CSI division. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
   2. Internally subdivide binder contents with permanent page dividers, logically organized, with tab titles legibly printed under reinforced laminated plastic tabs.

F. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents.

G. Submit O+M manuals prior to Contract Completion.
   1. Bind one [1] hard copy in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.
   2. Create [2] digital copies in PDF format in a format and organization to match the hard copy.

H. Content:
   1. Title Page
   2. Table of Contents
   3. Permit and Inspection Information
   4. Project submittals, organized by CSI division
   5. Operation and maintenance instructions, arranged by CSI division and system.
      a. Building Products, Equipment, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations.

b. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
c. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and special operating instructions.
d. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
e. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; service schedule, disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
f. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
g. Spare Parts List and Source Information.
h. Maintenance Service Contracts.

6. Project documents and certificates.
   a. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers.
7. Colors / finishes / samples
8. Other documentation required.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02 41 16 - SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Demolishing designated building equipment and fixtures.
   2. Demolishing designated construction.
   3. Cutting and alterations for completion of the Work.
   4. Removing designated items for salvage by Owner.
   5. Protecting items designated to remain.
   6. Removing demolished materials.

1.2 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of capped utilities, concealed utilities, discovered during demolition and any subsurface obstructions or conditions that require noting.

1.3 QUALITY ASSURANCE

A. Conform to applicable code for demolition work, dust control, protection, products requiring electrical disconnection and re-connection

B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered.

C. Obtain required permits from authorities having jurisdiction.

1.4 SCHEDULING

A. Schedule Work to coincide with proposed alterations and improvements.

B. Coordinate Work with Work by Others and Work by Owner as needed.

C. Coordinate utility and building service interruptions with Owner.
   1. Do not disable or disrupt site fire or life safety systems without three days prior written notice to Owner.

D. Schedule tie-ins to existing systems to minimize disruption.

1.5 PROJECT CONDITIONS

A. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

A. Notify affected utility companies before starting work and comply with their requirements.

B. Call Local Utility Line Information service not less than three working days before performing Work.
   1. Request underground utilities to be located and marked within and surrounding construction areas. Supplement with private locator company as is applicable and required to fully locate and identify existing underground utilities, including both public and private.

C. Mark location and termination of utilities.

D. Erect, and maintain temporary barriers and security devices including warning signs and lights, and similar measures, for protection of the public, Owner, and existing improvements indicated to remain.

E. Erect and maintain weatherproof closures for exterior openings as applicable to work/scope.

F. Erect and maintain temporary partitions.

G. Prevent movement of structure; provide temporary bracing and shoring as required.

H. Provide appropriate temporary signage.

I. Do not close or obstruct building egress path.

J. Do not disable or disrupt building fire or life safety systems without **three** days prior written notice to Owner. Coordinate with Fire Department / Building Official.

K. Protect existing structure / items to remain.

3.2 SALVAGE REQUIREMENTS

A. Coordinate with Owner to identify building components and equipment required to be removed and delivered to Owner.

B. Tag components and equipment Owner designates for salvage.

C. Protect designated salvage items from demolition operations until items can be removed.

D. Carefully remove building components and equipment indicated to be salvaged.

E. Disassemble as required to permit removal from building.

F. Package small and loose parts to avoid loss.

G. Mark equipment and packaged parts to permit identification and consolidation of components of each salvaged item.

H. Prepare assembly instructions consistent with disassembled parts. Package assembly instructions in protective envelope and securely attach to each disassembled salvaged item.

I. Deliver salvaged items to location identified by Owner. Obtain signed receipt from Owner.

3.3 DEMOLITION

A. Provide all demolition and removals necessary for the proposed work. Field coordinate all conditions with the design intended on the drawings.
   1. Drawings are diagrammatic and may not reflect the full extent of demolition / removals required to accomplish the proposed scope of work.
   2. The Contractor shall coordinate design intent and verify that all demolition work and restoration / repair work required is included in the scope of the project, regardless of specifically being noted on the drawings.
   3. Work includes abandoned furnishings, equipment, and building components that are required to be removed to render rent ready.
   4. Confirm with GDPM personnel prior to demolition to verify any items to be salvaged and turned over to GDPM.

B. Provide abatement of hazardous materials from the buildings as applicable for the completion of the work.

C. Conduct demolition to minimize interference with adjacent and occupied buildings/units.

D. Maintain protected egress from and access to adjacent existing buildings/units at all times.

E. Cease operations immediately when structure appears to be in danger and notify Architect/Engineer.

F. Disconnect and remove utilities within demolition areas, refer to Drawings.

G. Cap and identify abandoned utilities at termination points when utility is not completely removed.

H. Do not close or obstruct roadways or sidewalks without permits.

I. Demolish in orderly and careful manner. Protect existing improvements.

J. Carefully remove building components indicated to be reused.

K. Disassemble components as required to permit removal.

L. Box and label contents for all items scheduled to salvage. Obtain sign off.

M. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

N. Remove materials as Work progresses.

O. Upon completion of Work, leave areas in clean condition.

P. Remove temporary Work.

3.4 CLEAN UP

A. Remove demolished materials from site as work progresses.

B. Leave areas of work in clean condition.

END OF SECTION

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SECTION 02 50 00 - HAZARDOUS MATERIALS SPECIFICATIONS

PART 1 GENERAL

1.1 HAZARDOUS MATERIALS

A. Refer to the Asbestos Containing Materials Inspection Reports prepared by MacParan Consulting for the [3] buildings. Follow all applicable abatement requirements for the materials as they impact the scope of work for this project.

1.2 SUMMARY

A. Contractors must comply with Occupational Safety and Health Administration regulation 29 CFR 1926.62 “Lead in Construction Standard” as well as the Environmental Protection Agency Lead, Renovation, Repair and Painting Rule.

B. Contractor shall follow all applicable EPA rules and regulations when working with hazardous materials. It shall be the contractor’s responsibility to remain in compliance at all times during the project.

C. If any work person encounters any material which they suspect may be hazardous or toxic, they shall immediately advise the Owner. The Contractor shall take immediate and appropriate action to protect the building users and workers in accordance with federal, state, and local laws, codes and regulations. The architect and architect's consultants shall have no responsibility for the discovery, presence, handling, removal or disposal of or exposure of persons to hazardous materials in any form at the project site, including but not limited to asbestos, asbestos products, polychlorinated biphenyl (pcb) or other toxic substances.

1. The contractor is hereby advised that RDA Group Architects, LLC is not a design professional in the determination of the presence of hazardous materials, nor is RDA a design professional involved in making recommendations regarding the testing, removal, encapsulation or other corrective measures pertaining to hazardous materials.
2. If the work which is to be performed under the contract interfaces in any way with the existing components which contain hazardous materials, it is the contractor’s responsibility to contact the owner's environmental consultant regarding the proper means & methods to be utilized in dealing with hazardous materials.
3. By execution of the contract for construction, the contractor hereby agrees to bring no claim for negligence, breach of contract, indemnity or otherwise against the architect, his principles, employees, agents or consultants if such a claim in any way would involve the investigation of or remedial work related to hazardous materials in the project.
4. By execution of the contract for construction, the contractor further agrees to defend, indemnify and hold the architect, his principles, employees, agents or consultants harmless from any such asbestos or other hazardous materials related claims that may be brought by the contractor's subcontractors, suppliers or other third parties who may be acting under the direction of the contractor pursuant to this project.

END OF SECTION

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Cincinnati

3959 Fulton Grove Rd.
Cincinnati, Ohio 45245
(513) 752-9111

Services

Phase I ESA's
Phase II Investigations
Asbestos
Lead-Based Paint
Industrial Hygiene
Indoor Air Quality/Mold
Radon
Safety
Training

Asbestos-Containing Materials Inspection Report

Westdale Hi-Rise
16 Melba Street
Dayton, OH 45402

Prepared for:

Greater Dayton Premier Management (GDPM)
400 Wayne Avenue
Dayton, Ohio 45410
Phone: (937) 977-5882

Prepared by:

m.a.c. Paran Consulting Services, Inc.

Tom Wenk
Certified Asbestos Hazard Evaluation Specialist #ES32076

Michelle Paraniuk, M.S., President

October 2025

Table of Contents

1.0 Executive Summary

1.1 Background

m.a.c. Paran Consulting Services, Inc. performed a limited pre-renovation asbestos inspection for Greater Dayton Premier Management. The inspection was conducted at the Westdale Hi-Rise, 16 Melba Street, Dayton, Ohio. The objectives of the inspection were to (1) identify, by type and location, friable and non-friable asbestos-containing materials [ACM] in in the structures; (2) assess the current condition of the ACM identified; and (3) provide estimated quantities of ACM. The inspection was conducted by Mr. Tom Wenk, certified Ohio Asbestos Hazard Evaluation Specialist (License #ES32076), in October 2025.

The inspection included safely accessible areas, vacant units, and a limited number of occupied units on floors 1-6

1.2 Inspection Results

The following is a summary of the materials either assumed to be ACM or confirmed by the laboratory to contain >1% asbestos. Please note that the quantities provided in this summary are approximate amounts and should be verified by an abatement contractor prior to the onset of removal activities.

Friable ACM (Confirmed by Laboratory Analysis)

- **Textured Ceiling Finish** – Approximately **34,725 square feet** of potentially friable asbestos-containing textured ceiling finish was identified on concrete ceiling decks throughout the building excluding the first floor.
    - This material was confirmed to be ACM and in good condition.
    - The surface of the ceiling texture was hard with good adhesion to the concrete substrate.

- **Mud Insulation on Pipe Fittings** – Asbestos-containing friable insulation was identified on approximately 163 pipe fittings and elbows of fiberglass insulated lines above ceilings, and in the utility closet and chase between the first floor restrooms.
    - This material was confirmed to be ACM and in most cases was in good condition.
    - One (1) damaged fitting was identified in the utility closet behind the elevators on fourth floor.

Non-Friable Materials Assumed to Be ACM

- **Resilient Flooring** – Approximately **39,380 square feet** of resilient flooring throughout the building is assumed to contain asbestos.
    - All flooring observed was non-friable and in good condition.
    - This includes multiple styles and colors of 12” floor tile (and mastic), vinyl plank flooring, and vinyl tread covers (and adhesive).
    - ACM is also assumed to be present underneath carpeted areas including carpet adhesive, floor tile, and/or mastics.

Non-Friable Materials Assumed to Be ACM, *continued*

- **Vinyl Cove base and Adhesive** – Approximately **12,450 linear feet** (4,146 square feet) of cove base and adhesive was assumed to contain asbestos throughout the building. The material is in a non-friable condition.

- **Ceramic Tile Grout and Mortar** – Approximately **4,765 square feet** of ceramic tile on floors and walls was assumed to be ACM. The material is in a non-friable condition. This includes the following:

    - Bathtub surrounds in apartment units.
    - Floors in the first floor main lobby.

Limitations

m.a.c. Paran understands the scope of renovation is limited to the removal and replacement of existing fire alarm conduit and may involve minor disturbance to walls and ceilings. Therefore, the inspection focused on suspect materials likely to be disturbed by the limited scope of renovation such as ceiling texture, drywall, hard plaster, and thermal system insulation. The inspection did not include the collection and analysis of samples of non-friable flooring, cove base, ceramic tiles, or the identification of other materials that will not be impacted, including but not limited to interior caulks on doors and windows, and under sink coatings.

The survey included safely accessible areas within reach of a step ladder or secure catwalk and did not include destructive methods of inspection to access spaces behind intact walls and ceilings. .The following building components and areas were not inspected for safety reasons or without causing damage to active/operating mechanical equipment. These areas include but are not limited to the following:

- **Mechanical Equipment:** Internal components of mechanical equipment including but not limited to water heaters and package boilers in the first floor mechanical room.

- **Electrical Equipment:** Internal components of live electrical equipment was not safely accessible including but not limited to the electrical switch gears.

2.0 Inspection Procedures

2.1 General Asbestos Inspection and Sampling Procedures

The inspection was performed in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAPS, 40 CFR 61.145) and the Ohio Administrative Code (OAC, 3745-20) regulations governing asbestos emission and waste control from demolition/renovation activities. Bulk sampling of materials suspect to contain asbestos was conducted following Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA, 40 CFR 763.90), the accepted industry standard for conducting asbestos investigations in all types of buildings.

The vast majority of physically accessible spaces within the building were accessed and inspected for suspect asbestos-containing materials. The Inspector then grouped suspect materials into homogeneous areas for sampling. A homogeneous area consists of materials with like appearance, color, texture, and application date. A physical assessment (visual observation and touching the material) was also made of the current condition and degree of friability for each identified material (a material is considered friable if it can be crumbled using hand pressure). A list of homogeneous areas identified for this assessment is included on the Bulk Sample Summary Table.

The Inspector assessed all identified asbestos-containing materials. The inspection encompassed both friable and non-friable materials. The Inspector then assumed that the specific material remained homogeneous (based upon the material's appearance and application) throughout the building. In situations where materials appeared to alternate between asbestos-containing and non-asbestos containing, the Inspector looked for visible differences between materials. If differences were not apparent, the Inspector made a professional decision to err on the side of conservatism and assumed that all materials were asbestos-containing.

The Inspector made every effort to locate all asbestos-containing materials identified during the inspection, however, should unidentified suspect asbestos-containing materials be discovered, please contact m.a.c. Paran Consulting Services, Inc. for assistance in material identification.

2.2 Method of Sampling and Analysis

2.2.1 Bulk Sample Collection Methods

To avoid disturbing suspected asbestos-containing materials more than necessary and minimize the potential release of asbestos fibers, the Inspector performed bulk sampling in accordance with the industry accepted procedures outlined in the current EPA Guidance Document and the AHERA sampling protocol. Each sample collected was pre-wetted and obtained using a clean coring tool, utility knife, or other appropriate tool. Each sample was then placed in a clean, sealable vial and labeled with a unique sample identification number. Care was taken to obtain a sample that was representative of all layers of a material. To avoid cross-contamination, the tools used for sample collection were thoroughly cleaned before collecting the next sample. If requested, the sample site was labeled with a pre-printed adhesive-backed sample identification tag bearing the corresponding sample identification number. Pertinent sample information was recorded on a standardized bulk sample log sheet including the date of inspection, name of the Inspector, a brief description and the location of the sample, and the type of material sampled (e.g., thermal systems insulation).

2.2.2 Analysis of Bulk Samples

Bulk samples were analyzed for asbestos content by Polarized-Light Microscopy (PLM) and dispersion staining (Method Reference: EPA/600/R-931/116). This analytical method, which EPA currently recommends, for the determination of asbestos in bulk samples, can be used for qualitative identification of six morphologically different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos.

PLM analysis requires the microscopist to take a portion of the sample and treat it with an oil of a specific refractive index. This prepared slide is then subjected to a variety of tests while being viewed under varying polarizations of light. Each asbestos type displays unique characteristics when subjected to these tests. The percentages of the identified types of asbestos are determined by visual estimation.

For samples containing low concentrations of asbestos, the Inspector may choose to have the laboratory perform point count analysis. This additional step is employed to more accurately determine the percentage of asbestos that is in the material being sampled. Using the point counting procedure, eight mounts are made by dispersing eight sub-samples of the bulk sample into a suitable fluid. A reticule is placed on the eyepiece of the microscope that superimposes a grid of points over the field of view. Fifty non-empty points are examined for each mount, yielding 400 points, some of which may be identified as asbestos and the rest as non-asbestos material. A simple calculation gives the percentage asbestos; 4 points in 400 would be 1.0%.

2.2.3 Reporting of Analysis Results

The method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percent) within the range of 0 to 100. Minute quantities of asbestos in bulk samples may be reported as “trace” (tr) or less than 1 percent. The composition of the bulk sample is reported in percentages of asbestos (i.e., chrysotile, amosite, crocidolite, or other) and non-asbestos (i.e., cellulose, fiberglass, mineral wool, synthetic, or other) components. The original laboratory reports are presented in Appendix A.

2.2.4 Laboratory

Analysis of all suspect asbestos-containing materials was performed by SanAir Technologies Laboratories Inc. using polarized light microscopy. SanAir Labs, Inc. successfully participates in, and is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology.

2.3 Physical and Hazard Assessment

2.3.1 Physical Assessment Factors

Per AHERA requirements, the Inspector performed a physical assessment of all friable asbestos-containing materials. This involved physically observing and documenting the current condition of each friable material, and assessing its potential for future disturbance (or fiber release potential).

The Inspector categorized the materials’ current condition as Good, Fair, or Poor. AHERA protocol is not specific as to how these categories are arrived at, but in general, the following guideline is used:

- Good – less than 10% area damage
- Fair – more than 10%, but less than 25% area damage
- Poor – more than 25% area damage

The Inspector then made an assessment of the materials' potential for future disturbance (or fiber release potential) using the general factors listed in Table 2-1 on the following page. The first three factors focus on the current condition of the asbestos-containing material. Evidence of deterioration, delamination, physical damage, or water damage indicates that fiber release has occurred, is occurring, or is likely to occur in the future. Such evidence is based on the appearance of the material and/or the presence of dislodged or crumbled material in the surrounding area. The first three factors focus on the potential for fiber release due to disturbance or erosion. Surface erosion is likely to occur when asbestos-containing materials are located in air plenums or near forced-air streams. Exposed and easily accessible materials in areas frequented by building occupants, or subject to mechanical vibrations are more vulnerable to disturbance or damage than materials in other locations.

Table 2-1: Factors for Assessing Potential Fiber Release
Current Condition of Asbestos-Containing Materials
• Evidence of deterioration or delamination from the underlying surface (substrate) • Evidence of physical damage (e.g., presence of debris) • Evidence of water damage
Potential for Future Disturbance, Damage, or Erosion of Asbestos-Containing Material
• Proximity to air plenum or direct airstream • Visibility, accessibility (to building occupants and maintenance personnel), and degree of activity (air movement, vibration, movement of building occupants) • Change in building use

2.3.2 Hazard Assessment Factors

Based upon the physical assessment, friable asbestos-containing materials are then given a hazard rank with corresponding response options to aid the building owner in prioritizing response actions (see Table 2-2). The hazard ranks range from 7 – most hazardous, to 1 – least hazardous as shown in Table 2-2 below. The highest rank is reserved for materials that are "significantly damaged" or material that is so extensively damaged that it requires immediate corrective action. Hazard ranks 4 – 6 reflect materials which are "damaged" with rank 6 indicating a high potential for further damage, and rank 5 indicating a moderate potential for damage. Hazard rank 4 denotes that a material has been damaged; however, the potential for any further damage is low. Hazard ranks 1 – 3 are reserved for materials currently in good condition with future disturbance potential being high, moderate, or low (3, 2, 1, respectively). Non-friable materials are categorized as non-friable.

Table 2-2: Classifications for Hazard Potential of Friable Asbestos-Containing Materials		
Hazard Rank	**Condition**	**Disturbance Potential**
7	Poor	Any
6	Fair	High
5	Fair	Moderate
4	Fair	Low
3	Good	High
2	Good	Moderate
1	Good	Low

2.3.3 Physical and Hazard Assessments of Materials Encountered

The physical and hazard assessments made for all asbestos-containing materials identified during this inspection can be found in Section 4.0 “Inventory of Asbestos-Containing Materials.”

3.0 Bulk Sample Data Summary

The following table presents the results of materials sampled.

Table 3-1: Bulk Sample Summary – Westdale High-Rise				
Room/Location	**Material Description**	**Homogeneous Area (HA) Number**	**Sample Number**	**Laboratory Results**
First Floor Corridor West End Ceiling	Hard Plaster	1	WD-1	None Detected
Unit 211 Kitchen Closet			WD-2	None Detected
Unit 303 Living Room Closet			WD-3	None Detected
Unit 305 Bedroom Closet			WD-4	None Detected
Unit 308 Bedroom Closet			WD-5	None Detected
Unit 511 Kitchen Closet			WD-6	None Detected
Unit 606 Bedroom Closet			WD-7	None Detected
Unit 303 Kitchen	Ceiling Texture on Concrete	2	WD-8	None Detected
Unit 308 Bedroom			WD-9	**1.25% Chrysotile** *Confirmed by PLM Point Count*
Fourth Floor Corridor Near Elevator			WD-10	Not Analyzed Positive Stop
Unit 511 Living Room			WD-11	Not Analyzed Positive Stop
Unit 211 Living Room			WD-12	Not Analyzed Positive Stop
Unit 606 Living Room			WD-13	Not Analyzed Positive Stop
Sixth Floor Corridor Near Elevator			WD-14	Not Analyzed Positive Stop
First Floor Laundry	Joint Compound on Drywall Seams & Nailheads	3	WD-15	None Detected
Unit 211 Kitchen Soffit			WD-16	None Detected
Unit 303 Kitchen Soffit			WD-17	None Detected
Unit 305 Kitchen Soffit			WD-18	None Detected

Table 3-1: Bulk Sample Summary – Westdale High-Rise				
Room/Location	**Material Description**	**HA Number**	**Sample #**	**Laboratory Results**
Fourth Floor Corridor East End Soffit	Joint Compound on Drywall Seams & Nailheads *continued*	3	WD-19	None Detected
Unit 511 Kitchen Soffit			WD-20	None Detected
Sixth Floor West Corridor West End Soffit			WD-21	None Detected
First Floor Unisex Bathroom	2' X 2' Suspended Ceiling Panels Random/Circular Fissures	4	WD-22	None Detected
First Floor Unisex Bathroom			WD-23	None Detected
First Floor-Southeast Meeting/Office Room	2' X 4' Suspended Ceiling Panels Random Fissures	5	WD-24	None Detected
First Floor-Southeast Meeting/Office Room			WD-25	None Detected
First Floor West Corridor near Unit 102	Mud Insulation on Elbows/Fittings of Fiberglass Insulated Lines	6	WD-26	5% Chrysotile
First Floor West Corridor near Unit 102/103			WD-27	Not Analyzed Positive stop
First Floor near Front Entrance			WD-28	Not Analyzed Positive stop
First Floor Northeast Lobby			WD-29	Not Analyzed Positive stop
Fourth Floor ME Closet Behind Elevators			WD-30	Not Analyzed Positive stop
Third Floor Utility Closet Behind Elevators	Jacketing on Outside of Fiberglass insulated Lines	7	WD-31	None Detected
Fourth Floor Utility Closet Behind Elevators			WD-32	None Detected
First Floor Boiler Room	White Mastic/Sealant on Exposed Ends of Fiberglass Pipe Insulation	8	WD-33	None Detected
First Floor Boiler Room			WD-34	None Detected
Third Floor Utility Closet Behind Elevators	Grey/Black Coating on Concrete Floor	9	WD-35	None Detected
Third Floor Utility Closet Behind Elevators			WD-36	None Detected

4.0 Inventory of Asbestos-Containing Materials

Floor by Floor Inventories

Table 4.1 below presents a list of asbestos-containing materials (ACM) identified on each floor during the inspection.

Table 4-1 Asbestos-Containing Materials Inventory By Floor: Westdale High-Rise

Floor	Confirmed ACM		Assumed ACM			
	(1) Ceiling Texture	(2) Mudded Elbows/Fittings	(3)(4) Flooring	Cove Base and Adhesive	(5) Ceramic Tile Walls	(6) Ceramic Tile Floors
1st	0	157 ea.	5,880 sf	1,675 sf	165 sf	1,300 sf
2nd	6,945 sf	0	6700 sf	2155 sf	660 sf	0
3rd	6,945 sf	0	6700 sf	2155 sf	660 sf	0
4th	6,945 sf	3 ea.	6700 sf	2155 sf	660 sf	0
5th	6,945 sf	3 ea.	6700 sf	2155 sf	660 sf	0
6th	6,945 sf	0	6700 sf	2155 sf	660 sf	0
Total ACM Quantity	**34,725 sf**	**163**	**39,380**	**12,450**	**3,465**	**1,300**

(1) Ceiling Texture is present throughout all units, corridors, and other areas excluding the first floor.

(2) Quantities of mudded fittings based on fittings observed in visually accessible areas. Additional fittings may be present.

(3) Flooring includes multiple colors of 12" floor tile and mastic, vinyl plank and carpeting assumed to cover mastics and/or floor tile

(4) Floors in trash rooms and locked utility closets behind the elevators are concrete. ACM flooring is not present.

(5) Ceramic tile walls (nonfriable) are limited to bath tub surrounds.

(6) Ceramic tile floors include the main lobby.

Room by Room Inventory

Table 4-2 below presents a list of asbestos-containing materials identified in each room during the inspection and includes condition and hazard rank.

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 1			
Unit 101 1 Bath/1 Bed South Side	12" Floor Tile & Mastic in Kitchen & Bathroom	Non-Friable	175 sf
	Carpeting in Living Room & Bedroom	Non-Friable	325 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 102 1 Bath/1 Bed South Side	12" Floor Tile & Mastic in Kitchen & Bathroom	Non-Friable	175 sf
	Carpeting in Living Room & Bedroom	Non-Friable	325 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 103 1 Bath/1 Bed South Side	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Laundry Room	12" Floor Tile & Mastic	Non-Friable	360 sf
Women's Restroom	12" Floor Tile & Mastic	Non-Friable	200 sf
	Cove Base and Adhesive	Non-Friable	80 lf
Mechanical Room	Mudded Elbows/Fittings	Good/2	20 ea.
Security Office	12" Floor Tile & Mastic	Non-Friable	100 sf
	Cove Base and Adhesive	Non-Friable	40 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Men's Restroom	12" Floor Tile & Mastic	Non-Friable	150 sf
	Cove Base and Adhesive	Non-Friable	50 lf
West Corridor	Mudded Elbows/Fittings	Good/2	30 ea.
	12" Floor Tile & Mastic	Non-Friable	300 sf
	Cove Base and Adhesive	Non-Friable	100 lf
Elevators	6" Wide Vinyl Plank	Non-Friable	40 sf
Front Entry Vestibule	12" Floor Tile & Mastic	Non-Friable	75 sf
	Cove Base and Adhesive	Non-Friable	45 lf
Central Lobby	Mudded Elbows/Fittings	Good/2	25 ea.
	Cove Base and Adhesive	Non-Friable	100 lf
	8" Ceramic Tile Floors	Non-Friable	1300 sf
East Lobby-Front	Mudded Elbows/Fittings	Good/2	30 ea.
	18"x18" Vinyl Plank	Non-Friable	960 sf
	Cove Base and Adhesive	Non-Friable	250 lf
East Lobby Back	Mudded Elbows/Fittings	Good/2	30 ea.
	12" Floor Tile & Mastic	Non-Friable	900 sf
	Cove Base and Adhesive	Non-Friable	250 lf
Unisex Restroom	Mudded Elbows/Fittings	Good/2	7 ea.
	12" Floor Tile & Mastic	Non-Friable	100 sf
	Cove Base and Adhesive	Non-Friable	45 lf
Southeast Offices	Mudded Elbows/Fittings	Good/2	15 ea.
	Carpeting	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	220 lf
Storage	12" Floor Tile & Mastic	Non-Friable	45 sf
	Cove Base and Adhesive	Non-Friable	45 lf
East and West Stairwells	Vinyl Tread& Adhesive	Non-Friable	600
West Stairwell	12" Floor Tile & Mastic	Non-Friable	50 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 2			
Unit 201 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 202 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 204 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 205 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 207 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 208 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 210 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 211 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	12" Floor Tile & Mastic in Kitchen & Bathroom	Non-Friable	175 sf
	Carpeting in Living Room & Bedroom	Non-Friable	325 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Corridor	Ceiling Texture	Good/3	850 sf
	6" Wide Vinyl Plank	Non-Friable	850 sf
	Cove Base and Adhesive	Non-Friable	320 lf
Unit 203 2 Bath/1 Bed Large-North Side	Ceiling Texture	Good/3	700 sf
	ACM Flooring Assumed Present	Non-Friable	680 sf
	Cove Base and Adhesive	Non-Friable	230 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	110 sf
	Cove Base and Adhesive	Non-Friable	45 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Storage Room North Side	Ceiling Texture	Good/3	90 sf
	12" Floor Tile & Mastic	Non-Friable	90 sf
Hall Behind Elevators	Ceiling Texture	Good/3	105 sf
Utility Closet Behind Elevators	Ceiling Texture	Good/3	20 sf
Unit 206 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 209 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 3			
Unit 301 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 302 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 304 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 305 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	18"X18" Vinyl Plank	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 307 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 308 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 310 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 311 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Corridor	Ceiling Texture	Good/3	850 sf
	6" Wide Vinyl Plank	Non-Friable	850 sf
	Cove Base and Adhesive	Non-Friable	320 lf
Unit 303 2 Bath/1 Bed Large-North Side	Ceiling Texture	Good/3	700 sf
	6" Wide Vinyl Plank	Non-Friable	680 sf
	Cove Base and Adhesive	Non-Friable	230 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	110 sf
Storage Room North Side	Ceiling Texture	Good/3	90 sf
	12" Floor Tile & Mastic	Non-Friable	90 sf
	Cove Base and Adhesive	Non-Friable	45 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Hall Behind Elevators	Ceiling Texture	Good/3	105 sf
Utility Closet Behind Elevators	Ceiling Texture	Good/3	20 sf
Unit 306 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 309 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 4			
Unit 401 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 402 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 404 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 405 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	12" Floor Tile & Mastic in Kitchen & Bathroom	Non-Friable	175 sf
	Carpeting in Living Room & Bedroom	Non-Friable	325 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 407 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 408 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 410 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 411 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Corridor	Ceiling Texture	Good/3	850 sf
	6" Wide Vinyl Plank	Non-Friable	850 sf
	Cove Base and Adhesive	Non-Friable	320 lf
Unit 403 2 Bath/1 Bed Large-North Side	Ceiling Texture	Good/3	700 sf
	ACM Flooring Assumed Present	Non-Friable	680 sf
	Cove Base and Adhesive	Non-Friable	230 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	110 sf
Storage Room North Side	Ceiling Texture	Good/3	90 sf
	12" Floor Tile & Mastic	Non-Friable	90 sf
	Cove Base and Adhesive	Non-Friable	45 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Hall Behind Elevators	Ceiling Texture	Good/3	105 sf
Utility Closet Behind Elevators	Ceiling Texture	Good/3	20 sf
	Mudded Elbows/Fittings	Good/2	2 ea.
	Mudded Elbows/Fittings	Fair/5	1 ea.
Unit 406 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 409 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 5			
Unit 501 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 502 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 504 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 505 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 507 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 508 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 510 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 511 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	12" Floor Tile & Mastic in Kitchen & Bathroom	Non-Friable	175 sf
	Carpeting in Living Room & Bedroom	Non-Friable	325 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Corridor	Ceiling Texture	Good/3	850 sf
	6" Wide Vinyl Plank	Non-Friable	850 sf
	Cove Base and Adhesive	Non-Friable	320 lf
Unit 503 2 Bath/1 Bed Large-North Side	Ceiling Texture	Good/3	700 sf
	ACM Flooring Assumed Present	Non-Friable	680 sf
	Cove Base and Adhesive	Non-Friable	230 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	110 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Storage Room North Side	Ceiling Texture	Good/3	90 sf
	12" Floor Tile & Mastic	Non-Friable	90 sf
	Cove Base and Adhesive	Non-Friable	45 lf
Hall Behind Elevators	Ceiling Texture	Good/3	105 sf
Utility Closet Behind Elevators	Ceiling Texture	Good/3	20 sf
	Mudded Elbows/Fittings	Good/2	3 ea.
Unit 506 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 509 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 6			
Unit 601 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 602 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 604 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 605 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 607 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 608 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 610 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 611 1 Bath/1 Bed South Side	Ceiling Texture	Good/3	510 sf
	ACM Flooring Assumed Present	Non-Friable	500 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Corridor	Ceiling Texture	Good/3	850 sf
	6" Wide Vinyl Plank	Non-Friable	850 sf
	Cove Base and Adhesive	Non-Friable	320 lf
Unit 603 2 Bath/1 Bed Large-North Side	Ceiling Texture	Good/3	700 sf
	ACM Flooring Assumed Present	Non-Friable	680 sf
	Cove Base and Adhesive	Non-Friable	230 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	110 sf
Storage Room North Side	Ceiling Texture	Good/3	90 sf
	12" Floor Tile & Mastic	Non-Friable	90 sf
	Cove Base and Adhesive	Non-Friable	45 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Westdale Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Hall Behind Elevators	Ceiling Texture	Good/3	105 sf
Utility Closet Behind Elevators	Ceiling Texture	Good/3	20 sf
Unit 606 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	6" Wide Vinyl Plank	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 609 1 Bath/ 1 Bed Large-North Side	Ceiling Texture	Good/3	550 sf
	ACM Flooring Assumed Present	Non-Friable	540 sf
	Cove Base and Adhesive	Non-Friable	180 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Attachment A

Laboratory Report

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for M.A.C Paran Consulting

Report Date: 10/13/2025

Project Name: Park Manor Hi-Rise

SanAir ID#: 25068700

NVLAP TESTING

NVLAP LAB CODE 600227-0

11709 Chesterdale Road, Cincinnati, Ohio 45246
888.895.1177 | 513.438.6066 | LabReports@SanAir.com | SanAir.com

SanAir ID Number
25068700
FINAL REPORT
10/13/2025 6:06:54 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Dear Michelle Paraniuk,

We at SanAir would like to thank you for the work you recently submitted. The 57 sample(s) were received on Monday, October 13, 2025 via FedEx. The final report(s) is enclosed for the following sample(s): PM-1, PM-2, PM-3, PM-4, PM-5, PM-6, PM-7, PM-8, PM-9, PM-10, PM-11, PM-12, PM-13, PM-14, PM-15, PM-16, PM-17, PM-18, PM-19, PM-20, PM-21, PM-22, PM-23, PM-24, PM-25, PM-26, PM-27, PM-28, PM-29, PM-30, PM-31, PM-32, PM-33, PM-34, PM-35, PM-36, PM-37, PM-38, PM-39, PM-40, PM-41, PM-42, PM-43, PM-44, PM-45, PM-46, PM-47, PM-48, PM-49, PM-50, PM-51, PM-52, PM-53, PM-54, PM-55, PM-56, PM-57.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Maureen Y. Haley
Asbestos Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 57 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
25068700
FINAL REPORT
10/13/2025 6:06:54 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-1 / 25068700-001 Hard Plaster, Unit 1A, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-1 / 25068700-001 Hard Plaster, Unit 1A, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-2 / 25068700-002 Hard Plaster, Unit 2C, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-2 / 25068700-002 Hard Plaster, Unit 2C, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-2 / 25068700-002 Hard Plaster, Unit 2C, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-3 / 25068700-003 Hard Plaster, Unit 4N, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-3 / 25068700-003 Hard Plaster, Unit 4N, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-4 / 25068700-004 Hard Plaster, Unit 6R, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-4 / 25068700-004 Hard Plaster, Unit 6R, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-5 / 25068700-005 Hard Plaster, Unit 7M, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Johnathan Wilson
Date: 10/13/2025

SanAir Technologies Laboratory

SanAir ID Number
25068700
FINAL REPORT
10/13/2025 6:06:54 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-5 / 25068700-005 Hard Plaster, Unit 7M, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-6 / 25068700-006 Hard Plaster, Unit 8T, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-6 / 25068700-006 Hard Plaster, Unit 8T, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-7 / 25068700-007 Hard Plaster, Room 103, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-7 / 25068700-007 Hard Plaster, Room 103, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-8 / 25068700-008 Hard Plaster, Room 105, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-8 / 25068700-008 Hard Plaster, Room 105, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-9 / 25068700-009 Ceiling Texture on Concrete, Unit 1A	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-10 / 25068700-010 Ceiling Texture on Concrete, Unit 2C	White Non-Fibrous Homogeneous		98% Other	2% Chrysotile
PM-11 / 25068700-011 Ceiling Texture on Concrete, Unit 3U				Not Analyzed

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

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Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-12 / 25068700-012 Ceiling Texture on Concrete, Unit 4N				Not Analyzed
PM-13 / 25068700-013 Ceiling Texture on Concrete, Unit 5C				Not Analyzed
PM-14 / 25068700-014 Ceiling Texture on Concrete, Unit 7M				Not Analyzed
PM-15 / 25068700-015 Ceiling Texture on Concrete, Unit 8T				Not Analyzed
PM-16 / 25068700-016 Joint Compound on Drywall Seams & Nailheads, Unit 1G, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-16 / 25068700-016 Joint Compound on Drywall Seams & Nailheads, Unit 1G, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-17 / 25068700-017 Joint Compound on Drywall Seams & Nailheads, Unit 2C, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-17 / 25068700-017 Joint Compound on Drywall Seams & Nailheads, Unit 2C, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-18 / 25068700-018 Joint Compound on Drywall Seams & Nailheads, Unit 3Q, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 10/13/2025 Date: 10/13/2025

SanAir Technologies Laboratory

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Project Number:
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Project Name: Park Manor Hi-Rise
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Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-18 / 25068700-018 Joint Compound on Drywall Seams & Nailheads, Unit 3Q, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-19 / 25068700-019 Joint Compound on Drywall Seams & Nailheads, Unit 4N, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-19 / 25068700-019 Joint Compound on Drywall Seams & Nailheads, Unit 4N, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-20 / 25068700-020 Joint Compound on Drywall Seams & Nailheads, Unit 5L, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-20 / 25068700-020 Joint Compound on Drywall Seams & Nailheads, Unit 5L, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-21 / 25068700-021 Joint Compound on Drywall Seams & Nailheads, Unit 7A, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-21 / 25068700-021 Joint Compound on Drywall Seams & Nailheads, Unit 7A, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-22 / 25068700-022 Joint Compound on Drywall Seams & Nailheads, 8th Floor, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 10/13/2025 Date: 10/13/2025

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Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
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Project Number:
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Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-22 / 25068700-022 Joint Compound on Drywall Seams & Nailheads, 8th Floor, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-23 / 25068700-023 Joint Compound on Drywall Seams & Nailheads, Room 107, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-23 / 25068700-023 Joint Compound on Drywall Seams & Nailheads, Room 107, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-24 / 25068700-024 Drywall With Paper, 1st Floor Restroom in Community Room	Grey Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-25 / 25068700-025 Drywall With Paper, 1st Floor Restroom in Community Room	Grey Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-26 / 25068700-026 2'x4' Suspended Ceiling Panels Random Fissure, 6th Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-27 / 25068700-027 2'x4' Suspended Ceiling Panels Random Fissure, 8th Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-28 / 25068700-028 2'x4' Suspended Ceiling Panels Random Fissure, 3rd Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-29 / 25068700-029 2'x4' Suspended Ceiling Panels Random Fissure, 4th Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-30 / 25068700-030 2'x4' Suspended Ceiling Panels Lateral Large Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 10/13/2025 Date: 10/13/2025

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Project Number:
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Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-31 / 25068700-031 2'x4' Suspended Ceiling Panels Lateral Large Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-32 / 25068700-032 2'x4' Suspended Ceiling Panels Lateral Fine Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-33 / 25068700-033 2'x4' Suspended Ceiling Panels Lateral Fine Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-34 / 25068700-034 2'x4' Suspended Ceiling Panels Drywall, 1st Floor Kitchen	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-35 / 25068700-035 2'x4' Suspended Ceiling Panels Drywall, 1st Floor Kitchen	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-36 / 25068700-036 2'x4' Suspended Ceiling Panels Random Pinhole, Room 104	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-37 / 25068700-037 2'x4' Suspended Ceiling Panels Random Pinhole, Room 106	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-38 / 25068700-038 Floor Coating on Concrete, 7th Floor Trash Room	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-39 / 25068700-039 Floor Coating on Concrete, 8th Floor Trash Room	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-40 / 25068700-040 Fire Stop Compound, 5th Floor Corridor	Red Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Jonathan Wilson
Date: 10/13/2025

SanAir Technologies Laboratory

SanAir ID Number
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10/13/2025 6:06:54 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
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Phone: 513-752-9111

Project Number:
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Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-41 / 25068700-041 Fire Stop Compound, 7th Floor Corridor	Red Non-Fibrous Homogeneous		100% Other	None Detected
PM-42 / 25068700-042 Preformed Block Insulation on Boiler Exhaust Breeching	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-43 / 25068700-043 Preformed Block Insulation on Boiler Exhaust Breeching	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-44 / 25068700-044 Preformed Block Insulation on Boiler Exhaust Breeching	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-45 / 25068700-045 Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Black Non-Fibrous Homogeneous		100% Other	None Detected
PM-46 / 25068700-046 Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Black Non-Fibrous Homogeneous		100% Other	None Detected
PM-47 / 25068700-047 Mud Insulation on Pipe Elbows & Fittings of Fiberglass	White Non-Fibrous Homogeneous	2% Glass	83% Other	15% Chrysotile
PM-48 / 25068700-048 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed
PM-49 / 25068700-049 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed
PM-50 / 25068700-050 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Johnathan Wilson
Date: 10/13/2025

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Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-51 / 25068700-051 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed
PM-52 / 25068700-052 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-53 / 25068700-053 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-54 / 25068700-054 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	Tan Non-Fibrous Homogeneous		100% Other	None Detected
PM-55 / 25068700-055 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	Tan Non-Fibrous Homogeneous		100% Other	None Detected
PM-56 / 25068700-056 Paper/ Foil Jacketing on Fiberglass Pipe Insulation, Rm 103, Jacketing	Tan Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
PM-56 / 25068700-056 Paper/ Foil Jacketing on Fiberglass Pipe Insulation, Rm 103, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
PM-57 / 25068700-057 Paper/ Foil Jacketing on Fiberglass Pipe Insulation, Boiler	Tan Fibrous Homogeneous	60% Cellulose	40% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Johnathan Wilson
Date: 10/13/2025

Disclaimer and Additional Information

This report is the sole property of the client named on the SanAir Technologies Laboratory, Inc. (SanAir) chain-of-custody (COC). Results in the report are confidential information intended only for the use by the client named on the COC. Neither results nor reports will be discussed with or released to any third party without our client's written permission to maintain client confidentiality. The final report cannot be reproduced, except in full, without written authorization from SanAir to assure that parts of the report are not taken out of context. This report and any information contained within shall not be edited, altered, or modified in any way by any persons or agencies receiving, viewing, distributing, or otherwise possessing a copy of this final report. The laboratory reserves the right to perform amendments to any finalized report, of which shall supersede and make obsolete any previous editions. Such changes, modifications, additions, or deletions shall be effective immediately upon notice thereof, which may be given by means including, but not limited to, posting on the SanAir client portal website, electronic or conventional mail, or by any other means. The information provided in this report applies only to the samples submitted in the condition they were received at the laboratory and is relevant only for the date, time, and location of sampling. Samples were received in good condition unless otherwise noted on the report. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client on the COC, which includes the project name, project number, P.O. number, sample collection dates, special instructions, samples collected by, sample numbers, sample identifications/location, sample type, selected analysis type, and total area or volume that may affect the validity of the results. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. SanAir assumes no responsibility or liability for the manner in which results are used or interpreted. This report does not constitute and shall not be used to claim product, process, system, or person certification, approval, or endorsement by NVLAP, NIST, NELAC, AIHA LAP, LLC or any other agency of the U.S. government; all or some tests contained in this report may not be accredited by every local, state, and federal regulatory agency. Refer to the SanAir website at www.sanair.com for copies of current certificates and scopes of various accreditations, certifications, and licenses or contact the laboratory at iaq@sanair.com for inquiries regarding the status or scope of an accreditation or certification.

Fibers smaller than 5-microns cannot be seen with this method due to scope limitations. Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing. Samples are held for a period of 60 days.

Asbestos Accreditations, Certifications, and Licenses
National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 600227-0
State of Connecticut Department of Public Health Registration Number: PH-0817
State of Rhode Island Department of Health, Certification Number: PLM00144, TEM00144
State of West Virginia Bureau for Public Health, Analytical Laboratory Number: LT000637
Texas Department of State Health Services License Number: 300510

SanAir Technologies Laboratory

11709 Chesterdale Road
Cincinnati, Ohio 45246
513.438.6006
sanair.com

Asbestos Chain of Custody
Form 140, Rev 6, 1/26/2022

SanAir ID Number
25068700

Company: m.a.c. Paran Consulting Services, Inc.	Project #: N/A	Collected by: Tom Wenk
Address: 3959 Fulton Grove Road	Project Name: Park Manor Hi-Rise	Phone #: 513-383-6262
City, St., Zip: Cincinnati, Ohio	Date Collected: 15-Oct-2025	Fax #:
State of Collection: OHIO Account#:	P.O. Number:	Email: macparan@macparan.com

Bulk

ABB	PLM EPA 600/R-93/116	✓
	Positive Stop ✓	
ABEPA	PLM EPA 400 Point Count	
ABB1K	PLM EPA 1000 Point Count	
ABBEN	PLM EPA NOB**	
ABBCH	TEM Chatfield**	
ABBTM	TEM EPA NOB**	
ABQ	PLM Qualitative	

** Available on 24-hr. to 5-day TAT

Water

ABHE	EPA 100.2	

Air

ABA	PCM NIOSH 7400	
ABA-2	OSHA w/ TWA*	
ABTEM	TEM AHERA	
ABATN	TEM NIOSH 7402	
ABT2	TEM Level II	
Other:		

New York ELAP

ABEPA2	NY ELAP 198.1	
ABENY	NY ELAP 198.6 PLM NOB	
ABBNY	NY ELAP 198.4 TEM NOB	

Soil

ABSE	PLM EPA 600 R-93/116 (Qual.)	

Soil

ABSP	PLM CARB 435 (LOD ~ 1%)	
ABSP1	PLM CARB 435 (LOD 0.25%)	
ABSP2	PLM CARB 435 (LOD 0.1%)	

Dust

ABWA	TEM Wipe ASTM D-6480	
ABDMV	TEM Microvac ASTM D-5755	

Matrix	Other	

Turn Around Times				
	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	■ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions ALSO EMAIL RESULTS TO TOM WENK AT TOM@ELLIOTENV.COM

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
	Samples 1-57: See Attached Sample Log					

Relinquished by	Date	Time	Received by	Date	Time
Tom Wenk	15-Oct-25		RMB	OCT 13 2025	10:00am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Bulk Sample Log
Parl Manor Hi-Rise

25068700

HA Number	Material Code	Sample #	Material Description	Unit
1	HP	PM- 1	Hard Plaster	Unit 1A
		PM- 2		Unit 2C
		PM- 3		Unit 4N
		PM- 4		Unit 6R
		PM- 5		Unit 7M
		PM- 6		Unit 8T
		PM- 7		Room 103
		PM- 8		Room 105
2	TXTC	PM- 9	Ceiling Texture on Concrete	Unit 1A
		PM- 10		Unit 2C
		PM- 11		Unit 3U
		PM- 12		Unit 4N
		PM- 13		Unit 5C
		PM- 14		Unit 7M
		PM- 15		Unit 8T
3	JC	PM- 16	Joint Compound on Drywall Seams & Nailheads	Unit 1G
		PM- 17		Unit 2C
		PM- 18		Unit 3Q
		PM- 19		Unit 4N
		PM- 20		Unit 5L
		PM- 21		Unit 7A
		PM- 22		8th Floor Community Room
		PM- 23		Room 107
4	DW2	PM- 24	Drywall with Grey Paper	1st Floor Restroom in Community Room Pipe Chase
		PM- 25		1st Floor Restroom in Community Room Pipe Chase
5	CP1	PM- 26	2' x 4' Suspended Ceiling Panels Random Fissure	6th Floor Corridor
		PM- 27		8th Floor Corridor
6	CP2	PM- 28	2' x 4' Suspended Ceiling Panels Random Fissure	3rd Floor Corridor
		PM- 29		4th Floor Corridor
7	CP3	PM- 30	2' x 4' Suspended Ceiling Panels Lateral Large Fissure	1st Floor Hallway Between Lobby and Community Room
		PM- 31		1st Floor Hallway Between Lobby and Community Room
8	CP3A	PM- 32	2' x 4' Suspended Ceiling Panels Lateral Fine Fissure	1st Floor Offices
		PM- 33		1st Floor Offices
9	CP4	PM- 34	2' x 4' Suspended Ceiling Panels Drywall	1st Floor Kitchen
		PM- 35		1st Floor Kitchen
10	CP5	PM- 36	2' x 4' Suspended Ceiling Panels Random Pinhole	Room 104
		PM- 37		Room 106
11	FC	PM- 38	Floor Coating On Concrete	7th Floor Trash Room
		PM- 39		8th Floor Trash Room
12	FS1	PM- 40	Fire Stop Compound Red	5th Floor Cooridor
		PM- 41		7th Floor Cooridor

RMB OCT 13 2025 10:00am

25068700

Bulk Sample Log
Parl Manor Hi-Rise

HA Number	Material Code	Sample #	Material Description	Unit
13	PFB	PM- 42	Preformed Block Insulation On Bolier Exhaust Breeching Calcium Silicate	Boiler Room
		PM- 43		Boiler Room
		PM- 44		Boiler Room
14	EBM	PM- 45	Black Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Boiler Room
		PM- 46		Boiler Room
15	EFG	PM- 47	Mud Insulation on Pipe Elbows & Fittings of Fiberglass Insulated Lines	Room 102
		PM- 48		Room 102
		PM- 49		Room 103
		PM- 50		Room 103
		PM- 51		Mechanical Tunnel
16	FGM1	PM- 52	White Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 53		Boiler Room
17	FGM2	PM- 54	Tan Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 55		Boiler Room
18	FGJ	PM- 56	Paper/Foil Jacketing on Fiberglass Pipe Insulation	Room 103
		PM- 57		Boiler Room

RMB OCT 13 2025 10:00am

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for M.A.C Paran Consulting

Report Date: 10/23/2025

Project Name: Park Manor Hi-Rise

SanAir ID#: 25070657

NVLAP TESTING

NVLAP LAB CODE 600227-0

11709 Chesterdale Road, Cincinnati, Ohio 45246
888.895.1177 | 513.438.6066 | LabReports@SanAir.com | SanAir.com

SanAir ID Number
25070657
FINAL REPORT
10/23/2025 3:15:03 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/21/2025 10:40:00 AM

Dear Michelle Paraniuk,

We at SanAir would like to thank you for the work you recently submitted. The 6 sample(s) were received on Tuesday, October 21, 2025 via Fax or Email request. The final report(s) is enclosed for the following sample(s): PM-10, PM-11, PM-12, PM-13, PM-14, PM-15.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Maureen Y. Haley
Asbestos Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 6 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
25070657
FINAL REPORT
10/23/2025 3:15:03 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/21/2025 10:40:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk EPA PLM 400 Point Count

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-10 / 25070657-001 Ceiling Texture on Concrete, Unit 2C	White Non-Fibrous Homogeneous		98.75% Other	1.25% Chrysotile
PM-11 / 25070657-002 Ceiling Texture on Concrete, Unit 3U				Not Analyzed
PM-12 / 25070657-003 Ceiling Texture on Concrete, Unit 4N				Not Analyzed
PM-13 / 25070657-004 Ceiling Texture on Concrete, Unit 5C				Not Analyzed
PM-14 / 25070657-005 Ceiling Texture on Concrete, Unit 7M				Not Analyzed
PM-15 / 25070657-006 Ceiling Texture on Concrete, Unit 8T				Not Analyzed

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 10/23/2025 Date: 10/23/2025

Disclaimer and Additional Information

400 Point Count Method EPA 600/R-93/116

EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

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Asbestos Accreditations, Certifications, and Licenses:
National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 600227-0
State of Connecticut Department of Public Health Registration Number: PH-0817
State of Rhode Island Department of Health Certification Number: PLM00144, TEM00144
State of West Virginia Bureau for Public Health Asbestos Laboratory Number: LT000637
Texas Department of State Health Services License Number: 300510

Revision#02, 6/21/2024

25070657

From: Tom Wenk <tom@elliotenv.com>
Sent: Tuesday, October 21, 2025 10:40 AM
To: Lab Reports <labreports@sanair.com>
Subject: RE: Analysis Report for Job 25068700 is complete.

EXTERNAL EMAIL: DO NOT CLICK on links or attachments unless you recognize the sender and know the content is safe.

M.A.C. Paran Consulting
Point Count Request-2 Day TAT
Please point count the following:
Project Name: Park Manor Hi-Rise
Lab Report # 25068700
Sample Nos. PM 10, 11, 12, 13,14, 15
Thanks!
Tom Wenk
937-776-3535
Tom@elliotenv.com
-----Original Message-----
From: SanAir Technologies Laboratory <labreports@sanair.com>
Sent: Monday, October 13, 2025 6:07 PM
To: George Beaudion <gbeaudion@macparan.com>; M.A.C. Paran <macparan@macparan.com>; Michelle Paraniuk <macparan@macparan.com>; Tom Wenk <tom@elliotenv.com>
Subject: Analysis Report for Job 25068700 is complete.

IMPORTANT NOTICE
Beginning June 2, 2025, our selected shipping provider will be FedEx. Please visit our website for full details: https://urldefense.proofpoint.com/v2/url?u=https-3A__www.sanair.com_sanair-2Dswitching-2Dto-2Dfedex-2Deffective-2Djune-2D2_&d=DwIFAg&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=kmsHUf915vfjnsrzvBvAxeT6WeBZvbyJb88SYXE3ull&m=6xYa7zu1ZLmUAEDxcQZGeOJwJ_2wcHHB-iMjxrNiE_KfEv73P3fYd8kC6vpd6l1c&s=D5KoJ8Ju8ZpgTE4KIpzEHaX79EwS9ZuCH4QxKMijll4&e=

Your Analysis is complete. Your report in PDF format is attached. Information is periodically added to our additional information and disclaimer pages so please check them for updates.

Thank you for your continued business, SanAir

RMB OCT 21 2025 10:40am

PLM 25070657

SanAir Technologies Laboratory

11709 Chesterdale Road
Cincinnati, Ohio 45246
513.438.6006
sanair.com

Asbestos
Chain of Custody
Form 140, Rev 6, 1/26/2022

SanAir ID Number
PLM 25068700

Company: m.a.c. Paran Consulting Services, Inc.	Project #: N/A	Collected by: Tom Wenk
Address: 3959 Fulton Grove Road	Project Name: Park Manor Hi-Rise	Phone #: 513-383-6262
City, St., Zip: Cincinnati, Ohio	Date Collected: 15-Oct-2025	Fax #:
State of Collection: OHIO Account#:	P.O. Number:	Email: macparan@macparan.com

Bulk

ABB	PLM EPA 600/R-93/116	☑
	Positive Stop ☑	
ABEPA	PLM EPA 400 Point Count	☐
ABB1K	PLM EPA 1000 Point Count	☐
ABBEN	PLM EPA NOB**	☐
ABBCH	TEM Chatfield**	☐
ABBTM	TEM EPA NOB**	☐
ABQ	PLM Qualitative	☐

** Available on 24-hr. to 5-day TAT

Air

ABA	PCM NIOSH 7400	☐
ABA-2	OSHA w/ TWA*	☐
ABTEM	TEM AHERA	☐
ABATN	TEM NIOSH 7402	☐
ABT2	TEM Level II	☐
Other:		☐

New York ELAP

ABEPA2	NY ELAP 198.1	☐
ABENY	NY ELAP 198.6 PLM NOB	☐
ABBNY	NY ELAP 198.4 TEM NOB	☐

Soil

ABSE	PLM EPA 600 R-93/116 (Qual.)	☐

Soil

ABSP	PLM CARB 435 (LOD < 1%)	☐
ABSP1	PLM CARB 435 (LOD 0.25%)	☐
ABSP2	PLM CARB 435 (LOD 0.1%)	☐

Dust

ABWA	TEM Wipe ASTM D-6480	☐
ABDMV	TEM Microvac ASTM D-5755	☐

Water

ABHE	EPA 100.2	☐

Matrix	Other	
		☐

Turn Around Times				
	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	■ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions ALSO EMAIL RESULTS TO TOM WENK AT TOM@ELLIOTENV.COM

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate	Start – Stop Time*	
	Samples 1-57: See Attached Sample Log					

Relinquished by	Date	Time	Received by	Date	Time
Tom Wenk	15-Oct-25		RMB	OCT 13 2025	10:00am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

PHC 2500657

PLM 250687OO

Bulk Sample Log
Parl Manor Hi-Rise

HA Number	Material Code	Sample #	Material Description	Unit
1	HP	PM- 1	Hard Plaster	Unit 1A
		PM- 2		Unit 2C
		PM- 3		Unit 4N
		PM- 4		Unit 6R
		PM- 5		Unit 7M
		PM- 6		Unit 8T
		PM- 7		Room 103
		PM- 8		Room 105
2	TXTC	PM- 9	Ceiling Texture on Concrete	Unit 1A
		PM- 10		Unit 2C
		PM- 11		Unit 3U
		PM- 12		Unit 4N
		PM- 13		Unit 5C
		PM- 14		Unit 7M
		PM- 15		Unit 8T
3	JC	PM- 16	Joint Compound on Drywall Seams & Nailheads	Unit 1G
		PM- 17		Unit 2C
		PM- 18		Unit 3Q
		PM- 19		Unit 4N
		PM- 20		Unit 5L
		PM- 21		Unit 7A
		PM- 22		8th Floor Community Room
		PM- 23		Room 107
4	DW2	PM- 24	Drywall with Grey Paper	1st Floor Restroom in Community Room Pipe Chase
		PM- 25		1st Floor Restroom in Community Room Pipe Chase
5	CP1	PM- 26	2' x 4' Suspended Ceiling Panels Random Fissure	6th Floor Corridor
		PM- 27		8th Floor Corridor
6	CP2	PM- 28	2' x 4' Suspended Ceiling Panels Random Fissure	3rd Floor Corridor
		PM- 29		4th Floor Corridor
7	CP3	PM- 30	2' x 4' Suspended Ceiling Panels Lateral Large Fissure	1st Floor Hallway Between Lobby and Community Room
		PM- 31		1st Floor Hallway Between Lobby and Community Room
8	CP3A	PM- 32	2' x 4' Suspended Ceiling Panels Lateral Fine Fissure	1st Floor Offices
		PM- 33		1st Floor Offices
9	CP4	PM- 34	2' x 4' Suspended Ceiling Panels Drywall	1st Floor Kitchen
		PM- 35		1st Floor Kitchen
10	CP5	PM- 36	2' x 4' Suspended Ceiling Panels Random Pinhole	Room 104
		PM- 37		Room 106
11	FC	PM- 38	Floor Coating On Concrete	7th Floor Trash Room
		PM- 39		8th Floor Trash Room
12	FS1	PM- 40	Fire Stop Compound Red	5th Floor Cooridor
		PM- 41		7th Floor Cooridor

RMB OCT 13 2025 10:00am

PHC+ 25070657

PLM 25068700

Bulk Sample Log
Parl Manor Hi-Rise

HA Number	Material Code	Sample #	Material Description	Unit
13	PFB	PM- 42	Preformed Block Insulation On Bolier Exhaust Breeching Calcium Silicate	Boiler Room
		PM- 43		Boiler Room
		PM- 44		Boiler Room
14	EBM	PM- 45	Black Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Boiler Room
		PM- 46		Boiler Room
15	EFG	PM- 47	Mud Insulation on Pipe Elbows & Fittings of Fiberglass Insulated Lines	Room 102
		PM- 48		Room 102
		PM- 49		Room 103
		PM- 50		Room 103
		PM- 51		Mechanical Tunnel
16	FGM1	PM- 52	White Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 53		Boiler Room
17	FGM2	PM- 54	Tan Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 55		Boiler Room
18	FGJ	PM- 56	Paper/Foil Jacketing on Fiberglass Pipe Insulation	Room 103
		PM- 57		Boiler Room

RMB OCT 13 2025 10:00am

Attachment B

Asbestos Hazard Evaluation Specialist License

Ohio Environmental Protection Agency

EPA.Ohio.gov

Mike DeWine, Governor Jim Tressel, Lt. Governor John Logue, Director

8/11/2025

Thomas Wenk
Elliot Environmental Management
319 Shawnee Trail
Dayton, OH 45458

RE: Evaluation Specialist
Certification Number: ES32076
Expiration Date: 8/11/2026

Dear Thomas Wenk:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at asbestoslicensing@epa.ohio.gov.

Sincerely,

Brandon M. Schwendeman

Brandon Schwendeman
Manager, Business Operations Support Section
Ohio EPA - Division of Air Pollution Control

50 West Town Street • Suite 700 • P.O. Box 1049 • Columbus, OH 43216-1049
epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)

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Cincinnati

3959 Fulton Grove Rd.
Cincinnati, Ohio 45245
(513) 752-9111

Services

Phase I ESA's
Phase II Investigations
Asbestos
Lead-Based Paint
Industrial Hygiene
Indoor Air Quality/Mold
Radon
Safety
Training

Asbestos-Containing Materials Inspection Report

Park Manor Hi-Rise
220 Park Manor Drive
Dayton, Ohio 45410

Prepared for:

Greater Dayton Premier Management (GDPM)
400 Wayne Avenue
Dayton, Ohio 45410
Phone: (937) 977-5882

Prepared by:

m.a.c. Paran Consulting Services, Inc.

Tom Wenk
Certified Asbestos Hazard Evaluation Specialist #ES32076

Michelle Paraniuk, M.S., President

October 2025

Table of Contents

1.0 Executive Summary

1.1 Background

m.a.c. Paran Consulting Services, Inc. performed a limited pre-renovation asbestos inspection for Greater Dayton Premier Management. The inspection was conducted at the Park Manor Hi-Rise, 220 Park Manor Drive, Dayton, Ohio. The inspection included safely accessible areas, vacant units, a limited number of occupied units on floors 1-8, and the basement mechanical tunnel. The objectives of the inspection were to (1) identify, by type and location, friable and non-friable asbestos-containing materials [ACM] in in the structures; (2) assess the current condition of the ACM identified; and (3) provide estimated quantities of ACM. The inspection was conducted by Mr. Tom Wenk, certified Ohio Asbestos Hazard Evaluation Specialist (License #ES32076) in October, 2025.

1.2 Inspection Results

The following is a summary of the materials either assumed to be ACM or confirmed by the laboratory to contain >1% asbestos. Please note that the quantities provided in this summary are approximate amounts and should be verified by an abatement contractor prior to the onset of removal activities.

Friable ACM (Confirmed by Laboratory Analysis)

- **Textured Ceiling Finish** – Approximately **99, 550 square feet** of potentially friable asbestos-containing textured ceiling finish was identified on concrete ceiling decks throughout the building.
    - This material was confirmed to be ACM and in good condition.
    - The surface of the ceiling texture was hard with good adhesion to the concrete substrate.

- **Mud Insulation on Pipe Fittings** – Asbestos-containing friable insulation was identified on approximately 149 pipe fittings and elbows of fiberglass insulated lines in the mechanical tunnel, maintenance areas, above ceilings in the community room offices, and in small utility closets behind the elevators.
    - This material was confirmed to be ACM and in good condition.

Non-Friable Materials Assumed to Be ACM

- **Resilient Flooring** – Approximately **99,435 square feet** of resilient flooring throughout the building is assumed to contain asbestos. The material is in a non-friable condition and includes various colors of 12” and 9” floor tile/mastic and vinyl plank flooring.
    - All flooring observed was in good condition.
    - ACM is also assumed to be present underneath limited areas of carpeting including carpet adhesive, floor tile, and/or mastics.

Non-Friable Materials Assumed to Contain ACM

- **Black Mastic** – Approximately **40 square feet** of exposed black mastic on concrete was assumed to contain asbestos in first floor office 107 (southwest corner of the Community Room). The material is in a non-friable condition.

- **Vinyl Cove base and Adhesive** – Approximately **31,058 linear feet** (10,249 square feet) of cove base and adhesive was assumed to contain asbestos throughout the building. The material is in a non-friable condition.

- **Ceramic Tile Grout and Mortar** – Approximately **9,350 square feet** of ceramic tile on floors and walls was assumed to contain asbestos. The material is in a non-friable condition. This includes the following:

    - Bathtub surrounds in apartment units.
    - Floors and walls of the first floor restrooms.
    - Floors in the first floor main lobby.

Limitations

m.a.c. Paran understands the scope of renovation is limited to the removal and replacement of existing fire alarm conduit and may involve minor disturbance to walls and ceilings. Therefore, the inspection focused on suspect materials likely to be disturbed by the limited scope of renovation such as ceiling texture, drywall, hard plaster, and thermal system insulation. The inspection did not include the collection and analysis of samples of non-friable flooring, cove base, ceramic tiles, or the identification of other materials that will not be impacted, including but not limited to interior caulks on doors and windows, under sink coatings,

The survey included safely accessible areas within reach of a step ladder or secure catwalk and did not include destructive methods of inspection to access, or spaces behind intact walls and ceilings. The following building components and areas were not inspected for safety reasons or without causing damage to active/operating mechanical equipment. These areas include but are not limited to the following:

- **Mechanical Equipment** – Internal components of mechanical equipment including but not limited to water heaters and package boilers in the first floor mechanical room.

- **Electrical Equipment** – Internal components of live electrical equipment was not safely accessible including but not limited to the electrical switch gears.

2.0 Inspection Procedures

2.1 General Asbestos Inspection and Sampling Procedures

The inspection was performed in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAPS, 40 CFR 61.145) and the Ohio Administrative Code (OAC, 3745-20) regulations governing asbestos emission and waste control from demolition/renovation activities. Bulk sampling of materials suspect to contain asbestos was conducted following Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA, 40 CFR 763.90), the accepted industry standard for conducting asbestos investigations in all types of buildings.

The vast majority of physically accessible spaces within the building were accessed and inspected for suspect asbestos-containing materials. The Inspector then grouped suspect materials into homogeneous areas for sampling. A homogeneous area consists of materials with like appearance, color, texture, and application date. A physical assessment (visual observation and touching the material) was also made of the current condition and degree of friability for each identified material (a material is considered friable if it can be crumbled using hand pressure). A list of homogeneous areas identified for this assessment is included on the Bulk Sample Summary Table.

The Inspector assessed all identified asbestos-containing materials. The inspection encompassed both friable and non-friable materials. The Inspector then assumed that the specific material remained homogeneous (based upon the material's appearance and application) throughout the building. In situations where materials appeared to alternate between asbestos-containing and non-asbestos containing, the Inspector looked for visible differences between materials. If differences were not apparent, the Inspector made a professional decision to err on the side of conservatism and assumed that all materials were asbestos-containing.

The Inspector made every effort to locate all asbestos-containing materials identified during the inspection, however, should unidentified suspect asbestos-containing materials be discovered, please contact m.a.c. Paran Consulting Services, Inc. for assistance in material identification.

2.2 Method of Sampling and Analysis

2.2.1 Bulk Sample Collection Methods

To avoid disturbing suspected asbestos-containing materials more than necessary and minimize the potential release of asbestos fibers, the Inspector performed bulk sampling in accordance with the industry accepted procedures outlined in the current EPA Guidance Document and the AHERA sampling protocol. Each sample collected was pre-wetted and obtained using a clean coring tool, utility knife, or other appropriate tool. Each sample was then placed in a clean, sealable vial and labeled with a unique sample identification number. Care was taken to obtain a sample that was representative of all layers of a material. To avoid cross-contamination, the tools used for sample collection were thoroughly cleaned before collecting the next sample. If requested, the sample site was labeled with a pre-printed adhesive-backed sample identification tag bearing the corresponding sample identification number. Pertinent sample information was recorded on a standardized bulk sample log sheet including the date of inspection, name of the Inspector, a brief description and the location of the sample, and the type of material sampled (e.g., thermal systems insulation).

2.2.2 Analysis of Bulk Samples

Bulk samples were analyzed for asbestos content by Polarized-Light Microscopy (PLM) and dispersion staining (Method Reference: EPA/600/R-931/116). This analytical method, which EPA currently recommends, for the determination of asbestos in bulk samples, can be used for qualitative identification of six morphologically different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos.

PLM analysis requires the microscopist to take a portion of the sample and treat it with an oil of a specific refractive index. This prepared slide is then subjected to a variety of tests while being viewed under varying polarizations of light. Each asbestos type displays unique characteristics when subjected to these tests. The percentages of the identified types of asbestos are determined by visual estimation.

For samples containing low concentrations of asbestos, the Inspector may choose to have the laboratory perform point count analysis. This additional step is employed to more accurately determine the percentage of asbestos that is in the material being sampled. Using the point counting procedure, eight mounts are made by dispersing eight sub-samples of the bulk sample into a suitable fluid. A reticule is placed on the eyepiece of the microscope that superimposes a grid of points over the field of view. Fifty non-empty points are examined for each mount, yielding 400 points, some of which may be identified as asbestos and the rest as non-asbestos material. A simple calculation gives the percentage asbestos; 4 points in 400 would be 1.0%.

2.2.3 Reporting of Analysis Results

The method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percent) within the range of 0 to 100. Minute quantities of asbestos in bulk samples may be reported as “trace” (tr) or less than 1 percent. The composition of the bulk sample is reported in percentages of asbestos (i.e., chrysotile, amosite, crocidolite, or other) and non-asbestos (i.e., cellulose, fiberglass, mineral wool, synthetic, or other) components. The original laboratory reports are presented in Appendix A.

2.2.4 Laboratory

Analysis of all suspect asbestos-containing materials was performed by SanAir Technologies Laboratories Inc. using polarized light microscopy. SanAir Labs, Inc. successfully participates in, and is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology.

2.3 Physical and Hazard Assessment

2.3.1 Physical Assessment Factors

Per AHERA requirements, the Inspector performed a physical assessment of all friable asbestos-containing materials. This involved physically observing and documenting the current condition of each friable material, and assessing its potential for future disturbance (or fiber release potential).

The Inspector categorized the materials’ current condition as Good, Fair, or Poor. AHERA protocol is not specific as to how these categories are arrived at, but in general, the following guideline is used:

- Good – less than 10% area damage
- Fair – more than 10%, but less than 25% area damage
- Poor – more than 25% area damage

The Inspector then made an assessment of the materials' potential for future disturbance (or fiber release potential) using the general factors listed in Table 2-1 on the following page. The first three factors focus on the current condition of the asbestos-containing material. Evidence of deterioration, delamination, physical damage, or water damage indicates that fiber release has occurred, is occurring, or is likely to occur in the future. Such evidence is based on the appearance of the material and/or the presence of dislodged or crumbled material in the surrounding area. The first three factors focus on the potential for fiber release due to disturbance or erosion. Surface erosion is likely to occur when asbestos-containing materials are located in air plenums or near forced-air streams. Exposed and easily accessible materials in areas frequented by building occupants, or subject to mechanical vibrations are more vulnerable to disturbance or damage than materials in other locations.

Table 2-1: Factors for Assessing Potential Fiber Release
Current Condition of Asbestos-Containing Materials
• Evidence of deterioration or delamination from the underlying surface (substrate) • Evidence of physical damage (e.g., presence of debris) • Evidence of water damage
Potential for Future Disturbance, Damage, or Erosion of Asbestos-Containing Material
• Proximity to air plenum or direct airstream • Visibility, accessibility (to building occupants and maintenance personnel), and degree of activity (air movement, vibration, movement of building occupants) • Change in building use

2.3.2 Hazard Assessment Factors

Based upon the physical assessment, friable asbestos-containing materials are then given a hazard rank with corresponding response options to aid the building owner in prioritizing response actions (see Table 2-2). The hazard ranks range from 7 – most hazardous, to 1 – least hazardous as shown in Table 2-2 below. The highest rank is reserved for materials that are "significantly damaged" or material that is so extensively damaged that it requires immediate corrective action. Hazard ranks 4 – 6 reflect materials which are "damaged" with rank 6 indicating a high potential for further damage, and rank 5 indicating a moderate potential for damage. Hazard rank 4 denotes that a material has been damaged; however, the potential for any further damage is low. Hazard ranks 1 – 3 are reserved for materials currently in good condition with future disturbance potential being high, moderate, or low (3, 2, 1, respectively). Non-friable materials are categorized as non-friable.

Table 2-2: Classifications for Hazard Potential of Friable Asbestos-Containing Materials		
Hazard Rank	**Condition**	**Disturbance Potential**
7	Poor	Any
6	Fair	High
5	Fair	Moderate
4	Fair	Low
3	Good	High
2	Good	Moderate
1	Good	Low

2.3.3 Physical and Hazard Assessments of Materials Encountered

The physical and hazard assessments made for all asbestos-containing materials identified during this inspection can be found in Section 4.0 “Inventory of Asbestos-Containing Materials.”

3.0 Bulk Sample Data Summary

The following table presents the results of materials sampled.

Table 3-1: Bulk Sample Summary – Park Manor High-Rise

Unit	Material Description	HA Number	Sample #	Laboratory Results
Unit 1A	Hard Plaster	1	PM-1	None Detected
Unit 2C			PM-2	None Detected
Unit 4N			PM-3	None Detected
Unit 6R			PM-4	None Detected
Unit 7M			PM-5	None Detected
Unit 8T			PM-6	None Detected
Room 103			PM-7	None Detected
Room 105			PM-8	None Detected
Unit 1A	Ceiling Texture on Concrete Ceilings Throughout Floors 2-8	2	PM-9	None Detected
Unit 2C			PM-10	1.25% Chrysotile *Confirmed by PLM Point Count*
Unit 3U			PM-11	Not Analyzed Positive Stop
Unit 4N			PM-12	Not Analyzed Positive Stop
Unit 5C			PM-13	Not Analyzed Positive Stop
Unit 7M			PM-14	Not Analyzed Positive Stop
Unit 8T			PM-15	Not Analyzed Positive Stop
Unit 1G	Joint Compound on Drywall Seams & Nailheads	3	PM-16	None Detected
Unit 2C			PM-17	None Detected
Unit 3Q			PM-18	None Detected
Unit 4N			PM-19	None Detected
Unit 5L			PM-20	None Detected
Unit 7A			PM-21	None Detected
8th Floor Community Room			PM-22	None Detected
Room 107			PM-23	None Detected

Table 3-1: Bulk Sample Summary – Park Manor High-Rise				
Unit	**Material Description**	**HA Number**	**Sample #**	**Laboratory Results**
1st Floor Restroom in Community Room Pipe Chase	Drywall with Grey Paper	4	PM-24	None Detected
1st Floor Restroom in Community Room Pipe Chase			PM-25	None Detected
6th Floor Corridor	2' x 4' Suspended Ceiling Panels Random Fissure 2 Panel Recessed Edges	5	PM-26	None Detected
8th Floor Corridor			PM-27	None Detected
3rd Floor Corridor	2' x 4' Suspended Ceiling Panels Random Fissure Flat	6	PM-28	None Detected
4th Floor Corridor			PM-29	None Detected
1st Floor Hallway between Lobby and Community Room	2' x 4' Suspended Ceiling PanelsLateral Large Fissure	7	PM-30	None Detected
1st Floor Hallway between Lobby and Community Room			PM-31	None Detected
1st Floor Offices	2' x 4' Suspended Ceiling Panels Lateral Fine Fissure	8	PM-32	None Detected
1st Floor Offices			PM-33	None Detected
1st Floor Kitchen	2' x 4' Suspended Ceiling Panels Drywall	9	PM-34	None Detected
1st Floor Kitchen			PM-35	None Detected
Room 104	2' x 4' Suspended Ceiling Panels Random Pinhole	10	PM-36	None Detected
Room 106			PM-37	None Detected
7th Floor Trash Room	Floor Coating on Concrete Black Texture	11	PM-38	None Detected
8th Floor Trash Room			PM-39	None Detected
5th Floor Corridor	Fire Stop Compound Red	12	PM-40	None Detected
7th Floor Corridor			PM-41	None Detected
Boiler Room	Preformed Block Insulation on Boiler Exhaust Breeching (Calcium Silicate)	13	PM-42	None Detected
Boiler Room			PM-43	None Detected
Boiler Room			PM-44	None Detected
Boiler Room	Black Mastic on Exposed End of Boiler Exhaust Breeching Insulation	14	PM-45	None Detected
Boiler Room			PM-46	None Detected

Table 3-1: Bulk Sample Summary – Park Manor High-Rise				
Unit	**Material Description**	**HA Number**	**Sample #**	**Laboratory Results**
Room 102	Mud Insulation on Pipe Elbows & Fittings of Fiberglass Insulated Lines	15	PM-47	15% Chrysotile
Room 102			PM-48	Not Analyzed Positive stop
Room 103			PM-49	Not Analyzed Positive stop
Room 103			PM-50	Not Analyzed Positive stop
Mechanical Tunnel			PM-51	Not Analyzed Positive stop
Boiler Room	White Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	16	PM-52	None Detected
Boiler Room			PM-53	None Detected
Boiler Room	Tan Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	17	PM-54	None Detected
Boiler Room			PM-55	None Detected
Room 103	Paper/Foil Jacketing on Fiberglass Pipe Insulation	18	PM-56	None Detected
Boiler Room			PM-57	None Detected

4.0 Inventory of Asbestos-Containing Materials

Floor by Floor Inventories

Table 4.1 below presents a list of asbestos-containing materials (ACM) identified on each floor during the inspection.

Table 4-1 Asbestos-Containing Materials Inventory by Floor: Park Manor High-Rise

Floor	Confirmed ACM		Assumed ACM			
	(1) Ceiling Texture	(2) Mudded Elbows/Fittings	(3)(4) Flooring	Cove Base and Adhesive	(5) Ceramic Tile Walls	(6) Ceramic Tile Floors
ME Tunnel	0	15 ea.	0	0	0	0
1st	12,120 sf	94 ea.	14,770 sf	3,968 lf	1,555 sf	480 sf
2nd	12,490 sf	7 ea.	12,095 sf	3,870 lf	1,045 sf	0
3rd	12,490 sf	5 ea.	12,095 sf	3,870 lf	1,045 sf	0
4th	12,490 sf	5 ea.	12,095 sf	3,870 lf	1,045 sf	0
5th	12,490 sf	6 ea.	12,095 sf	3,870 lf	1,045 sf	0
6th	12,490 sf	6 ea.	12,095 sf	3,870 lf	1,045 sf	0
7th	12,490 sf	5 ea.	12,095 sf	3,870 lf	1,045 sf	0
8th	12,490 sf	6 ea.	12,095 sf	3,870 lf	1,045 sf	0
Total ACM Quantity	99, 550 sf	149 ea.	99,435 sf	31,058 sf	8,870 sf	480 sf

(1) Ceiling texture is present throughout all units, corridors, and other areas.

(2) Quantities of mudded fittings based on fittings observed in visually accessible areas. Additional fittings may be present.

(3) Flooring includes multiple colors of 12" floor tile and mastic, vinyl plank, and carpeting assumed to cover mastic and/or floor tile.

(4) Floors in trash rooms and locked utility closets behind the elevators are concrete. ACM flooring is not present.

(5) Ceramic tile walls (non-friable) include bath tub surrounds and the first floor community room restrooms.

(6) Ceramic tile floors include the main lobby, first floor restrooms, and kitchen (part of the large community room).

Room by Room Inventory

Table 4-2 below presents a list of asbestos-containing materials identified in each room during the inspection and includes condition and hazard rank.

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Basement			
Mechanical Tunnel Under First Floor	Mudded Elbows/Fittings	Good/2	15 ea.
Floor 1			
Unit 1A Studio	Ceiling Texture	Good/3	345 sf
	12" Floor tile & Mastic = 165 sf Carpet = 165 sf	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1B 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1D Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1E Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 1F Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1GStudio	Ceiling Texture	Good/3	345 sf
	18"x18" Vinyl Plank Floor	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1H 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1J 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 1L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1N1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 1P 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	Ceramic Wall Tile	Non-Friable	55 sf
Administrative Offices	Ceiling Texture	Good/3	720 sf
	6" Wide Vinyl Plank Floor	Non-Friable	720 sf
	Cove Base and Adhesive	Non-Friable	180 lf
IT Closet	Ceiling Texture	Good/3	100 sf
	12" Floor Tile & Mastic	Non-Friable	100 sf
	Cove Base and Adhesive	Non-Friable	80 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Vault	Ceiling Texture	Good/3	40 sf
	12" Floor Tile & Mastic	Non-Friable	40 sf
	Cove Base and Adhesive	Non-Friable	25 lf
	12" Floor Tile & Mastic	Non-Friable	720 sf
Maintenance office	Ceiling Texture	Good/3	150 sf
	12" Floor Tile & Mastic	Non-Friable	150 sf
	Cove Base and Adhesive	Non-Friable	48 lf
Office Restroom	Ceiling Texture	Good/2	30 sf
	12" Floor Tile & Mastic	Non-Friable	30 sf
	Cove Base and Adhesive	Non-Friable	25 lf
Laundry Room	Ceiling Texture	Good/3	720 sf
Maintenance Bathroom	Ceiling Texture	Good/3	40 sf
	12" Floor Tile & Mastic	Non-Friable	40 sf
	Cove Base and Adhesive	Non-Friable	25 lf
Maintenance Area North End of First Floor Includes 3 Storage Areas	Ceiling Texture	Good/3	1900 sf
	Mudded Elbows/Fittings	Good/2	30 ea.
	12" Floor Tile & Mastic	Non-Friable	80 sf
Drying Area/Storage Room	Ceiling Texture	Good/3	240 sf
	Mudded Elbows/Fittings	Good/2	10 ea.
	12" Floor Tile & Mastic	Non-Friable	240 sf
	Cove Base and Adhesive	Non-Friable	75 lf
Elevators	6" Wide Vinyl Plank Floor	Non-Friable	40 sf
Service Entry Behind Elevators	Ceiling Texture	Good/3	80 sf
Storage Closet South Side of Elevators	9" Floor Tile & Mastic	Non-Friable	40 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
South Corridor & Ramp	Ceiling Texture	Good/3	1200 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1200 sf
	Cove Base and Adhesive	Non-Friable	400 lf
Ramp Steps	Vinyl Tread & Adhesive	Non-Friable	20 sf
	Cove Base and Adhesive	Non-Friable	8 lf
North Corridor	Ceiling Texture	Good/3	170 sf
	6" Wide Vinyl Plank Floor	Non-Friable	170 sf
	Cove Base and Adhesive	Non-Friable	60 lf
Central Lobby and Corridor to Community Room	Ceiling Texture	Good/3	820 sf
	8" Ceramic Tile Floor	Non-Friable	820 sf
	Cove Base and Adhesive	Non-Friable	260 lf
Community Room (Includes Entry foyer)	6" Wide Vinyl Plank Floor	Non-Friable	3550 sf
	Cove Base and Adhesive	Non-Friable	240 lf
NW Storage	12" Floor Tile & Mastic	Non-Friable	260 sf
	Cove Base and Adhesive	Non-Friable	70 lf
Men's Restroom	4" Ceramic Tile Walls	Non-Friable	420 sf
	2" Ceramic Tile Floor	Non-Friable	160 sf
Women's Restroom	Ceramic Wall Tile	Non-Friable	420 sf
	2" Ceramic Tile Floor	Non-Friable	160 sf
Kitchen	8" Ceramic Tile Floor	Non-Friable	160 sf
NE Vestibule	12" Floor Tile & Mastic	Non-Friable	75 sf
	Cove Base and Adhesive	Non-Friable	36 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Office 100	12" Floor Tile & Mastic	Non-Friable	80 sf
	Cove Base and Adhesive	Non-Friable	40 lf
Office 101	12" Floor Tile & Mastic	Non-Friable	80 sf
	Cove Base and Adhesive	Non-Friable	40 lf
Office 102	Mudded Elbows/Fittings	Good/2	4 ea.
	12" Floor Tile & Mastic	Non-Friable	80 sf
	Cove Base and Adhesive	Non-Friable	40 lf
Office 103	Mudded Elbows/Fittings	Good/2	15 ea.
	12" Floor Tile & Mastic	Non-Friable	80 sf
	Cove Base and Adhesive	Non-Friable	40 lf
Office 104	Mudded Elbows/Fittings	Good/2	4 ea.
	12" Floor Tile & Mastic	Non-Friable	80 sf
	Cove Base and Adhesive	Non-Friable	40 lf
Office 105	Mudded Elbows/Fittings	Good/2	4 ea.
	12" Floor Tile & Mastic	Non-Friable	80 sf
	Cove Base and Adhesive	Non-Friable	40 lf
Office 106	Mudded Elbows/Fittings	Good/2	7 ea.
	12" Floor Tile & Mastic	Non-Friable	80 sf
	Cove Base and Adhesive	Non-Friable	40 lf
Office 107	Mudded Elbows/Fittings	Good/2	20 ea.
	12" Floor Tile & Mastic = 85 sf Exposed Mastic = 40 sf	Non-Friable	125 sf
	Cove Base and Adhesive	Non-Friable	50 lf
South Vestibule	12" Floor Tile & Mastic	Non-Friable	75 sf
	Cove Base and Adhesive	Non-Friable	36 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 2			
Unit 2A 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2C Studio	Ceiling Texture	Good/3	345 sf
	18"x18" Vinyl Plank Floor	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2D Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2E 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2G 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 2H1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2J 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 2N 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2P1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2Q 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2R 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2S 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 2T 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2U 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2V2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 2X 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Hallway to Trash Room	Ceiling Texture	Good/3	100 sf
	12" Floor Tile & Mastic	Non-Friable	100 sf
Trash Room	Ceiling Texture	Good/3	70
ME Closet Behind Elevators	Ceiling Texture	Good/3	40 sf
	Mudded Elbows/Fittings	Good/2	7 ea.
Community Room	Ceiling Texture	Good/3	720 sf
	12" Floor Tile & Mastic	Non-Friable	750 sf
	Cove Base and Adhesive	Non-Friable	160 lf
Corridor	Ceiling Texture	Good/3	1600 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1600 sf
	Cove Base and Adhesive	Non-Friable	530 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 3			
Unit 3A 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3C Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3D Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3E 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3G 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 3H 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3J1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 3N 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3P 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3Q1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	Flooring	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3R 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3S 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 3T 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3U 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	18"x18" Vinyl Plank Floor	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3V 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 3X2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Hallway to Trash Room	Ceiling Texture	Good/3	100 sf
	12" Floor Tile & Mastic	Non-Friable	100 sf
Trash Room	Ceiling Texture	Good/3	70 sf
ME Closet Behind Elevators	Ceiling Texture	Good/3	40 sf
	Mudded Elbows/Fittings	Good/2	5 ea.
Community Room	Ceiling Texture	Good/2	750 sf
	12" Floor Tile & Mastic	Non-Friable	750 sf
	Cove Base and Adhesive	Non-Friable	160 lf
Corridor	Ceiling Texture	Good/2	1600 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1600 sf
	Cove Base and Adhesive	Non-Friable	530 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 4			
Unit 4A 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4C Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4D Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4E 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4G 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 4H 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4J1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 4N 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	6" Wide Vinyl Plank Floor	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4P 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4Q1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4R 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4S 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 4T 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4U 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4V 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 4X2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Hallway to Trash Room	Ceiling Texture	Good/3	100 sf
Hallway to Trash Room	12" Floor Tile & Mastic	Non-Friable	100 sf
Trash Room	Ceiling Texture	Good/3	70 sf
ME Closet Behind Elevators	Ceiling Texture	Good/3	40 sf
ME Closet Behind Elevators	Mudded Elbows/Fittings	Good/2	5 ea.
Community Room	Ceiling Texture	Good/3	750 sf
Community Room	12" Floor Tile & Mastic	Non-Friable	750 sf
	Cove Base and Adhesive	Non-Friable	160 lf
Corridor	Ceiling Texture	Good/2	1600 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1600 sf
	Cove Base and Adhesive	Non-Friable	530 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 5			
Unit 5A 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5C Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5D Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5E 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5G 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 5H1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5J 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	6" Wide Vinyl Plank Floor	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 5N 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5P1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5Q 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5R 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5S 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 5T 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5U 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5V2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 5X 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Hallway to Trash Room	Ceiling Texture	Good/3	100 sf
	12" Floor Tile & Mastic	Non-Friable	100 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Trash Room	Ceiling Texture	Good/3	70 sf
ME Closet Behind Elevators	Ceiling Texture	Good/3	40 sf
	Mudded Elbows/Fittings	Good/2	6 ea.
Community Room	Ceiling Texture	Good/3	750 sf
	12" Floor Tile & Mastic	Non-Friable	750 sf
	Cove Base and Adhesive	Non-Friable	160 lf
Corridor	Ceiling Texture	Good/3	1600 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1600 sf
	Cove Base and Adhesive	Non-Friable	530 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 6			
Unit 6A 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6C Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6D Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6E 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6G 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 6H1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6J 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 6N 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6P1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6Q 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6R 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	18"x18" Vinyl Plank Floor	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6S 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 6T 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6U 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6V2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 6X 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Hallway to Trash Room	Ceiling Texture	Good/3	100 sf
	12" Floor Tile & Mastic	Non-Friable	100 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Trash Room	Ceiling Texture	Good/3	70 sf
ME Closet Behind Elevators	Ceiling Texture	Good/3	40 sf
	Mudded Elbows/Fittings	Good/2	6 ea.
Community Room	Ceiling Texture	Good/2	750 sf
	12" Floor Tile & Mastic	Non-Friable	750 sf
	Cove Base and Adhesive	Non-Friable	160 lf
Corridor	Ceiling Texture	Good/3	1600 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1600 sf
	Cove Base and Adhesive	Non-Friable	530 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 7			
Unit 7A 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	12" Floor Tile & Mastic	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7C Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7D Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7E 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7G 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 7H1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7J 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	6" Wide Vinyl Plank Floor	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 7N 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7P1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7Q 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7R 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7S 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 7T 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7U 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7V2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 7X 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Hallway to Trash Room	Ceiling Texture	Good/3	100 sf
	12" Floor Tile & Mastic	Non-Friable	100 sf
Trash Room	Ceiling Texture	Good/3	70 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
ME Closet Behind Elevators	Ceiling Texture	Good/3	40 sf
	Mudded Elbows/Fittings	Good/3	5 ea.
Community Room	Ceiling Texture	Good/2	750 sf
	12" Floor Tile & Mastic	Non-Friable	750 sf
	Cove Base and Adhesive	Non-Friable	160 lf
Corridor	Ceiling Texture	Good/3	1600 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1600 sf
	Cove Base and Adhesive Cove Base Removed Adhesive Remains	Non-Friable	530 lf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 8			
Unit 8A 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8C Studio	Ceiling Texture	Good/3	345 sf
	ACM Flooring Assumed Present	Non-Friable	330 sf
	Cove Base and Adhesive	Non-Friable	150 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8E 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8G 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8H 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 8J1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8K 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8L 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8M 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8N 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 8P 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8Q1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8R 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8S 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8T 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	6" Wide Vinyl Plank Floor	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 8U 1 Bath/1 Bed	Ceiling Texture	Good/3	500 sf
	ACM Flooring Assumed Present	Non-Friable	485 sf
	Cove Base and Adhesive	Non-Friable	160 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8V 2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf
Unit 8X2 Bath/1 Bed	Ceiling Texture	Good/3	685 sf
	ACM Flooring Assumed Present	Non-Friable	670 sf
	Cove Base and Adhesive	Non-Friable	200 lf
	4" Ceramic Tile Walls (Tub Surround)	Non-Friable	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Park Manor Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Hallway to Trash Room	Ceiling Texture	Good/3	100 sf
	12" Floor Tile & Mastic	Non-Friable	100 sf
Trash Room	Ceiling Texture	Good/3	70 sf
ME Closet Behind Elevators	Ceiling Texture	Good/3	40 sf
	Mudded Elbows/Fittings	Good/2	6 ea.
Community Room	Ceiling Texture	Good/3	750 sf
	12" Floor Tile & Mastic	Non-Friable	750 sf
	Cove Base and Adhesive	Non-Friable	160 lf
Corridor	Ceiling Texture	Good/3	1600 sf
	6" Wide Vinyl Plank Floor	Non-Friable	1600 sf
	Cove Base and Adhesive	Non-Friable	530 lf

Attachment A

Laboratory Report

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for M.A.C Paran Consulting

Report Date: 10/13/2025

Project Name: Park Manor Hi-Rise

SanAir ID#: 25068700

NVLAP TESTING

NVLAP LAB CODE 600227-0

11709 Chesterdale Road, Cincinnati, Ohio 45246
888.895.1177 | 513.438.6066 | LabReports@SanAir.com | SanAir.com

SanAir ID Number
25068700
FINAL REPORT
10/13/2025 6:06:54 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Dear Michelle Paraniuk,

We at SanAir would like to thank you for the work you recently submitted. The 57 sample(s) were received on Monday, October 13, 2025 via FedEx. The final report(s) is enclosed for the following sample(s): PM-1, PM-2, PM-3, PM-4, PM-5, PM-6, PM-7, PM-8, PM-9, PM-10, PM-11, PM-12, PM-13, PM-14, PM-15, PM-16, PM-17, PM-18, PM-19, PM-20, PM-21, PM-22, PM-23, PM-24, PM-25, PM-26, PM-27, PM-28, PM-29, PM-30, PM-31, PM-32, PM-33, PM-34, PM-35, PM-36, PM-37, PM-38, PM-39, PM-40, PM-41, PM-42, PM-43, PM-44, PM-45, PM-46, PM-47, PM-48, PM-49, PM-50, PM-51, PM-52, PM-53, PM-54, PM-55, PM-56, PM-57.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Maureen Y. Haley
Asbestos Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 57 samples in Good condition.

SanAir Technologies Laboratory

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FINAL REPORT
10/13/2025 6:06:54 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/13/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-1 / 25068700-001 Hard Plaster, Unit 1A, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-1 / 25068700-001 Hard Plaster, Unit 1A, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-2 / 25068700-002 Hard Plaster, Unit 2C, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-2 / 25068700-002 Hard Plaster, Unit 2C, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-2 / 25068700-002 Hard Plaster, Unit 2C, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-3 / 25068700-003 Hard Plaster, Unit 4N, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-3 / 25068700-003 Hard Plaster, Unit 4N, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-4 / 25068700-004 Hard Plaster, Unit 6R, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-4 / 25068700-004 Hard Plaster, Unit 6R, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-5 / 25068700-005 Hard Plaster, Unit 7M, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Johnathan Wilson
Date: 10/13/2025

SanAir Technologies Laboratory

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Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-5 / 25068700-005 Hard Plaster, Unit 7M, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-6 / 25068700-006 Hard Plaster, Unit 8T, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-6 / 25068700-006 Hard Plaster, Unit 8T, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-7 / 25068700-007 Hard Plaster, Room 103, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-7 / 25068700-007 Hard Plaster, Room 103, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-8 / 25068700-008 Hard Plaster, Room 105, Plaster	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-8 / 25068700-008 Hard Plaster, Room 105, Skim Coat	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-9 / 25068700-009 Ceiling Texture on Concrete, Unit 1A	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-10 / 25068700-010 Ceiling Texture on Concrete, Unit 2C	White Non-Fibrous Homogeneous		98% Other	2% Chrysotile
PM-11 / 25068700-011 Ceiling Texture on Concrete, Unit 3U				Not Analyzed

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Johnathan Wilson
Date: 10/13/2025

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Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-12 / 25068700-012 Ceiling Texture on Concrete, Unit 4N				Not Analyzed
PM-13 / 25068700-013 Ceiling Texture on Concrete, Unit 5C				Not Analyzed
PM-14 / 25068700-014 Ceiling Texture on Concrete, Unit 7M				Not Analyzed
PM-15 / 25068700-015 Ceiling Texture on Concrete, Unit 8T				Not Analyzed
PM-16 / 25068700-016 Joint Compound on Drywall Seams & Nailheads, Unit 1G, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-16 / 25068700-016 Joint Compound on Drywall Seams & Nailheads, Unit 1G, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-17 / 25068700-017 Joint Compound on Drywall Seams & Nailheads, Unit 2C, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-17 / 25068700-017 Joint Compound on Drywall Seams & Nailheads, Unit 2C, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-18 / 25068700-018 Joint Compound on Drywall Seams & Nailheads, Unit 3Q, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 10/13/2025 Date: 10/13/2025

SanAir Technologies Laboratory

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Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-18 / 25068700-018 Joint Compound on Drywall Seams & Nailheads, Unit 3Q, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-19 / 25068700-019 Joint Compound on Drywall Seams & Nailheads, Unit 4N, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-19 / 25068700-019 Joint Compound on Drywall Seams & Nailheads, Unit 4N, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-20 / 25068700-020 Joint Compound on Drywall Seams & Nailheads, Unit 5L, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-20 / 25068700-020 Joint Compound on Drywall Seams & Nailheads, Unit 5L, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-21 / 25068700-021 Joint Compound on Drywall Seams & Nailheads, Unit 7A, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-21 / 25068700-021 Joint Compound on Drywall Seams & Nailheads, Unit 7A, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-22 / 25068700-022 Joint Compound on Drywall Seams & Nailheads, 8th Floor, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

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Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-22 / 25068700-022 Joint Compound on Drywall Seams & Nailheads, 8th Floor, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-23 / 25068700-023 Joint Compound on Drywall Seams & Nailheads, Room 107, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-23 / 25068700-023 Joint Compound on Drywall Seams & Nailheads, Room 107, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-24 / 25068700-024 Drywall With Paper, 1st Floor Restroom in Community Room	Grey Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-25 / 25068700-025 Drywall With Paper, 1st Floor Restroom in Community Room	Grey Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-26 / 25068700-026 2'x4' Suspended Ceiling Panels Random Fissure, 6th Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-27 / 25068700-027 2'x4' Suspended Ceiling Panels Random Fissure, 8th Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-28 / 25068700-028 2'x4' Suspended Ceiling Panels Random Fissure, 3rd Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-29 / 25068700-029 2'x4' Suspended Ceiling Panels Random Fissure, 4th Floor	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-30 / 25068700-030 2'x4' Suspended Ceiling Panels Lateral Large Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 10/13/2025 Date: 10/13/2025

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-31 / 25068700-031 2'x4' Suspended Ceiling Panels Lateral Large Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-32 / 25068700-032 2'x4' Suspended Ceiling Panels Lateral Fine Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-33 / 25068700-033 2'x4' Suspended Ceiling Panels Lateral Fine Fissure, 1st Fl	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-34 / 25068700-034 2'x4' Suspended Ceiling Panels Drywall, 1st Floor Kitchen	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-35 / 25068700-035 2'x4' Suspended Ceiling Panels Drywall, 1st Floor Kitchen	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-36 / 25068700-036 2'x4' Suspended Ceiling Panels Random Pinhole, Room 104	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-37 / 25068700-037 2'x4' Suspended Ceiling Panels Random Pinhole, Room 106	White Fibrous Homogeneous	15% Min. Wool 40% Cellulose	45% Other	None Detected
PM-38 / 25068700-038 Floor Coating on Concrete, 7th Floor Trash Room	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-39 / 25068700-039 Floor Coating on Concrete, 8th Floor Trash Room	Grey Non-Fibrous Homogeneous		100% Other	None Detected
PM-40 / 25068700-040 Fire Stop Compound, 5th Floor Corridor	Red Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Jonathan Wilson
Date: 10/13/2025

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Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-41 / 25068700-041 Fire Stop Compound, 7th Floor Corridor	Red Non-Fibrous Homogeneous		100% Other	None Detected
PM-42 / 25068700-042 Preformed Block Insulation on Boiler Exhaust Breeching	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-43 / 25068700-043 Preformed Block Insulation on Boiler Exhaust Breeching	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-44 / 25068700-044 Preformed Block Insulation on Boiler Exhaust Breeching	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
PM-45 / 25068700-045 Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Black Non-Fibrous Homogeneous		100% Other	None Detected
PM-46 / 25068700-046 Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Black Non-Fibrous Homogeneous		100% Other	None Detected
PM-47 / 25068700-047 Mud Insulation on Pipe Elbows & Fittings of Fiberglass	White Non-Fibrous Homogeneous	2% Glass	83% Other	15% Chrysotile
PM-48 / 25068700-048 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed
PM-49 / 25068700-049 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed
PM-50 / 25068700-050 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

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Date: 10/13/2025

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-51 / 25068700-051 Mud Insulation on Pipe Elbows & Fittings of Fiberglass				Not Analyzed
PM-52 / 25068700-052 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-53 / 25068700-053 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	White Non-Fibrous Homogeneous		100% Other	None Detected
PM-54 / 25068700-054 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	Tan Non-Fibrous Homogeneous		100% Other	None Detected
PM-55 / 25068700-055 Sealant/ Mastic on Exposed Ends of Fiberglass Pipe Insul.	Tan Non-Fibrous Homogeneous		100% Other	None Detected
PM-56 / 25068700-056 Paper/ Foil Jacketing on Fiberglass Pipe Insulation, Rm 103, Jacketing	Tan Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
PM-56 / 25068700-056 Paper/ Foil Jacketing on Fiberglass Pipe Insulation, Rm 103, Mastic	Black Non-Fibrous Homogeneous		100% Other	None Detected
PM-57 / 25068700-057 Paper/ Foil Jacketing on Fiberglass Pipe Insulation, Boiler	Tan Fibrous Homogeneous	60% Cellulose	40% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 10/13/2025

Approved Signatory: Johnathan Wilson
Date: 10/13/2025

Disclaimer and Additional Information

This report is the sole property of the client named on the SanAir Technologies Laboratory, Inc. (SanAir) chain-of-custody (COC). Results in the report are confidential information intended only for the use by the client named on the COC. Neither results nor reports will be discussed with or released to any third party without our client's written permission to maintain client confidentiality. The final report cannot be reproduced, except in full, without written authorization from SanAir to assure that parts of the report are not taken out of context. This report and any information contained within shall not be edited, altered, or modified in any way by any persons or agencies receiving, viewing, distributing, or otherwise possessing a copy of this final report. The laboratory reserves the right to perform amendments to any finalized report, of which shall supersede and make obsolete any previous editions. Such changes, modifications, additions, or deletions shall be effective immediately upon notice thereof, which may be given by means including, but not limited to, posting on the SanAir client portal website, electronic or conventional mail, or by any other means. The information provided in this report applies only to the samples submitted in the condition they were received at the laboratory and is relevant only for the date, time, and location of sampling. Samples were received in good condition unless otherwise noted on the report. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client on the COC, which includes the project name, project number, P.O. number, sample collection dates, special instructions, samples collected by, sample numbers, sample identifications/location, sample type, selected analysis type, and total area or volume that may affect the validity of the results. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. SanAir assumes no responsibility or liability for the manner in which results are used or interpreted. This report does not constitute and shall not be used to claim product, process, system, or person certification, approval, or endorsement by NVLAP, NIST, NELAC, AIHA LAP, LLC or any other agency of the U.S. government; all or some tests contained in this report may not be accredited by every local, state, and federal regulatory agency. Refer to the SanAir website at www.sanair.com for copies of current certificates and scopes of various accreditations, certifications, and licenses or contact the laboratory at iaq@sanair.com for inquiries regarding the status or scope of an accreditation or certification.

Fibers smaller than 5-microns cannot be seen with this method due to scope limitations. Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing. Samples are held for a period of 60 days.

Asbestos Accreditations, Certifications, and Licenses
National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 600227-0
State of Connecticut Department of Public Health Registration Number: PH-0817
State of Rhode Island Department of Health, Certification Number: PLM00144, TEM00144
State of West Virginia Bureau for Public Health, Analytical Laboratory Number: LT000637
Texas Department of State Health Services License Number: 300510

SanAir Technologies Laboratory

11709 Chesterdale Road
Cincinnati, Ohio 45246
513.438.6006
sanair.com

Asbestos Chain of Custody
Form 140, Rev 6, 1/26/2022

SanAir ID Number
25068700

Company: m.a.c. Paran Consulting Services, Inc.	Project #: N/A	Collected by: Tom Wenk
Address: 3959 Fulton Grove Road	Project Name: Park Manor Hi-Rise	Phone #: 513-383-6262
City, St., Zip: Cincinnati, Ohio	Date Collected: 15-Oct-2025	Fax #:
State of Collection: OHIO Account#:	P.O. Number:	Email: macparan@macparan.com

Bulk

ABB	PLM EPA 600/R-93/116	✓
	Positive Stop ✓	
ABEPA	PLM EPA 400 Point Count	
ABB1K	PLM EPA 1000 Point Count	
ABBEN	PLM EPA NOB**	
ABBCH	TEM Chatfield**	
ABBTM	TEM EPA NOB**	
ABQ	PLM Qualitative	

** Available on 24-hr. to 5-day TAT

Water

ABHE	EPA 100.2	

Air

ABA	PCM NIOSH 7400	
ABA-2	OSHA w/ TWA*	
ABTEM	TEM AHERA	
ABATN	TEM NIOSH 7402	
ABT2	TEM Level II	
Other:		

New York ELAP

ABEPA2	NY ELAP 198.1	
ABENY	NY ELAP 198.6 PLM NOB	
ABBNY	NY ELAP 198.4 TEM NOB	

Soil

ABSE	PLM EPA 600 R-93/116 (Qual.)	

Soil

ABSP	PLM CARB 435 (LOD ~ 1%)	
ABSP1	PLM CARB 435 (LOD 0.25%)	
ABSP2	PLM CARB 435 (LOD 0.1%)	

Dust

ABWA	TEM Wipe ASTM D-6480	
ABDMV	TEM Microvac ASTM D-5755	

Matrix	Other	

Turn Around Times				
	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	■ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions ALSO EMAIL RESULTS TO TOM WENK AT TOM@ELLIOTENV.COM

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
	Samples 1-57: See Attached Sample Log					

Relinquished by	Date	Time	Received by	Date	Time
Tom Wenk	15-Oct-25		RMB	OCT 13 2025	10:00am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Bulk Sample Log
Parl Manor Hi-Rise

25068700

HA Number	Material Code	Sample #	Material Description	Unit
1	HP	PM- 1	Hard Plaster	Unit 1A
		PM- 2		Unit 2C
		PM- 3		Unit 4N
		PM- 4		Unit 6R
		PM- 5		Unit 7M
		PM- 6		Unit 8T
		PM- 7		Room 103
		PM- 8		Room 105
2	TXTC	PM- 9	Ceiling Texture on Concrete	Unit 1A
		PM- 10		Unit 2C
		PM- 11		Unit 3U
		PM- 12		Unit 4N
		PM- 13		Unit 5C
		PM- 14		Unit 7M
		PM- 15		Unit 8T
3	JC	PM- 16	Joint Compound on Drywall Seams & Nailheads	Unit 1G
		PM- 17		Unit 2C
		PM- 18		Unit 3Q
		PM- 19		Unit 4N
		PM- 20		Unit 5L
		PM- 21		Unit 7A
		PM- 22		8th Floor Community Room
		PM- 23		Room 107
4	DW2	PM- 24	Drywall with Grey Paper	1st Floor Restroom in Community Room Pipe Chase
		PM- 25		1st Floor Restroom in Community Room Pipe Chase
5	CP1	PM- 26	2' x 4' Suspended Ceiling Panels Random Fissure	6th Floor Corridor
		PM- 27		8th Floor Corridor
6	CP2	PM- 28	2' x 4' Suspended Ceiling Panels Random Fissure	3rd Floor Corridor
		PM- 29		4th Floor Corridor
7	CP3	PM- 30	2' x 4' Suspended Ceiling Panels Lateral Large Fissure	1st Floor Hallway Between Lobby and Community Room
		PM- 31		1st Floor Hallway Between Lobby and Community Room
8	CP3A	PM- 32	2' x 4' Suspended Ceiling Panels Lateral Fine Fissure	1st Floor Offices
		PM- 33		1st Floor Offices
9	CP4	PM- 34	2' x 4' Suspended Ceiling Panels Drywall	1st Floor Kitchen
		PM- 35		1st Floor Kitchen
10	CP5	PM- 36	2' x 4' Suspended Ceiling Panels Random Pinhole	Room 104
		PM- 37		Room 106
11	FC	PM- 38	Floor Coating On Concrete	7th Floor Trash Room
		PM- 39		8th Floor Trash Room
12	FS1	PM- 40	Fire Stop Compound Red	5th Floor Cooridor
		PM- 41		7th Floor Cooridor

RMB OCT 13 2025 10:00am

25068700

Bulk Sample Log
Parl Manor Hi-Rise

HA Number	Material Code	Sample #	Material Description	Unit
13	PFB	PM- 42	Preformed Block Insulation On Bolier Exhaust Breeching Calcium Silicate	Boiler Room
		PM- 43		Boiler Room
		PM- 44		Boiler Room
14	EBM	PM- 45	Black Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Boiler Room
		PM- 46		Boiler Room
15	EFG	PM- 47	Mud Insulation on Pipe Elbows & Fittings of Fiberglass Insulated Lines	Room 102
		PM- 48		Room 102
		PM- 49		Room 103
		PM- 50		Room 103
		PM- 51		Mechanical Tunnel
16	FGM1	PM- 52	White Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 53		Boiler Room
17	FGM2	PM- 54	Tan Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 55		Boiler Room
18	FGJ	PM- 56	Paper/Foil Jacketing on Fiberglass Pipe Insulation	Room 103
		PM- 57		Boiler Room

RMB OCT 13 2025 10:00am

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for M.A.C Paran Consulting

Report Date: 10/23/2025

Project Name: Park Manor Hi-Rise

SanAir ID#: 25070657

NVLAP TESTING

NVLAP LAB CODE 600227-0

11709 Chesterdale Road, Cincinnati, Ohio 45246
888.895.1177 | 513.438.6066 | LabReports@SanAir.com | SanAir.com

SanAir ID Number
25070657
FINAL REPORT
10/23/2025 3:15:03 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/21/2025 10:40:00 AM

Dear Michelle Paraniuk,

We at SanAir would like to thank you for the work you recently submitted. The 6 sample(s) were received on Tuesday, October 21, 2025 via Fax or Email request. The final report(s) is enclosed for the following sample(s): PM-10, PM-11, PM-12, PM-13, PM-14, PM-15.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Maureen Y. Haley
Asbestos Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 6 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
25070657
FINAL REPORT
10/23/2025 3:15:03 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Park Manor Hi-Rise
Collected Date: 10/15/2025
Received Date: 10/21/2025 10:40:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk EPA PLM 400 Point Count

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
PM-10 / 25070657-001 Ceiling Texture on Concrete, Unit 2C	White Non-Fibrous Homogeneous		98.75% Other	1.25% Chrysotile
PM-11 / 25070657-002 Ceiling Texture on Concrete, Unit 3U				Not Analyzed
PM-12 / 25070657-003 Ceiling Texture on Concrete, Unit 4N				Not Analyzed
PM-13 / 25070657-004 Ceiling Texture on Concrete, Unit 5C				Not Analyzed
PM-14 / 25070657-005 Ceiling Texture on Concrete, Unit 7M				Not Analyzed
PM-15 / 25070657-006 Ceiling Texture on Concrete, Unit 8T				Not Analyzed

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 10/23/2025 Date: 10/23/2025

Disclaimer and Additional Information

400 Point Count Method EPA 600/R-93/116

EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

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Asbestos Accreditations, Certifications, and Licenses:
National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 600227-0
State of Connecticut Department of Public Health Registration Number: PH-0817
State of Rhode Island Department of Health Certification Number: PLM00144, TEM00144
State of West Virginia Bureau for Public Health Asbestos Laboratory Number: LT000637
Texas Department of State Health Services License Number: 300510

Revision#02, 6/21/2024

PLM 25070657

SanAir Technologies Laboratory

11709 Chesterdale Road
Cincinnati, Ohio 45246
513.438.6006
sanair.com

Asbestos
Chain of Custody
Form 140, Rev 6, 1/26/2022

SanAir ID Number
PLM 25068700

Company: m.a.c. Paran Consulting Services, Inc.	Project #: N/A	Collected by: Tom Wenk
Address: 3959 Fulton Grove Road	Project Name: Park Manor Hi-Rise	Phone #: 513-383-6262
City, St., Zip: Cincinnati, Ohio	Date Collected: 15-Oct-2025	Fax #:
State of Collection: OHIO Account#:	P.O. Number:	Email: macparan@macparan.com

Bulk

ABB	PLM EPA 600/R-93/116	☑
	Positive Stop ☑	
ABEPA	PLM EPA 400 Point Count	☐
ABB1K	PLM EPA 1000 Point Count	☐
ABBEN	PLM EPA NOB**	☐
ABBCH	TEM Chatfield**	☐
ABBTM	TEM EPA NOB**	☐
ABQ	PLM Qualitative	☐

** Available on 24-hr. to 5-day TAT

Air

ABA	PCM NIOSH 7400	☐
ABA-2	OSHA w/ TWA*	☐
ABTEM	TEM AHERA	☐
ABATN	TEM NIOSH 7402	☐
ABT2	TEM Level II	☐
Other:		☐

New York ELAP

ABEPA2	NY ELAP 198.1	☐
ABENY	NY ELAP 198.6 PLM NOB	☐
ABBNY	NY ELAP 198.4 TEM NOB	☐

Soil

ABSE	PLM EPA 600 R-93/116 (Qual.)	☐

Soil

ABSP	PLM CARB 435 (LOD < 1%)	☐
ABSP1	PLM CARB 435 (LOD 0.25%)	☐
ABSP2	PLM CARB 435 (LOD 0.1%)	☐

Dust

ABWA	TEM Wipe ASTM D-6480	☐
ABDMV	TEM Microvac ASTM D-5755	☐

Water

ABHE	EPA 100.2	☐

Matrix	Other	
		☐

Turn Around Times				
	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	■ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions ALSO EMAIL RESULTS TO TOM WENK AT TOM@ELLIOTENV.COM

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate	Start – Stop Time*	
	Samples 1-57: See Attached Sample Log					

Relinquished by	Date	Time	Received by	Date	Time
Tom Wenk	15-Oct-25		RMB	OCT 13 2025	10:00am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

PHC 2500657

PLM 250687OO

Bulk Sample Log
Parl Manor Hi-Rise

HA Number	Material Code	Sample #	Material Description	Unit
1	HP	PM- 1	Hard Plaster	Unit 1A
		PM- 2		Unit 2C
		PM- 3		Unit 4N
		PM- 4		Unit 6R
		PM- 5		Unit 7M
		PM- 6		Unit 8T
		PM- 7		Room 103
		PM- 8		Room 105
2	TXTC	PM- 9	Ceiling Texture on Concrete	Unit 1A
		PM- 10		Unit 2C
		PM- 11		Unit 3U
		PM- 12		Unit 4N
		PM- 13		Unit 5C
		PM- 14		Unit 7M
		PM- 15		Unit 8T
3	JC	PM- 16	Joint Compound on Drywall Seams & Nailheads	Unit 1G
		PM- 17		Unit 2C
		PM- 18		Unit 3Q
		PM- 19		Unit 4N
		PM- 20		Unit 5L
		PM- 21		Unit 7A
		PM- 22		8th Floor Community Room
		PM- 23		Room 107
4	DW2	PM- 24	Drywall with Grey Paper	1st Floor Restroom in Community Room Pipe Chase
		PM- 25		1st Floor Restroom in Community Room Pipe Chase
5	CP1	PM- 26	2' x 4' Suspended Ceiling Panels Random Fissure	6th Floor Corridor
		PM- 27		8th Floor Corridor
6	CP2	PM- 28	2' x 4' Suspended Ceiling Panels Random Fissure	3rd Floor Corridor
		PM- 29		4th Floor Corridor
7	CP3	PM- 30	2' x 4' Suspended Ceiling Panels Lateral Large Fissure	1st Floor Hallway Between Lobby and Community Room
		PM- 31		1st Floor Hallway Between Lobby and Community Room
8	CP3A	PM- 32	2' x 4' Suspended Ceiling Panels Lateral Fine Fissure	1st Floor Offices
		PM- 33		1st Floor Offices
9	CP4	PM- 34	2' x 4' Suspended Ceiling Panels Drywall	1st Floor Kitchen
		PM- 35		1st Floor Kitchen
10	CP5	PM- 36	2' x 4' Suspended Ceiling Panels Random Pinhole	Room 104
		PM- 37		Room 106
11	FC	PM- 38	Floor Coating On Concrete	7th Floor Trash Room
		PM- 39		8th Floor Trash Room
12	FS1	PM- 40	Fire Stop Compound Red	5th Floor Cooridor
		PM- 41		7th Floor Cooridor

RMB OCT 13 2025 10:00am

PHC+ 25070657

PLM 25068700

Bulk Sample Log
Parl Manor Hi-Rise

HA Number	Material Code	Sample #	Material Description	Unit
13	PFB	PM- 42	Preformed Block Insulation On Bolier Exhaust Breeching Calcium Silicate	Boiler Room
		PM- 43		Boiler Room
		PM- 44		Boiler Room
14	EBM	PM- 45	Black Mastic on Exposed End of Boiler Exhaust Breeching Insulation	Boiler Room
		PM- 46		Boiler Room
15	EFG	PM- 47	Mud Insulation on Pipe Elbows & Fittings of Fiberglass Insulated Lines	Room 102
		PM- 48		Room 102
		PM- 49		Room 103
		PM- 50		Room 103
		PM- 51		Mechanical Tunnel
16	FGM1	PM- 52	White Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 53		Boiler Room
17	FGM2	PM- 54	Tan Sealant/Mastic on Exposed Ends of Fiberglass Pipe Insulation	Boiler Room
		PM- 55		Boiler Room
18	FGJ	PM- 56	Paper/Foil Jacketing on Fiberglass Pipe Insulation	Room 103
		PM- 57		Boiler Room

RMB OCT 13 2025 10:00am

Attachment B

Asbestos Hazard Evaluation Specialist License

Ohio Environmental Protection Agency

EPA.Ohio.gov

Mike DeWine, Governor Jim Tressel, Lt. Governor John Logue, Director

8/11/2025

Thomas Wenk
Elliot Environmental Management
319 Shawnee Trail
Dayton, OH 45458

RE: Evaluation Specialist
Certification Number: ES32076
Expiration Date: 8/11/2026

Dear Thomas Wenk:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at asbestoslicensing@epa.ohio.gov.

Sincerely,

Brandon M. Schwendeman

Brandon Schwendeman
Manager, Business Operations Support Section
Ohio EPA - Division of Air Pollution Control

50 West Town Street • Suite 700 • P.O. Box 1049 • Columbus, OH 43216-1049
epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)

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Cincinnati

3959 Fulton Grove Rd.
Cincinnati, Ohio 45245
(513) 752-9111

Services

Phase I ESA's
Phase II Investigations
Asbestos
Lead-Based Paint
Industrial Hygiene
Indoor Air Quality/Mold
Radon
Safety
Training

Asbestos-Containing Materials Inspection Report

Wilmington Hi-Rise
958 Wilmington Avenue
Dayton, OH 45420

Prepared for:

Greater Dayton Premier Management (GDPM)
400 Wayne Avenue
Dayton, Ohio 45410
Phone: (937) 977-5882

Prepared by:

m.a.c. Paran Consulting Services, Inc.

Tom Wenk
Certified Asbestos Hazard Evaluation Specialist #ES32076

Michelle Paraniuk, M.S., President

October 2025

Table of Contents

1.0 Executive Summary

1.1 Background

m.a.c. Paran Consulting Services, Inc. performed a limited pre-renovation asbestos inspection for Greater Dayton Premier Management. The inspection was conducted at the Wilmington Hi-Rise, 958 Wilmington Avenue, Dayton, Ohio. The objectives of the inspection were to (1) identify, by type and location, friable and non-friable asbestos-containing materials [ACM] in in the structures; (2) assess the current condition of the ACM identified; and (3) provide estimated quantities of ACM. The inspection was conducted by Mr. Tom Wenk, certified Ohio Asbestos Hazard Evaluation Specialist (License #ES32076), in October 2025.

The inspection included safely accessible areas, vacant units, and a limited number of occupied units on floors 1-4

1.2 Inspection Results

The following is a summary of the materials either assumed to be ACM or confirmed by the laboratory to contain asbestos. Please note that the quantities provided in this summary are approximate amounts and should be verified by an abatement contractor prior to the onset of removal activities.

ACM (Confirmed by Laboratory Analysis)

- **Black Mastic on Floors** – Approximately **20,920 square feet** of non-friable asbestos-containing mastic was identified or assumed present on concrete floors throughout the majority of the building..
    - This material was confirmed to contain asbestos and is in good condition.
    - Asbestos-containing mastic was confirmed or observed as follows:
        - Exposed in the utility closet at the west end of first floor (Sample WHR-32)
        - Under floor tile in Maintenance Room 112 (Samples WHR-11 and 14).
        - Under floor tile in Unit 123 (Samples WHR-7).
        - Under floor tile and Gypcrete leveling compound in the east corridor of first floor (Sample WHR-16)
        - Additionally black mastic was observed under carpet adhesive in several units (Units 106, 115, 207, 309, 319, 402, 405, and 408). Results of analysis of carpet adhesive mixed with mastic indicated an asbestos content of <1%. This suggests asbestos-containing mastic is present underneath the carpet adhesive.

Non-Friable Materials Assumed to Be ACM

- **ACM Flooring** – Approximately **19,755 square feet** of flooring is assumed to contain asbestos.
    - ACM flooring was assumed present in occupied units that were not accessed for inspection.
    - Vinyl plank flooring is in the west corridors of floors 1-4 cover underlying plywood subfloor.
      ACM flooring is assumed present underneath the subfloor.

- **Ceramic Tile Mortar and Grout** – Approximately **4,400 square feet** of ceramic floor and wall tile is assumed to contain asbestos. This includes walls and floors in the first floor restrooms and bathtub surrounds in each unit.

Materials Containing <1% Asbestos

- **Joint Compound on Drywall Seams and Nail Heads** – Approximately **173,280 square feet** of drywall with asbestos-containing joint compound was identified throughout the building.
    - Results of PLM point count analysis confirmed an asbestos content of 0.25% (Samples WHR-57, 59, 60, and 61).
- **Acoustical Ceiling Tile Adhesive (Glue) Pucks** – Approximately **1,430 square feet** acoustical ceiling tile with <1% asbestos adhesive glue pucks were identified in the Rooms 112 (maintenance), Rooms 113, and 114 (kitchen and pantry), and the west half of Community Room 115.

Areas Where No ACM Flooring Was Identified

- No suspect ACM flooring was identified in the Trash Rooms and Utility Closets on Floors 2-4. This includes Rooms 221/221A, 321/321A, and 421/421A. Floors in these rooms are painted concrete. Ceilings appear to be corrugate metal decking. The front and side walls of the utility closets are drywall (with < 1% asbestos joint compound).

Limitations

The survey included safely accessible areas within reach of a step ladder or secure catwalk and did not include destructive methods of inspection to access spaces behind intact walls and ceilings. The following building components and areas were not inspected for safety reasons or without causing damage to active/operating mechanical equipment. These areas include but are not limited to the following:

- **Elevator Equipment Room:** GDPM staff were unable to provide access to the elevator equipment room on first floor.
- **Mechanical Equipment:** Internal components of mechanical equipment including but not limited to water heaters and package boilers in the first floor mechanical room.
- **Electrical Equipment:** Internal components of live electrical equipment was not safely accessible including but not limited to the electrical switch gears.

2.0 Inspection Procedures

2.1 General Asbestos Inspection and Sampling Procedures

The inspection was performed in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAPS, 40 CFR 61.145) and the Ohio Administrative Code (OAC, 3745-20) regulations governing asbestos emission and waste control from demolition/renovation activities. Bulk sampling of materials suspect to contain asbestos was conducted following Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA, 40 CFR 763.90), the accepted industry standard for conducting asbestos investigations in all types of buildings.

The vast majority of physically accessible spaces within the building were accessed and inspected for suspect asbestos-containing materials. The Inspector then grouped suspect materials into homogeneous areas for sampling. A homogeneous area consists of materials with like appearance, color, texture, and application date. A physical assessment (visual observation and touching the material) was also made of the current condition and degree of friability for each identified material (a material is considered friable if it can be crumbled using hand pressure). A list of homogeneous areas identified for this assessment is included on the Bulk Sample Summary Table.

The Inspector assessed all identified asbestos-containing materials. The inspection encompassed both friable and non-friable materials. The Inspector then assumed that the specific material remained homogeneous (based upon the material's appearance and application) throughout the building. In situations where materials appeared to alternate between asbestos-containing and non-asbestos containing, the Inspector looked for visible differences between materials. If differences were not apparent, the Inspector made a professional decision to err on the side of conservatism and assumed that all materials were asbestos-containing.

The Inspector made every effort to locate all asbestos-containing materials identified during the inspection, however, should unidentified suspect asbestos-containing materials be discovered, please contact m.a.c. Paran Consulting Services, Inc. for assistance in material identification.

2.2 Method of Sampling and Analysis

2.2.1 Bulk Sample Collection Methods

To avoid disturbing suspected asbestos-containing materials more than necessary and minimize the potential release of asbestos fibers, the Inspector performed bulk sampling in accordance with the industry accepted procedures outlined in the current EPA Guidance Document and the AHERA sampling protocol. Each sample collected was pre-wetted and obtained using a clean coring tool, utility knife, or other appropriate tool. Each sample was then placed in a clean, sealable vial and labeled with a unique sample identification number. Care was taken to obtain a sample that was representative of all layers of a material. To avoid cross-contamination, the tools used for sample collection were thoroughly cleaned before collecting the next sample. If requested, the sample site was labeled with a pre-printed adhesive-backed sample identification tag bearing the corresponding sample identification number. Pertinent sample information was recorded on a standardized bulk sample log sheet including the date of inspection, name of the Inspector, a brief description and the location of the sample, and the type of material sampled (e.g., thermal systems insulation).

2.2.2 Analysis of Bulk Samples

Bulk samples were analyzed for asbestos content by Polarized-Light Microscopy (PLM) and dispersion staining (Method Reference: EPA/600/R-931/116). This analytical method, which EPA currently recommends, for the determination of asbestos in bulk samples, can be used for qualitative identification of six morphologically different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos.

PLM analysis requires the microscopist to take a portion of the sample and treat it with an oil of a specific refractive index. This prepared slide is then subjected to a variety of tests while being viewed under varying polarizations of light. Each asbestos type displays unique characteristics when subjected to these tests. The percentages of the identified types of asbestos are determined by visual estimation.

For samples containing low concentrations of asbestos, the Inspector may choose to have the laboratory perform point count analysis. This additional step is employed to more accurately determine the percentage of asbestos that is in the material being sampled. Using the point counting procedure, eight mounts are made by dispersing eight sub-samples of the bulk sample into a suitable fluid. A reticule is placed on the eyepiece of the microscope that superimposes a grid of points over the field of view. Fifty non-empty points are examined for each mount, yielding 400 points, some of which may be identified as asbestos and the rest as non-asbestos material. A simple calculation gives the percentage asbestos; 4 points in 400 would be 1.0%.

2.2.3 Reporting of Analysis Results

The method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percent) within the range of 0 to 100. Minute quantities of asbestos in bulk samples may be reported as “trace” (tr) or less than 1 percent. The composition of the bulk sample is reported in percentages of asbestos (i.e., chrysotile, amosite, crocidolite, or other) and non-asbestos (i.e., cellulose, fiberglass, mineral wool, synthetic, or other) components. The original laboratory reports are presented in Appendix A.

2.2.4 Laboratory

Analysis of all suspect asbestos-containing materials was performed by SanAir Technologies Laboratories Inc. using polarized light microscopy. SanAir Labs, Inc. successfully participates in, and is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology.

2.3 Physical and Hazard Assessment

2.3.1 Physical Assessment Factors

Per AHERA requirements, the Inspector performed a physical assessment of all friable asbestos-containing materials. This involved physically observing and documenting the current condition of each friable material, and assessing its potential for future disturbance (or fiber release potential).

The Inspector categorized the materials’ current condition as Good, Fair, or Poor. AHERA protocol is not specific as to how these categories are arrived at, but in general, the following guideline is used:

- Good – less than 10% area damage
- Fair – more than 10%, but less than 25% area damage
- Poor – more than 25% area damage

The Inspector then made an assessment of the materials' potential for future disturbance (or fiber release potential) using the general factors listed in Table 2-1 on the following page. The first three factors focus on the current condition of the asbestos-containing material. Evidence of deterioration, delamination, physical damage, or water damage indicates that fiber release has occurred, is occurring, or is likely to occur in the future. Such evidence is based on the appearance of the material and/or the presence of dislodged or crumbled material in the surrounding area. The first three factors focus on the potential for fiber release due to disturbance or erosion. Surface erosion is likely to occur when asbestos-containing materials are located in air plenums or near forced-air streams. Exposed and easily accessible materials in areas frequented by building occupants, or subject to mechanical vibrations are more vulnerable to disturbance or damage than materials in other locations.

Table 2-1: Factors for Assessing Potential Fiber Release
Current Condition of Asbestos-Containing Materials
• Evidence of deterioration or delamination from the underlying surface (substrate) • Evidence of physical damage (e.g., presence of debris) • Evidence of water damage
Potential for Future Disturbance, Damage, or Erosion of Asbestos-Containing Material
• Proximity to air plenum or direct airstream • Visibility, accessibility (to building occupants and maintenance personnel), and degree of activity (air movement, vibration, movement of building occupants) • Change in building use

2.3.2 Hazard Assessment Factors

Based upon the physical assessment, friable asbestos-containing materials are then given a hazard rank with corresponding response options to aid the building owner in prioritizing response actions (see Table 2-2). The hazard ranks range from 7 – most hazardous, to 1 – least hazardous as shown in Table 2-2 below. The highest rank is reserved for materials that are "significantly damaged" or material that is so extensively damaged that it requires immediate corrective action. Hazard ranks 4 – 6 reflect materials which are "damaged" with rank 6 indicating a high potential for further damage, and rank 5 indicating a moderate potential for damage. Hazard rank 4 denotes that a material has been damaged; however, the potential for any further damage is low. Hazard ranks 1 – 3 are reserved for materials currently in good condition with future disturbance potential being high, moderate, or low (3, 2, 1, respectively). Non-friable materials are categorized as non-friable.

Table 2-2: Classifications for Hazard Potential of Friable Asbestos-Containing Materials		
Hazard Rank	**Condition**	**Disturbance Potential**
7	Poor	Any
6	Fair	High
5	Fair	Moderate
4	Fair	Low
3	Good	High
2	Good	Moderate
1	Good	Low

2.3.3 Physical and Hazard Assessments of Materials Encountered

The physical and hazard assessments made for all asbestos-containing materials identified during this inspection can be found in Section 4.0 “Inventory of Asbestos-Containing Materials.”

3.0 Bulk Sample Data Summary

The following table presents the results of materials sampled.

Table 3-1: Bulk Sample Summary – Wilmington High-Rise

Room/Location	Material Description	Homogeneous Area (HA) Number	Sample Number	Laboratory Results
Unit 207 Kitchen	12" Floor Tile-Beige on Grey "Gypcrete" Underlayment Compound	1	WHR-1	Tile = ND Yellow Adhesive = ND Grey Underlayment = ND
Unit 218 Kitchen			WHR-2	Tile = ND Yellow Adhesive = ND Grey Underlayment = ND
Unit 306 Foyer Closet			WHR-3	Tile = ND Yellow Adhesive = ND Grey Underlayment = ND
Unit 313 Bathroom			WHR-4	Tile = ND Yellow Adhesive = ND Grey Underlayment = ND
Unit 402 Kitchen			WHR-5	Tile = ND Yellow Adhesive = ND Grey Underlayment = ND
Unit 408 Kitchen			WHR-6	Tile = ND Yellow Adhesive = ND Grey Underlayment = ND
Unit 123 Kitchen	12" Floor Tile-Beige with Black Mastic	1A	WHR-7	Tile = ND Mastic = 4% Chrysotile
Unit 123 Kitchen			WHR-8	Tile = ND Mastic Not Analyzed (Positive Stop)
Unit 215			WHR-9	Tile = ND Mastic Not Analyzed (Positive Stop)
Unit 215			WHR-10	Tile = ND Mastic Not Analyzed (Positive Stop)
Room 112 Maintenance	12" Floor Tile-Pink Speckle with Black Mastic	2	WHR-11	Tile = ND Mastic = 3% Chrysotile

Table 3-1: Bulk Sample Summary – Wilmington High-Rise				
Room/Location	**Material Description**	**Homogeneous Area (HA) Number**	**Sample Number**	**Laboratory Results**
Room 112 Maintenance	12" Floor Tile-Pink Speckle with Black Mastic	2	WHR-12	Tile = ND Mastic Not Analyzed (Positive Stop)
Room 112 Maintenance	12" Floor Tile-Pink Speckle with Black Mastic	2	WHR-13	Tile = ND Mastic Not Analyzed (Positive Stop)
Room 112 Maintenance	12" Floor Tile-Mauve with Black Mastic	3	WHR-14	Tile = ND Mastic = 3% Chrysotile
Room 112 Maintenance			WHR-15	Tile = ND Mastic Not Analyzed (Positive Stop)
First Floor East Corridor 111	12" Floor Tile-Grey/Tope with Grey Underlayment (Gypcrete)	4	WHR-16	Tile = ND Mastic = 3% Chrysotile
Third Floor East Corridor 311			WHR-17	Tile = ND Yellow Adhesive = ND Grey Underlayment = ND No Mastic In Sample
Second Floor West Corridor 210	Vinyl Plank Flooring-Grey/Brown Faux Wood Pattern with Tan Adhesive	5	WHR-18	Vinyl Plank = ND Tan Adhesive = ND
Unit 220 Kitchen			WHR-19	Vinyl Plank = ND Tan Adhesive = ND
Unit 413 Kitchen			WHR-20	Vinyl Plank = ND Tan Adhesive = ND
Unit 205 Kitchen	18" Vinyl Plank-Gold with Orange Tint with Tan Adhesive	6	WHR-21	Vinyl Plank = ND Tan Adhesive = ND Grey Underlayment = ND
Unit 406 Bedroom 1 (Primary)			WHR-22	Vinyl Plank = ND Tan Adhesive = ND
Unit 122 Living Room	18" Vinyl Plank-Brown and Black with Brown Adhesive	7	WHR-23	Vinyl Plank = ND Tan Adhesive = ND
Unit 122 Kitchen			WHR-24	Vinyl Plank = ND Tan Adhesive = ND
Unit 304 Foyer Closet	18" Vinyl Plank-Gold/Beige with Tan Adhesive	8	WHR-25	Vinyl Plank = ND Tan Adhesive = ND
Unit 304 Bedroom			WHR-26	Vinyl Plank = ND Tan Adhesive = ND
Unit 205 Living Room	18" Vinyl Plank-Orange, Black, Brown with Tan Adhesive	9	WHR-27	Vinyl Plank = ND Tan Adhesive = ND
Unit 205 Living Room			WHR-28	Vinyl Plank = ND Tan Adhesive = ND

Table 3-1: Bulk Sample Summary – Wilmington High-Rise				
Room/Location	**Material Description**	**Homogeneous Area (HA) Number**	**Sample Number**	**Laboratory Results**
First FloorWest StairwellWest End of Corridor 110	Vinyl Stair Tread-Green with Tan/Yellow Adhesive	10	WHR-29	Tread= ND Tan Adhesive = ND
First Floor Middle Stairwell South of Lobby 134			WHR-30	Tread= ND Tan Adhesive = ND
First Floor North Stairwell North End of Corridor 120			WHR-31	Tread= ND Tan Adhesive = ND
First Floor Small ME Room West Stairwell	Residual Black Mastic on Concrete Floor	11	WHR-32	4% Chrysotile
First Floor Small ME Room West Stairwell			WHR-33	Not Analyzed (Positive Stop)
Unit 106 Living Room	Carpet Adhesive-Tan/Gold	12	WHR-34	<1% Chrysotile Treat As ACM
Unit 405 Living Room			WHR-35	<1% Chrysotile Treat As ACM
Room 115 Meeting Room	Carpet Adhesive-Tan/Gold with Limited Black Mastic	13	WHR-36	<1% Chrysotile Treat As ACM
Unit 207 Living Room			WHR-37	<1% Chrysotile Treat As ACM
Unit 402 Living Room			WHR-38	<1% Chrysotile Treat As ACM
Unit 408 Living Room			WHR-39	<1% Chrysotile Treat As ACM
Unit 309 Living Room			WHR-40	<1% Chrysotile Treat As ACM
Unit 319 Living Room			WHR-41	<1% Chrysotile Treat As ACM
Unit 403 Kitchen	4" Vinyl Cove Base-Black and Brown Adhesive	14	WHR-42	Vinyl Base = ND Brown Adhesive = ND
Unit 403 Bathroom			WHR-43	Vinyl Base = ND Brown Adhesive = ND
Unit 122 Kitchen	4" Vinyl Cove Base-Black and Tan Adhesive	14A	WHR-44	Vinyl Base = ND Tan Adhesive = ND
Unit 408 Kitchen			WHR-45	Vinyl Base = ND Tan Adhesive = ND

Table 3-1: Bulk Sample Summary – Wilmington High-Rise				
Room/Location	**Material Description**	**Homogeneous Area (HA) Number**	**Sample Number**	**Laboratory Results**
West Corridor 110West End	5" Vinyl Cove Base-Mauveand Tan Adhesive	15	WHR-46	Vinyl Base = ND Tan Adhesive = ND
Second Floor North Corridor 216			WHR-47	Vinyl Base = ND Tan Adhesive = ND
Second Floor West Corridor 210	7" Vinyl Cove Base-Black with Tan Adhesive	16	WHR-48	Vinyl Base = ND Tan Adhesive = ND
Second Floor West Corridor 210			WHR-49	Vinyl Base = ND Tan Adhesive = ND
Unit 123 Kitchen	5" Vinyl Cove Base-Beige with Tan Adhesive	17	WHR-50	Vinyl Base = ND Tan Adhesive = ND
Unit 123 Kitchen			WHR-51	Vinyl Base = ND Tan Adhesive = ND
Unit 121 Foyer	Joint Compound on Drywall Seams-White	18	WHR-52	ND
Unit 207 Foyer			WHR-53	ND
Unit 315 Living Room			WHR-54	ND
Third Floor East Corridor 311 Soffit-North Side			WHR-55	ND
Unit 402 Foyer			WHR-56	ND
Unit 404 Kitchen			WHR-57	Drywall = ND Joint Compound = <0.25% Chrysotile (PTC)
Unit 406 Living Room			WHR-58	ND

Table 3-1: Bulk Sample Summary – Wilmington High-Rise				
Room/Location	**Material Description**	**Homogeneous Area (HA) Number**	**Sample Number**	**Laboratory Results**
West Corridor 210 West End-North Wall	Joint Compound on Drywall Seams-Tinted	19	WHR-59	Drywall = ND Joint Compound = 0.25% Chrysotile (PTC)
Second Floor East Corridor 211			WHR-60	Drywall = ND Joint Compound = <0.25% Chrysotile (PTC)
Second Floor East Corridor 211			WHR-61	Drywall = ND Joint Compound = <0.25% Chrysotile (PTC)
Third Floor East Corridor 311			WHR-62	Drywall = ND Joint Compound = 0.25% Chrysotile (PTC)
Unit 106Living Room	Textured Surfacing on Ceilings	20	WHR-63	ND
Unit 107 Kitchen			WHR-64	ND
Unit 207 Foyer			WHR-65	ND
Unit 215			WHR-66	ND
Unit 319 Foyer			WHR-67	ND
Unit 402 Kitchen			WHR-68	ND
Unit 408 Kitchen			WHR-69	ND
Lobby 134	2' x 2' Ceiling Panels Random Pinhole Pattern Recessed Edges	21	WHR-70	ND
Second Floor East Corridor 211			WHR-71	ND
Third Floor East Corridor 311			WHR-72	ND
Office 130	2' x 2' Ceiling Panels Random Pinhole Pattern	22	WHR-73	ND
1st Floor Men's Restroom			WHR-74	ND

Table 3-1: Bulk Sample Summary – Wilmington High-Rise				
Room/Location	**Material Description**	**Homogeneous Area (HA) Number**	**Sample Number**	**Laboratory Results**
Room 112 Maintenance	12" Acoustic Ceiling Tile-Rough Texture with Dark brown Glue Pucks	23	WHR-75	Tile = ND Glue Puck = 0.3% Chrysotile
Room 112 Maintenance			WHR-76	Tile = ND Glue Puck = 0.3% Chrysotile
Room 112 Maintenance			WHR-77	Tile = ND Glue Puck = <1% Chrysotile
Unit 106 Living Room Ceiling Above HVAC Access Panel	Black Sealant Tape on HVAC Lines Black Tacky Wrap	24	WHR-78	ND
403 Living Room Ceiling Above HVAC Access Panel			WHR-79	ND
Boiler Room 124	White Mastic on Exposed Ends of Fiberglass Pipe Insulation	25	WHR-80	ND
Boiler Room 124			WHR-81	ND
Boiler Room 124			WHR-82	ND
First Floor North Corridor 120	Red Fire Stop Compound	26	WHR-83	ND
First Floor North Corridor 120			WHR-84	ND
First Floor East Corridor 111	White Fire Stop Compound	27	WHR-85	ND
First Floor East Corridor 111			WHR-86	ND
Unit 123 Living Room	Interior Window Frame Caulk Elastomeric-Grey/White	28	WHR-87	ND
Unit 313 Living Room			WHR-88	ND
Unit 402 Living Room			WHR-89	ND

4.0 Inventory of Asbestos-Containing Materials

Floor by Floor Inventories

Table 4.1 below presents a list of asbestos-containing materials (ACM) identified on each floor during the inspection.

Table 4-1 Asbestos-Containing Materials Inventory By Floor: Wilmington High-Rise

Floor	Confirmed ACM			Assumed ACM			Confirmed <1% Asbestos	
	Black Mastic Under Floor Tile or Carpet	Mastic Under Gypcrete and Floor Tile	Exposed Mastic	[(1)(2)] Vinyl Plank On Concrete or Wood Subfloor	ACM Flooring Assumed Present	Ceramic Tile Floors & Walls	Joint Compound on Drywall	Acoustic Ceiling Tile and Adhesive
1st	3,945 sf	2,755 sf	25 sf	1,690 sf	795 sf	1,380 sf	39,040 sf	1,430 sf
2nd	2,575 sf	2,495 sf	0	1700 sf	3,730 sf	935 sf	45,760 sf	0
3rd	2,310 sf	2,020 sf	0	960 sf	5,175 sf	1,095 sf	44,240 sf	0
4th	2,590 sf	2,205 sf	0	2,010 sf	3,695 sf	990 sf	44,240 sf	0
Total ACM Quantity	**11,420 sf**	**9,475 sf**	**25 sf**	**6,360 sf**	**13,395 sf**	**4,400 sf**	**173,280 sf**	**1,430 sf**

(1) Vinyl Plank Flooring on Concrete:

No mastic or Gypcrete were observed in Units 122, 220, 406, and 413 (2,520 sf). As a conservative measure this is included in the ACM inventory.

(2) Vinyl Plank Flooring on Wood Subfloor:

Vinyl plank flooring in the west corridors of Floors 1-4 covered underlying plywood subfloor. ACM flooring is assumed to be present underneath the subfloor (3,840 sf).

Room by Room Inventory

Table 4-2 below presents a list of asbestos-containing materials identified in each room during the inspection and includes condition and hazard rank.

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 1			
Unit 101 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 102 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 103 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 104 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 105 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
ME Closet West Steps	Black Mastic Exposed	Good/2	25 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
Unit 1062 Bed	Black Mastic Under Carpet	Good/2	550 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	130 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 107 Studio	Black Mastic Under Carpet	Good/2	225 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	125 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1280 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 108 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 109 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
110-West Corridor	Joint Compound on Drywall	Good/3 <1% Asbestos	3500 sf
	Vinyl Plank on Wood Subfloor ACM Assumed Under Subfloor	Good/2	960 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
111 & 119 East Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	530 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1450 sf
Room 112 Maintenance Storage	Black Mastic Under Floor Tile	Good/2	280 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	300 sf
	Acoustic Ceiling Tile and Adhesive	Good/2 <1% Asbestos	280 sf
Room 113 Pantry	Black Mastic Under Floor Tile	Good/2	200 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	300 sf
	Acoustic Ceiling Tile and Adhesive	Good/2 <1% Asbestos	230 sf
Room 114 Kitchen	Black Mastic Under Floor Tile	Good/2	200 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	300 sf
	Acoustic Ceiling Tile and Adhesive	Good/2 <1% Asbestos	230 sf
Room 115 Community Room	Black Mastic Under Floor Tile	Good/2	690 sf
	Black Mastic Under Carpet	Good/2	650 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1800 sf
	Acoustic Ceiling Tile and Adhesive	Good/2 <1% Asbestos	690 sf
Room 117 Women's Restroom	12" Ceramic Tile Wall	Good/1	200 sf
	12" Ceramic Tile Floor	Good/1	160 sf
Room 118 Men's Restroom	12" Ceramic Tile Wall	Good/1	200 sf
	12" Ceramic Tile Floor	Good/1	160 sf
120 North Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	470 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1970 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 121 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 122 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	Vinyl Plank On Concrete ACM Mastic Assumed Present	Good/2	730 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 123Studio	Black Mastic Under Carpet	Good/2	225 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	125 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1280 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Room 125 Maintenance	Joint Compound on Drywall	Good/3 <1% Asbestos	160 sf
Room 126 Bathroom	Black Mastic Under Floor Tile	Good/2	25 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	160 sf
Room 127 Maintenance	Joint Compound on Drywall	Good/3 <1% Asbestos	200 sf
Rooms 128, 128A, & 128B Trash Rooms	Joint Compound on Drywall	Good/3 <1% Asbestos	590 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Room 129 Office Hallway	Black Mastic Under Gypcrete and Floor Tile	Good/2	90 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	480 sf
Room 130 Office	Black Mastic Under Gypcrete and Floor Tile	Good/2	320 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	550 sf
Room 131 Office Bathroom	Black Mastic Under Gypcrete and Floor Tile	Good/2	25 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	160 sf
Room 133 Mail Room	ACM Flooring Assumed Present	Good/2	25 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	160 sf
Rooms 134 & 135 Lobby	Black Mastic Under Gypcrete and Floor Tile	Good/2	685 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1800 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 2			
Unit 201 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 202 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 203 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 204 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 205 1 Bed large	ACM Flooring Assumed Present	Good/2	710 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 206 2 Bed	Black Mastic Under Carpet	Good/2	550 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	130 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 207 Studio	Black Mastic Under Carpet	Good/2	225 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	125 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1280 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 208 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 209 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
210 West Corridor	Joint Compound on Drywall	Good/3 <1% Asbestos	3500 sf
	Vinyl Plank On Wood Subfloor ACM Assumed Under Subfloor	Good/2	960 sf
211 East Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	530 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1980 sf
Unit 212 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 213 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 214 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
215 Laundry	Black Mastic Under Floor Tile	Good/2	370 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	640 sf
216 North Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	470 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1970 sf
Unit 217 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 218 1 Bed large	Black Mastic Under Carpet	Good/2	530 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	180 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 219 1 Bed large	ACM Flooring Assumed Present	Good/2	710 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 220 1 Bed large	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	Vinyl Plank On Concrete ACM Mastic Assumed Present	Good/2	740 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
221 Telephone Room	Joint Compound on Drywall	Good/3 <1% Asbestos	190 sf
221A Storage Closet	Black MasticUnder Gypcrete and Floor Tile	Good/2	120 sf
Unit 222 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
223 & 224 Lobby	Black Mastic Under Gypcrete and Floor Tile	Good/2	685 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1800 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 3			
Unit 302 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 301 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 303 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 304 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 305 1 Bed large	ACM Flooring Assumed Present	Good/2	710 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 306 2 Bed	Black Mastic Under Carpet	Good/2	550 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	130 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 307 Studio	ACM Flooring Assumed Present	Good/2	350 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1280 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 308 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 309 Handicap	Black Mastic Under Carpet	Good/2	405 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	200 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
	2" Ceramic Tile Floor	Good/1	50 sf
310 West Corridor	Joint Compound on Drywall	Good/3 <1% Asbestos	3500 sf
	Vinyl Plank On Wood Subfloor ACM Assumed Under Subfloor	Good/2	960 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
311 East Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	530 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1980 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 312 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 313 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 314 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 315 Studio	Black Mastic Under Carpet	Good/2	225 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	125 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1280 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
316 North Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	470 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1970 sf
Unit 317 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 318 1 Bed Large	ACM Flooring Assumed Present	Good/2	710 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 319 1 Bed Large	Black Mastic Under Carpet	Good/2	530 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	180 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 320 1 Bed Large	ACM Flooring Assumed Present	Good/2	710 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
321 Telephone Room	Joint Compound on Drywall	Good/3 <1% Asbestos	190 sf
321A Storage Closet	Black Mastic Under Gypcrete and Floor Tile	Good/2	120 sf
Unit 322 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
323 & 324 Lobby	Black Mastic Under Gypcrete and Floor Tile	Good/2	685 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1800 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Floor 4			
Unit 401 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 402 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 403 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 404 1 Bed	Black Mastic Under Carpet	Good/2	300 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	85 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 405 1 Bed Large	Black Mastic Under Carpet	Good/2	530 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	180 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 406 2 Bed	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	Vinyl Plank On Concrete ACM Mastic Assumed Present	Good/2	680 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 407 Studio	Black Mastic Under Carpet	Good/2	225 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	125 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1280 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 408 Handicap	Black Mastic Under Carpet	Good/2	405 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	250 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 409 Handicap	Joint Compound on Drywall	Good/3 <1% Asbestos	1700 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
410 West Corridor	Joint Compound on Drywall	Good/3 <1% Asbestos	3500 sf
	Vinyl Plank on Wood Subfloor ACM Assumed Under Subfloor	Good/2	960 sf
411 East Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	530 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1980 sf
Unit 412 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 413 1 Bed	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	Vinyl Plank On Concrete ACM Mastic Assumed Present	Good/2	370 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 414 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 415 Studio	ACM Flooring Assumed Present	Good/2	350 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1280 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
416 North Corridor	Black Mastic Under Gypcrete and Floor Tile	Good/2	470 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1970 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 417 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 418 1 Bed Large	ACM Flooring Assumed Present	Good/2	710 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 419 1 Bed Large	ACM Flooring Assumed Present	Good/2	710 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
Unit 420 1 Bed Large	Black Mastic Under Carpet	Good/2	530 sf
	Black Mastic Under Gypcrete and Floor Tile	Good/2	180 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2000 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
421 Telephone Room	Joint Compound on Drywall	Good/3 <1% Asbestos	190 sf
421A Storage Closet	Black Mastic Under Gypcrete and Floor Tile	Good/2	120 sf

Table 4-2: Asbestos-Containing Materials Inventory By Room - Wilmington Hi-Rise			
Room/Location	**Material Type**	**Condition/ Hazard Rank**	**Estimated Quantity**
Unit 422 1 Bed	ACM Flooring Assumed Present	Good/2	385 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	2300 sf
	4" Ceramic Wall Tile Tub Surround	Good/1	55 sf
423 & 424 Lobby	Black Mastic Under Gypcrete and Floor Tile	Good/2	685 sf
	Joint Compound on Drywall	Good/3 <1% Asbestos	1800 sf

Attachment A

Laboratory Report

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for M.A.C Paran Consulting

Report Date: 9/16/2025

Project Name: Wilmington Hi-Rise

SanAir ID#: 25061958

NVLAP TESTING

NVLAP LAB CODE 600227-0

11709 Chesterdale Road, Cincinnati, Ohio 45246
888.895.1177 | 513.438.6066 | LabReports@SanAir.com | SanAir.com

SanAir Technologies Laboratory

SanAir ID Number
25061958
FINAL REPORT
9/16/2025 6:14:49 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 9/16/2025 10:15:00 AM

Dear Michelle Paraniuk,

We at SanAir would like to thank you for the work you recently submitted. The 89 sample(s) were received on Tuesday, September 16, 2025 via FedEx. The final report(s) is enclosed for the following sample(s): WHR-1, WHR-2, WHR-3, WHR-4, WHR-5, WHR-6, WHR-7, WHR-8, WHR-9, WHR-10, WHR-11, WHR-12, WHR-13, WHR-14, WHR-15, WHR-16, WHR-17, WHR-18, WHR-19, WHR-20, WHR-21, WHR-22, WHR-23, WHR-24, WHR-25, WHR-26, WHR-27, WHR-28, WHR-29, WHR-30, WHR-31, WHR-32, WHR-33, WHR-34, WHR-35, WHR-36, WHR-37, WHR-38, WHR-39, WHR-40, WHR-41, WHR-42, WHR-43, WHR-44, WHR-45, WHR-46, WHR-47, WHR-48, WHR-49, WHR-50, WHR-51, WHR-52, WHR-53, WHR-54, WHR-55, WHR-56, WHR-57, WHR-58, WHR-59, WHR-60, WHR-61, WHR-62, WHR-63, WHR-64, WHR-65, WHR-66, WHR-67, WHR-68, WHR-69, WHR-70, WHR-71, WHR-72, WHR-73, WHR-74, WHR-75, WHR-76, WHR-77, WHR-78, WHR-79, WHR-80, WHR-81, WHR-82, WHR-83, WHR-84, WHR-85, WHR-86, WHR-87, WHR-88, WHR-89, WHR-57, WHR-59, WHR-60, WHR-61, WHR-62.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Maureen Y. Haley
Asbestos Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 94 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
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9/16/2025 6:14:49 PM

Name: M.A.C Paran Consulting
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Project Number:
P.O. Number:
Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 9/16/2025 10:15:00 AM

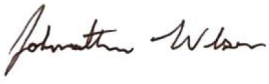
Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-1 / 25061958-001 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 207, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-1 / 25061958-001 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 207, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
WHR-1 / 25061958-001 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 207, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-2 / 25061958-002 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 218, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-2 / 25061958-002 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 218, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
WHR-2 / 25061958-002 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 218, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-3 / 25061958-003 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 306, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-3 / 25061958-003 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 306, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 

Analysis Date: 9/16/2025

Approved Signatory: 

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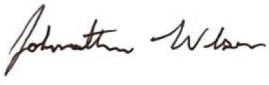
Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-3 / 25061958-003 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 306, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-4 / 25061958-004 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 313, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-4 / 25061958-004 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 313, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
WHR-4 / 25061958-004 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 313, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-5 / 25061958-005 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 402, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-5 / 25061958-005 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 402, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
WHR-5 / 25061958-005 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 402, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-6 / 25061958-006 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 408, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 

Approved Signatory: 

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Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-6 / 25061958-006 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 408, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
WHR-6 / 25061958-006 12" Floor Tile-on "Gypcrete" Underlayment Compound, Unit 408, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-7 / 25061958-007 12" Floor Tile-With Mastic, Unit 123, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-7 / 25061958-007 12" Floor Tile-With Mastic, Unit 123, Mastic	Black Non-Fibrous Homogeneous		96% Other	4% Chrysotile
WHR-8 / 25061958-008 12" Floor Tile-With Mastic, Unit 123, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-8 / 25061958-008 12" Floor Tile-With Mastic, Unit 123, Mastic				Not Analyzed
WHR-8 / 25061958-008 12" Floor Tile-With Mastic, Unit 123, Concrete	Grey Non-Fibrous Heterogeneous		100% Other	None Detected
WHR-9 / 25061958-009 12" Floor Tile-With Mastic, Unit 215, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-9 / 25061958-009 12" Floor Tile-With Mastic, Unit 215, Mastic				Not Analyzed
WHR-10 / 25061958-010 12" Floor Tile-With Mastic, Unit 215, Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Approved Signatory:

Analysis Date: 9/16/2025 Date: 9/16/2025

SanAir Technologies Laboratory

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-10 / 25061958-010 12" Floor Tile-With Mastic, Unit 215, Mastic				Not Analyzed
WHR-11 / 25061958-011 12" Floor Tile-Speckle With Mastic, Maintenance Room 112, Floor Tile	Pink Non-Fibrous Homogeneous		100% Other	None Detected
WHR-11 / 25061958-011 12" Floor Tile-Speckle With Mastic, Maintenance Room 112, Mastic	Black Non-Fibrous Heterogeneous		97% Other	3% Chrysotile
WHR-12 / 25061958-012 12" Floor Tile-Speckle With Mastic, Maintenance Room 112, Floor Tile	Pink Non-Fibrous Homogeneous		100% Other	None Detected
WHR-12 / 25061958-012 12" Floor Tile-Speckle With Mastic, Maintenance Room 112, Mastic				Not Analyzed
WHR-13 / 25061958-013 12" Floor Tile-Speckle With Mastic, Maintenance Room 112, Floor Tile	Pink Non-Fibrous Homogeneous		100% Other	None Detected
WHR-13 / 25061958-013 12" Floor Tile-Speckle With Mastic, Maintenance Room 112, Mastic				Not Analyzed
WHR-14 / 25061958-014 12" Floor Tile-With Mastic, Maintenance Room 112, Floor Tile	Mauve Non-Fibrous Homogeneous		100% Other	None Detected
WHR-14 / 25061958-014 12" Floor Tile-With Mastic, Maintenance Room 112, Mastic	Black Non-Fibrous Heterogeneous		97% Other	3% Chrysotile

Analyst: Approved Signatory:

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Phone: 513-752-9111

Project Number:
P.O. Number:
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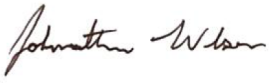
Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-15 / 25061958-015 12" Floor Tile-With Mastic, Maintenance Room 112, Floor Tile	Mauve Non-Fibrous Homogeneous		100% Other	None Detected
WHR-15 / 25061958-015 12" Floor Tile-With Mastic, Maintenance Room 112, Mastic				Not Analyzed
WHR-16 / 25061958-016 12" Floor Tile-With Underlayment Compound, 2nd Floor, Floor Tile	Grey Non-Fibrous Homogeneous		100% Other	None Detected
WHR-16 / 25061958-016 12" Floor Tile-With Underlayment Compound, 2nd Floor, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
WHR-16 / 25061958-016 12" Floor Tile-With Underlayment Compound, 2nd Floor, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-16 / 25061958-016 12" Floor Tile-With Underlayment Compound, 2nd Floor, Mastic	Black Non-Fibrous Heterogeneous		97% Other	3% Chrysotile
WHR-17 / 25061958-017 12" Floor Tile-With Underlayment Compound, 3rd Floor, Floor Tile	Grey Non-Fibrous Homogeneous		100% Other	None Detected
WHR-17 / 25061958-017 12" Floor Tile-With Underlayment Compound, 3rd Floor, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
WHR-17 / 25061958-017 12" Floor Tile-With Underlayment Compound, 3rd Floor, Underlayment	Grey Non-Fibrous Homogeneous	3% Cellulose	97% Other	None Detected
WHR-18 / 25061958-018 Vinyl Plank Flooring-Faux Wood Pattern With Adhesive, 2nd Fl, Flooring	Grey Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 

Approved Signatory: 

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	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-18 / 25061958-018 Vinyl Plank Flooring-Faux Wood Pattern With Adhesive, 2nd Fl, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-19 / 25061958-019 Vinyl Plank Flooring-Faux Wood Pattern With Adhesive, Unit, Flooring	Grey Non-Fibrous Homogeneous		100% Other	None Detected
WHR-19 / 25061958-019 Vinyl Plank Flooring-Faux Wood Pattern With Adhesive, Unit, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-20 / 25061958-020 Vinyl Plank Flooring-Faux Wood Pattern With Adhesive, Unit, Flooring	Grey Non-Fibrous Homogeneous		100% Other	None Detected
WHR-20 / 25061958-020 Vinyl Plank Flooring-Faux Wood Pattern With Adhesive, Unit, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-21 / 25061958-021 18" Vinyl Plank-With Adhesive, Unit 205, Flooring	Gold Non-Fibrous Homogeneous		100% Other	None Detected
WHR-21 / 25061958-021 18" Vinyl Plank-With Adhesive, Unit 205, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-21 / 25061958-021 18" Vinyl Plank-With Adhesive, Unit 205, Concrete	Grey Non-Fibrous Heterogeneous		100% Other	None Detected
WHR-22 / 25061958-022 18" Vinyl Plank-With Adhesive, Unit 406, Flooring	Gold Non-Fibrous Homogeneous		100% Other	None Detected

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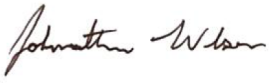
Approved Signatory: 

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	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-22 / 25061958-022 18" Vinyl Plank-With Adhesive, Unit 406, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-23 / 25061958-023 18" Vinyl Plank-With Adhesive, Unit 122, Flooring	Brown Non-Fibrous Homogeneous		100% Other	None Detected
WHR-23 / 25061958-023 18" Vinyl Plank-With Adhesive, Unit 122, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-24 / 25061958-024 18" Vinyl Plank-With Adhesive, Unit 122, Flooring	Brown Non-Fibrous Homogeneous		100% Other	None Detected
WHR-24 / 25061958-024 18" Vinyl Plank-With Adhesive, Unit 122, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-25 / 25061958-025 18" Vinyl Plank-With Adhesive, Unit 304, Flooring	Gold Non-Fibrous Homogeneous		100% Other	None Detected
WHR-25 / 25061958-025 18" Vinyl Plank-With Adhesive, Unit 304, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-26 / 25061958-026 18" Vinyl Plank-With Adhesive, Unit 304, Flooring	Gold Non-Fibrous Homogeneous		100% Other	None Detected
WHR-26 / 25061958-026 18" Vinyl Plank-With Adhesive, Unit 304, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-27 / 25061958-027 18" Vinyl Plank-With Adhesive, Unit 205, Flooring	Orange Non-Fibrous Homogeneous		100% Other	None Detected

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	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-27 / 25061958-027 18" Vinyl Plank-With Adhesive, Unit 205, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-28 / 25061958-028 18" Vinyl Plank-With Adhesive, Unit 205, Flooring	Orange Non-Fibrous Homogeneous		100% Other	None Detected
WHR-28 / 25061958-028 18" Vinyl Plank-With Adhesive, Unit 205, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-29 / 25061958-029 Vinyl Stair Tread-With Adhesive, West Stairwell, Stair Tread	Green Non-Fibrous Homogeneous		100% Other	None Detected
WHR-29 / 25061958-029 Vinyl Stair Tread-With Adhesive, West Stairwell, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-30 / 25061958-030 Vinyl Stair Tread-With Adhesive, South Stairwell, Stair Tread	Green Non-Fibrous Homogeneous		100% Other	None Detected
WHR-30 / 25061958-030 Vinyl Stair Tread-With Adhesive, South Stairwell, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-31 / 25061958-031 Vinyl Stair Tread-With Adhesive, North Stairwell, Stair Tread	Green Non-Fibrous Homogeneous		100% Other	None Detected
WHR-31 / 25061958-031 Vinyl Stair Tread-With Adhesive, North Stairwell, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-32 / 25061958-032 Residual Mastic on Concrete Floor, Small ME Room West Stair	Black Non-Fibrous Homogeneous		96% Other	4% Chrysotile

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-33 / 25061958-033 Residual Mastic on Concrete Floor, Small ME Room West Stair				Not Analyzed
WHR-34 / 25061958-034 Carpet Adhesive, Unit 106	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-35 / 25061958-035 Carpet Adhesive, Unit 405	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-36 / 25061958-036 Carpet Adhesive-With Limited Mastic, Unit 115	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-37 / 25061958-037 Carpet Adhesive-With Limited Mastic, Unit 207	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-38 / 25061958-038 Carpet Adhesive-With Limited Mastic, Unit 402	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-39 / 25061958-039 Carpet Adhesive-With Limited Mastic, Unit 408	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-40 / 25061958-040 Carpet Adhesive-With Limited Mastic, Unit 309	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-41 / 25061958-041 Carpet Adhesive-With Limited Mastic, Unit 319	Various Non-Fibrous Heterogeneous	2% Cellulose	98% Other	< 1% Chrysotile
WHR-42 / 25061958-042 4" Vinyl Cove Base-Adhesive, Unit 403, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected

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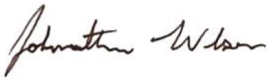
Approved Signatory: 
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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-42 / 25061958-042 4" Vinyl Cove Base-Adhesive, Unit 403, Adhesive	Brown Non-Fibrous Homogeneous		100% Other	None Detected
WHR-43 / 25061958-043 4" Vinyl Cove Base-Adhesive, Unit 403, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
WHR-43 / 25061958-043 4" Vinyl Cove Base-Adhesive, Unit 403, Adhesive	Brown Non-Fibrous Homogeneous		100% Other	None Detected
WHR-44 / 25061958-044 4" Vinyl Cove Base-Adhesive, Unit 127, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
WHR-44 / 25061958-044 4" Vinyl Cove Base-Adhesive, Unit 127, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-45 / 25061958-045 4" Vinyl Cove Base-Adhesive, Unit 408, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
WHR-45 / 25061958-045 4" Vinyl Cove Base-Adhesive, Unit 408, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-46 / 25061958-046 5" Vinyl Cove Base-Adhesive, 1st Floor Corridor, Cove Base	Mauve Non-Fibrous Homogeneous		100% Other	None Detected
WHR-46 / 25061958-046 5" Vinyl Cove Base-Adhesive, 1st Floor Corridor, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-47 / 25061958-047 5" Vinyl Cove Base-Adhesive, 2nd Floor Corridor, Cove Base	Mauve Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-47 / 25061958-047 5" Vinyl Cove Base-Adhesive, 2nd Floor Corridor, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-48 / 25061958-048 7" Vinyl Cove Base-Adhesive, 2nd Floor Corridor, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
WHR-48 / 25061958-048 7" Vinyl Cove Base-Adhesive, 2nd Floor Corridor, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-49 / 25061958-049 7" Vinyl Cove Base-Adhesive, 2nd Floor Corridor, Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
WHR-49 / 25061958-049 7" Vinyl Cove Base-Adhesive, 2nd Floor Corridor, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-50 / 25061958-050 5" Vinyl Cove Base-Adhesive, Unit 123, Cove Base	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-50 / 25061958-050 5" Vinyl Cove Base-Adhesive, Unit 123, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-51 / 25061958-051 5" Vinyl Cove Base-Adhesive, Unit 123, Cove Base	Beige Non-Fibrous Homogeneous		100% Other	None Detected
WHR-51 / 25061958-051 5" Vinyl Cove Base-Adhesive, Unit 123, Adhesive	Tan Non-Fibrous Homogeneous		100% Other	None Detected
WHR-52 / 25061958-052 Joint Compound on Drywall Seams, Unit 121, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected

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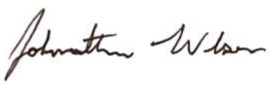
Approved Signatory: 
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	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-52 / 25061958-052 Joint Compound on Drywall Seams, Unit 121, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-53 / 25061958-053 Joint Compound on Drywall Seams, Unit 207, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-53 / 25061958-053 Joint Compound on Drywall Seams, Unit 207, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-54 / 25061958-054 Joint Compound on Drywall Seams, Unit 315, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-54 / 25061958-054 Joint Compound on Drywall Seams, Unit 315, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-55 / 25061958-055 Joint Compound on Drywall Seams, 3rd Floor Corridor Soffit, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-55 / 25061958-055 Joint Compound on Drywall Seams, 3rd Floor Corridor Soffit, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-56 / 25061958-056 Joint Compound on Drywall Seams, Unit 402, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-56 / 25061958-056 Joint Compound on Drywall Seams, Unit 402, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-57 / 25061958-057 Joint Compound on Drywall Seams, Unit 404, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected

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	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-57 / 25061958-057 Joint Compound on Drywall Seams, Unit 404, Joint Compound	Various Non-Fibrous Heterogeneous		100% Other	< 1% Chrysotile
WHR-58 / 25061958-058 Joint Compound on Drywall Seams, Unit 406, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-58 / 25061958-058 Joint Compound on Drywall Seams, Unit 406, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-59 / 25061958-059 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-59 / 25061958-059 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Joint Compound	Tan Non-Fibrous Homogeneous		98% Other	2% Chrysotile
WHR-60 / 25061958-060 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-60 / 25061958-060 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Joint Compound				Not Analyzed
WHR-61 / 25061958-061 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-61 / 25061958-061 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Joint Compound				Not Analyzed

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	Stereoscopic	Components		
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WHR-62 / 25061958-062 Joint Compound on Drywall Seams-Tinted, 3rd Floor Corridor, Drywall	White Non-Fibrous Homogeneous	2% Cellulose	98% Gypsum	None Detected
WHR-62 / 25061958-062 Joint Compound on Drywall Seams-Tinted, 3rd Floor Corridor, Joint Compound				Not Analyzed
WHR-63 / 25061958-063 Textured Surfacing on Ceilings, Unit 106	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-64 / 25061958-064 Textured Surfacing on Ceilings, Unit 107	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-65 / 25061958-065 Textured Surfacing on Ceilings, Unit 207	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-66 / 25061958-066 Textured Surfacing on Ceilings, Unit 215	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-67 / 25061958-067 Textured Surfacing on Ceilings, Unit 319	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-68 / 25061958-068 Textured Surfacing on Ceilings, Unit 402	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-69 / 25061958-069 Textured Surfacing on Ceilings, Unit 408	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-70 / 25061958-070 2'x2' Ceiling Panels Random Pinhole Pattern Recessed Edges	Grey Fibrous Homogeneous	40% Cellulose 10% Glass 5% Min. Wool	45% Other	None Detected

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Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 9/16/2025 10:15:00 AM

Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-71 / 25061958-071 2'x2' Ceiling Panels Random Pinhole Pattern Recessed Edges	Grey Fibrous Homogeneous	40% Cellulose 10% Glass 5% Min. Wool	45% Other	None Detected
WHR-72 / 25061958-072 2'x2' Ceiling Panels Random Pinhole Pattern Recessed Edges	Grey Fibrous Homogeneous	40% Cellulose 10% Glass 5% Min. Wool	45% Other	None Detected
WHR-73 / 25061958-073 2'x2' Ceiling Panels Random Pinhole Pattern, Office 130	Grey Fibrous Homogeneous	40% Cellulose 10% Glass 5% Min. Wool	45% Other	None Detected
WHR-74 / 25061958-074 2'x2' Ceiling Panels Random Pinhole Pattern, 1st Floor Mens	Grey Fibrous Homogeneous	40% Cellulose 10% Glass 5% Min. Wool	45% Other	None Detected
WHR-75 / 25061958-075 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Ceiling Tile	Grey Fibrous Homogeneous	25% Glass 25% Min. Wool	50% Other	None Detected
WHR-75 / 25061958-075 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Glue	Brown Non-Fibrous Homogeneous		100% Other	< 1% Chrysotile
WHR-76 / 25061958-076 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Ceiling Tile	Grey Fibrous Homogeneous	25% Glass 25% Min. Wool	50% Other	None Detected
WHR-76 / 25061958-076 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Glue	Brown Non-Fibrous Homogeneous		100% Other	< 1% Chrysotile
WHR-77 / 25061958-077 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Ceiling Tile	Grey Fibrous Homogeneous	25% Glass 25% Min. Wool	50% Other	None Detected
WHR-77 / 25061958-077 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Glue	Brown Non-Fibrous Homogeneous		100% Other	< 1% Chrysotile

Analyst: Approved Signatory:

Analysis Date: 9/16/2025 Date: 9/16/2025

SanAir Technologies Laboratory

SanAir ID Number
25061958
FINAL REPORT
9/16/2025 6:14:49 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 9/16/2025 10:15:00 AM

Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-78 / 25061958-078 Sealant Tape on HVAC Lines Tacky Wrap, 106	Black Non-Fibrous Homogeneous		100% Other	None Detected
WHR-79 / 25061958-079 Sealant Tape on HVAC Lines Tacky Wrap, 403	Black Non-Fibrous Homogeneous		100% Other	None Detected
WHR-80 / 25061958-080 Mastic on Exposed Ends of Fiberglass Pipe Insulation, Boiler, Mastic	White Non-Fibrous Homogeneous	2% Cellulose	98% Other	None Detected
WHR-80 / 25061958-080 Mastic on Exposed Ends of Fiberglass Pipe Insulation, Boiler, Inslation	Yellow Fibrous Homogeneous	90% Glass 10% Min. Wool		None Detected
WHR-81 / 25061958-081 Mastic on Exposed Ends of Fiberglass Pipe Insulation, Boiler, Mastic	White Non-Fibrous Homogeneous	2% Cellulose	98% Other	None Detected
WHR-81 / 25061958-081 Mastic on Exposed Ends of Fiberglass Pipe Insulation, Boiler, Inslation	Yellow Fibrous Homogeneous	90% Glass 10% Min. Wool		None Detected
WHR-82 / 25061958-082 Mastic on Exposed Ends of Fiberglass Pipe Insulation, Boiler, Mastic	White Non-Fibrous Homogeneous	2% Cellulose	98% Other	None Detected
WHR-82 / 25061958-082 Mastic on Exposed Ends of Fiberglass Pipe Insulation, Boiler, Inslation	Yellow Fibrous Homogeneous	90% Glass 10% Min. Wool		None Detected
WHR-83 / 25061958-083 Fire Stop Compound, 1st Floor Corridor	Red Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Approved Signatory:

Analysis Date: 9/16/2025 Date: 9/16/2025

SanAir Technologies Laboratory

SanAir ID Number
25061958
FINAL REPORT
9/16/2025 6:14:49 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 9/16/2025 10:15:00 AM

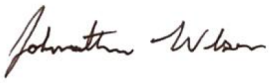
Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-84 / 25061958-084 Fire Stop Compound, 1st Floor Corridor	Red Non-Fibrous Homogeneous		100% Other	None Detected
WHR-85 / 25061958-085 Fire Stop Compound, 1st Floor Corridor	White Non-Fibrous Homogeneous	2% Wollastonite	98% Other	None Detected
WHR-86 / 25061958-086 Fire Stop Compound, 1st Floor Corridor	White Non-Fibrous Homogeneous	2% Wollastonite	98% Other	None Detected
WHR-87 / 25061958-087 Interior Window Frame Caulk Elastomeric, Unit 123	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-88 / 25061958-088 Interior Window Frame Caulk Elastomeric, Unit 313	White Non-Fibrous Homogeneous		100% Other	None Detected
WHR-89 / 25061958-089 Interior Window Frame Caulk Elastomeric, Unit 402	White Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: 

Analysis Date: 9/16/2025

Approved Signatory: 

Date: 9/16/2025

SanAir Technologies Laboratory

SanAir ID Number
25061958
FINAL REPORT
9/16/2025 6:14:49 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 9/16/2025 10:15:00 AM

Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk EPA PLM 400 Point Count

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
WHR-57 / 25061958-090 Joint Compound on Drywall Seams, Unit 404, Joint Compound	Various Non-Fibrous Heterogeneous		100% Other	< 0.25% Chrysotile
WHR-59 / 25061958-091 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Composite	Various Non-Fibrous Heterogeneous	2% Cellulose	87.75% Gypsum 10% Other	0.25% Chrysotile
WHR-60 / 25061958-092 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Composite	Various Non-Fibrous Heterogeneous	2% Cellulose	88% Gypsum 10% Other	< 0.25% Chrysotile
WHR-61 / 25061958-093 Joint Compound on Drywall Seams-Tinted, 2nd Floor Corridor, Composite	Various Non-Fibrous Heterogeneous	2% Cellulose	88% Gypsum 10% Other	< 0.25% Chrysotile
WHR-62 / 25061958-094 Joint Compound on Drywall Seams-Tinted, 3rd Floor Corridor, Composite	Various Non-Fibrous Heterogeneous	2% Cellulose	87.75% Gypsum 10% Other	0.25% Chrysotile

Analyst:

Approved Signatory:

Analysis Date: 9/16/2025

Date: 9/16/2025

Disclaimer and Additional Information

400 Point Count Method EPA 600/R-93/116

EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

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Asbestos Accreditations, Certifications, and Licenses:
National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 600227-0
State of Connecticut Department of Public Health Registration Number: PH-0817
State of Rhode Island Department of Health Certification Number: PLM00144, TEM00144
State of West Virginia Bureau for Public Health Asbestos Laboratory Number: LT000637
Texas Department of State Health Services License Number: 300510

Revision#02, 6/21/2024

Disclaimer and Additional Information

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Fibers smaller than 5-microns cannot be seen with this method due to scope limitations. Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing. Samples are held for a period of 60 days.

Asbestos Accreditations, Certifications, and Licenses
National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 600227-0
State of Connecticut Department of Public Health Registration Number: PH-0817
State of Rhode Island Department of Health, Certification Number: PLM00144, TEM00144
State of West Virginia Bureau for Public Health, Analytical Laboratory Number: LT000637
Texas Department of State Health Services License Number: 300510

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for M.A.C Paran Consulting

Report Date: 10/29/2025

Project Name: Wilmington Hi-Rise

SanAir ID#: 25072395

NVLAP TESTING

NVLAP LAB CODE 600227-0

11709 Chesterdale Road, Cincinnati, Ohio 45246
888.895.1177 | 513.438.6066 | LabReports@SanAir.com | SanAir.com

SanAir ID Number
25072395
FINAL REPORT
10/29/2025 2:37:17 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 10/28/2025 10:30:00 AM

Dear Scott Carter,

We at SanAir would like to thank you for the work you recently submitted. The 2 sample(s) were received on Tuesday, October 28, 2025 via Fax or Email request. The final report(s) is enclosed for the following sample(s): WHR-75, WHR-76.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Maureen Y. Haley
Asbestos Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 2 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
25072395
FINAL REPORT
10/29/2025 2:37:17 PM

Name: M.A.C Paran Consulting
Address: 3959 Fulton Grove Rd.
Cincinnati, OH 45245
Phone: 513-752-9111

Project Number:
P.O. Number:
Project Name: Wilmington Hi-Rise
Collected Date: 2/27/2025
Received Date: 10/28/2025 10:30:00 AM

Analyst: Farnsworth-Pinkerton, Shoshauna

Asbestos Bulk EPA PLM NOB EPA 600/R-93/116

SanAir ID / Description	Appearance	% Fibrous	% Non Fibrous	Asbestos Types	% Total Asbestos
25072395-001 / WHR-75 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Glue	Brown Non-Fibrous Homogeneous		99.7 %	Chrysotile	0.3 %
25072395-002 / WHR-76 12" Acoustic Ceiling Tile-Rough Texture with Glue Pucks, Glue	Brown Non-Fibrous Homogeneous		99.7 %	Chrysotile	0.3 %

EPA 400 Point Count with Gravimetric Reduction.

Analyst:
Analysis Date: 10/29/2025

Approved Signatory: Sandra Sobrino
Date: 10/29/2025

Disclaimer and Additional Information:
Method for the Determination of Asbestos in Bulk Building Materials
EPA 600/R-93/116 July 1993 PLM EPA NOB

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Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. Samples are held for a period of 60 days.

Revision#02, 6/21/2024

SanAir Technologies Laboratory

11709 Chesterdale Road
Cincinnati, Ohio 45246
513.438.6006
sanair.com

Asbestos
Chain of Custody
Form 140, Rev 6, 1/26/2022

SanAir ID Number
NOB 25072395
PLM 25061958

Company: m.a.c. Paran Consulting Services, Inc.	Project #: N/A	Collected by: Tom Wenk
Address: 3959 Fulton Grove Road	Project Name: Wilmington Hi-Rise	Phone #: 513-383-6262
City, St., Zip: Cincinnati, Ohio	Date Collected: 27-Feb-2025	Fax #:
State of Collection: OHIO Account#:	P.O. Number:	Email: macparan@macparan.com

Bulk

ABB	PLM EPA 600/R-93/116	✓
	Positive Stop ✓	
ABEPA	PLM EPA 400 Point Count	
ABB1K	PLM EPA 1000 Point Count	
ABBEN	PLM EPA NOB**	
ABBCH	TEM Chatfield**	
ABBTM	TEM EPA NOB**	
ABQ	PLM Qualitative	

** Available on 24-hr. to 5-day TAT

Water

ABHE	EPA 100.2	

Air

ABA	PCM NIOSH 7400	
ABA-2	OSHA w/ TWA*	
ABTEM	TEM AHERA	
ABATN	TEM NIOSH 7402	
ABT2	TEM Level II	
Other:		

New York ELAP

ABEPA2	NY ELAP 198.1	
ABENY	NY ELAP 198.6 PLM NOB	
ABBNY	NY ELAP 198.4 TEM NOB	

Soil

ABSE	PLM EPA 600/R-93/116 (Qual.)	

Soil

ABSP	PLM CARB 435 (LOD < 1%)	
ABSP1	PLM CARB 435 (LOD 0.25%)	
ABSP2	PLM CARB 435 (LOD 0.1%)	

Dust

ABWA	TEM Wipe ASTM D-6480	
ABDMV	TEM Microvac ASTM D-5755	

Matrix	Other	

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	1 Day ☐
	☐ 2 Days	■ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions ALSO EMAIL RESULTS TO TOM WENK AT TOM@ELLIOTENV.COM

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
	Samples 1-89: See Attached Sample Log					

Relinquished by	Date	Time	Received by	Date	Time
Tom Wenk			RMB	SEP 16 2025	10:15 am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

NOB 25072395

PLM 25061958

Bulk Sample Log
Wilmington Hi-Rise

Material Code	Sample #	Material Description	Sample Location	Notes/Comments	Test
FT1	WHR- 1	12" Floor Tile-Beige on Grey "Gypcrete" Underlayment Compound	Unit 207		PLM
	WHR- 2		Unit 218		PLM
	WHR- 3		Unit 306		PLM
	WHR- 4		Unit 313		PLM
	WHR- 5		Unit 402		PLM
	WHR- 6		Unit 408		PLM
FT1A	WHR- 7	12" Floor Tile-Beige with Black Mastic	Unit 123		PLM
	WHR- 8		Unit 123		PLM
	WHR- 8		Unit 215		
	WHR- 10		Unit 215		PLM
FT2	WHR- 11	12" Floor Tile-Pink Speckle with Black Mastic	Maintenance Room 112		PLM
	WHR- 12		Maintenance Room 112		PLM
	WHR- 13		Maintenance Room 112		PLM
FT3	WHR- 14	12" Floor Tile-Mauve with Black Mastic	Maintenance Room 112		PLM
	WHR- 15		Maintenance Room 112		PLM
FT4	WHR- 16	12" Floor Tile-Grey/Tope with Grey Underlayment Compound	2nd Floor Corridor		PLM
	WHR- 17		3rd Floor Corridor		PLM
VP1	WHR- 18	Vinyl Plank Flooring-Grey/Brown Faux Wood Pattern with Tan Adhesive	2nd Floor Corridor		PLM
	WHR- 19		Unit 220		PLM
	WHR- 20		Unit 413		PLM
VP2	WHR- 21	18" Vinyl Plank-Gold with Orange Tint with Tan Adhesive	Unit 205		PLM
	WHR- 22		Unit 406		PLM
VP3	WHR- 23	18" Vinyl Plank-Brown and Black with Brown Adhesive	Unit 122		PLM
	WHR- 24		Unit 122		PLM
VP4	WHR- 25	18" Vinyl Plank-Gold/Beige with Tan Adhesive	Unit 304		PLM
	WHR- 26		Unit 304		PLM
VP5	WHR- 27	18" Vinyl Plank-Orange, Black, Brown with Tan Adhesive	Unit 205		PLM
	WHR- 28		Unit 205		PLM
VT1	WHR- 29	Vinyl Stair Tread-Green with Tan/Yellow Adhesive	West Stairwell		PLM
	WHR- 30		South Stairwell		PLM
	WHR- 31		North Stairwell		PLM

RMB SEP 16 2025 10:15am

NOB 25072395

PLM 25061958

Bulk Sample Log
Wilmington Hi-Rise

Material Code	Sample #	Material Description	Sample Location	Notes/Comments	Test
RM	WHR- 32	Residual Black Mastic on Concrete Floor	Small ME Room West Stairwell		PLM
	WHR- 33		Small ME Room West Stairwell		PLM
CAD1	WHR- 34	Carpet Adhesive-Tan/Gold	Unit 106		PLM
	WHR- 35		Unit 405		PLM
CAD2	WHR- 36	Carpet Adhesive-Tan/Gold with Limited Black Mastic	Unit 115	Sample may have small specs of black mastic	PLM
	WHR- 37		Unit 207	Sample may have small specs of black mastic	PLM
	WHR- 38		Unit 402	Sample may have small specs of black mastic	PLM
	WHR- 39		Unit 408	Sample may have small specs of black mastic	PLM
	WHR- 40		Unit 309	Sample contains visible black mastic	PLM
	WHR- 41		Unit 319	Sample contains black mastic	PLM
CBA1	WHR- 42	4" Vinyl Cove Base-Black and Brown Adhesive	Unit 403		PLM
	WHR- 43		Unit 403		PLM
CBA1A	WHR- 44	4" Vinyl Cove Base-Black and Tan Adhesive	Unit 127		PLM
	WHR- 45		Unit 408		PLM
CBA2	WHR- 46	5" Vinyl Cove Base-Mauve and Tan Adhesive	1st Floor Corridor		PLM
	WHR- 47		2nd Floor Corridor		PLM
CBA3	WHR- 48	7" Vinyl Covebase-Black with Tan Adhesive	2nd Floor Corridor		PLM
	WHR- 49		2nd Floor Corridor		PLM
CBA4	WHR- 50	5" Vinyl Covebase-Beige with Tan Adhesive	Unit 123		PLM
	WHR- 51		Unit 123		PLM

RMB SEP 16 2025 10:15 am

NOB 25072395

PLM 25061958

Bulk Sample Log
Wilmington Hi-Rise

Material Code	Sample #	Material Description	Sample Location	Notes/Comments	Test
JC1	WHR- 52	Joint Compound on Drywall Seams-White	Unit 121		PLM
	WHR- 53		Unit 207		PLM
	WHR- 54		Unit 315		PLM
	WHR- 55		3rd Floor Corridor Soffit		PLM
	WHR- 56		Unit 402		PLM
	WHR- 57		Unit 404	Sample may contain limited tinted joint compound	PLM
	WHR- 58		Unit 406	Sample may contain limited tinted joint compound	PLM
JC2	WHR- 59	Joint Compound on Drywall Seams-Tinted	2nd Floor Corridor Wall		PLM
	WHR- 60		2nd Floor Corridor Ceiling		PLM
	WHR- 61		2nd Floor Corridor Ceiling		PLM
	WHR- 62		3rd Floor Corridor Ceiling		PLM
TXT	WHR- 63	Textured Surfacing on Ceilings	Unit 106		PLM
	WHR- 64		Unit 107		PLM
	WHR- 65		Unit 207		PLM
	WHR- 66		Unit 215		PLM
	WHR- 67		Unit 319		PLM
	WHR- 68		Unit 402		PLM
	WHR- 69		Unit 408		PLM
CP1	WHR- 70	2' x 2' Ceiling Panels Random Pinhole Pattern Recessed Edges	1st Floor Corridor		PLM
	WHR- 71		2nd Floor Corridor		PLM
	WHR- 72		3rd Floor Corridor		PLM
CP2	WHR- 73	2' x 2' Ceiling Panels Random Pinhole Pattern	Office 130		PLM
	WHR- 74		1st Floor Mens Restroom		PLM
ATAD1	WHR- 75	12" Acoustic Ceiling Tile-Rough Texture with Dark brown Glue Pucks	Maintenance Room 112		PLM
	WHR- 76		Maintenance Room 112		PLM
	WHR- 77		Maintenance Room 112		PLM

RMB SEP 16 2025 10:15am

3 of 4

Attachment B

Asbestos Hazard Evaluation Specialist License

Ohio Environmental Protection Agency

EPA.Ohio.gov

Mike DeWine, Governor Jim Tressel, Lt. Governor John Logue, Director

8/11/2025

Thomas Wenk
Elliot Environmental Management
319 Shawnee Trail
Dayton, OH 45458

RE: Evaluation Specialist
Certification Number: ES32076
Expiration Date: 8/11/2026

Dear Thomas Wenk:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at asbestoslicensing@epa.ohio.gov.

Sincerely,

Brandon M. Schwendeman

Brandon Schwendeman
Manager, Business Operations Support Section
Ohio EPA - Division of Air Pollution Control

50 West Town Street • Suite 700 • P.O. Box 1049 • Columbus, OH 43216-1049
epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)

SECTION 07 84 00 - FIRESTOPPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Firestopping through-penetrations of fire rated assemblies.
   2. Firestopping joints in fire rated assemblies.
   3. Smoke sealing at joints between floor slabs and exterior walls.
   4. Smoke sealing penetrations and joints of smoke partitions.

1.2 REFERENCES

A. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
   3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
   4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

B. Forest Stewardship Council:
   1. FSC Guidelines - Forest Stewardship Council Guidelines.

C. Intertek Testing Services (Warnock Hersey Listed):
   1. WH - Certification Listings.

D. South Coast Air Quality Management District:
   1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.

E. Underwriters Laboratories Inc.:
   1. UL 263 - Fire Tests of Building Construction and Materials.
   2. UL 1479 - Fire Tests of Through-Penetration Firestops.
   3. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
   4. UL - Fire Resistance Directory.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 PERFORMANCE REQUIREMENTS

A. Conform to UL for fire resistance ratings and surface burning characteristics.

1.5 SUBMITTALS

A. Product Data: Submit data on product characteristics, performance and limitation criteria.

B. Manufacturer's Installation Instructions: Submit preparation and installation instructions.

C. Manufacturer's Certificate: Certify products meet or exceed specified requirements and applicable code requirements.

1.6 QUALITY ASSURANCE

A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10 inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.

1. Floor / Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.

B. Through Penetration Firestopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.

C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.

D. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain this minimum temperature before, during, and for minimum 3 days after installation of materials.

B. Provide ventilation in areas to receive solvent cured materials.

PART 2 PRODUCTS

2.1 FIRESTOPPING

A. Manufacturers:
1. 3M Fire Protection Products
2. United States Gypsum Co.
3. Equal.

B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
   a. Interior Sealants and Sealant Primers: Maximum volatile organic compound content in accordance with SCAQMD Rule 1168.
2. Foam Firestopping Compounds: Single component foam compound.
3. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
4. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.

2.2 ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install backing materials to arrest liquid material leakage.

3.3 APPLICATION

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating to uniform density and texture.

D. Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

3.4 FIELD QUALITY CONTROL

A. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

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SECTION 07 90 00 - JOINT PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes sealants and joint backing.

1.2 SUBMITTALS

A. Product Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.

1.3 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

1.4 QUALITY ASSURANCE

A. Sealant shall be installed by a qualified sealant applicator for any/all joint sealant exposed to view. Owner reserves the right to request a mockup of the quality for the joint sealant installation.

PART 2 PRODUCTS

2.1 JOINT SEALERS

A. Manufacturers:
   1. Tremco [basis of design]
   2. Sika
   3. GE Silicones.
   4. Pecora Corp.
   5. DAP

B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

C. Low-Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Liquid-Applied Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.

E. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Additional Movement Capability: Where additional movement capability is specified, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C920 for uses indicated.

G. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range, unless otherwise noted.

2.2 SILICONE JOINT SEALANTS:

A. **Type S-1**: Single component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use NT

1. Tremco Spectrem 1 or Spectrem 800 or Equal

B. **Type S-2**: Single Component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, use NT
   1. Tremco Spectrem 2 or Spectrem 3 or Equal

C. **Type S-3**: Multi-Component, Nonsag, Silicone Joint Sealant: ASTM C920, Type M, Grade NS, Class 50, Use NT
   1. Tremco Spectrem 4-TS or Equal

D. **Type S-4**: Single Component, nonsag, Traffic-Grade, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use T
   1. Tremco Spectrem 800 or Equal

E. **Type S-5**: Mildew Resistant, Single Component, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT
   1. Tremco Tremsil 200 Sanitary or Equal

2.3 URETHANE JOINT SEALANTS

A. **Type U-1**: Single Component, nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25 or 35, Use NT:
   1. Tremco Dymonic or Dymonic FC or Equal

B. **Type U-2**: Single Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use T.
   1. Tremco Vulkem 116 or Equal.

C. **Type U-3**: Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
   1. Tremco Dymeric 240 or Dymeric 240 FC or Equal

D. **Type U-4**: Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use NT.
   1. Tremco Vulken 227 or Equal

E. **Type U-5**: Multi-Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
   1. Tremco Vulken 227 or Equal

2.4 BUTYL JOINT SEALANTS

A. **Type B-1**: Butyl Rubber based Joint Sealants: ASTM C 1311
   1. Tremco General Purpose Butyl Sealant or Equal

2.5 LATEX JOINT SEALANTS

A. **Type L-1**: Latex Joint Sealant: Acrylic latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better
   1. Tremco Tremflex 834 or Equal.

B. **Type L-2**: Paintable Mildew-Resistant Latex Joint Sealant: Acrylic Latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better.
   1. Tremco Tremflex 834 or Equal.

2.6 ACCESSORIES

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and

density to control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Oversized to 30 to 50 percent larger than joint width.

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

E. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated. Non-staining type, recommended by sealant manufacturer to suit application.

F. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

G. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces and joint openings are ready to receive work.

B. Verify joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Remove loose materials and foreign matter impairing adhesion of sealant.

B. Clean and prime joints.

C. Perform preparation in accordance with ASTM C1193.

3.3 INSTALLATION

A. Perform installation in accordance with ASTM C1193.

B. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

C. Install bond breaker where joint backing is not used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Tool joints concave.

3.4 SCHEDULE

A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces, subject to movement, unless otherwise noted.

1. Joint locations such as, but not limited to:
    a. Control joints on exposed interior surfaces of exterior walls.
    b. Interior joints where interior partitions meet exterior walls of dissimilar materials and components.
    c. Other joints as indicated on Drawings.

2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
3. Color: As selected by Architect from manufacturer's full range of colors. Paintable Sealant, prep for painted finish.

B. Joint-Sealant Application: Interior joints in vertical surfaces subject to abuse and movement.
1. Joint locations such as, but not limited to:
   a. Vertical joints, including control joints and joints between masonry and structural support members, on exposed surfaces of interior unit masonry walls and partitions.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-2**
3. Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in vertical surfaces not subject to movement.
1. Joint locations such as, but not limited to:
   a. Interior perimeter joints of exterior openings.
   b. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
   c. Interior joints between dissimilar materials where a gap is created where materials meet, unless otherwise noted.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type L-1, Type L-2**
3. Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Exterior joints under metal thresholds and saddles, sill plates, or as bedding sealant for sheet metal flashing and frames of metal or wood.
1. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-1, Type U-1, Type B-1**
2. Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes gypsum board with joint treatment.

1.2 SUBMITTALS

A. Product Data: Submit data on each type of gypsum board, backer board, joint tape and accessories.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with GA-201 - Gypsum Board for Walls and Ceilings. GA-214 - Recommended Specification: Levels of Gypsum Board Finish. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board. GA-600 - Fire Resistance Design Manual.

B. Surface Burning Characteristics:
   1. Textile Wall Coverings: Comply with one of the following:
      a. Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

C. Mock-up:
   1. Provide mockup of the quality of finishes for one wall that indicates the level of finish quality. Approved mockup will become standard for comparing other work.
   2. Provide mockup of the quality of finishes for one ceiling area that indicates the level of finish quality for knockdown stomped ceiling finishes. Approved mockup will become standard for comparing other work.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

A. Manufacturers:
   1. United States Gypsum Co.
   2. BPB Americas Inc.
   3. G-P Gypsum Corp.
   4. National Gypsum Co.
   5. Certainteed.

B. Gypsum Board [Type GB-1]: ASTM C1396; Type X fire resistant type, high density; 5/8 inch thick, maximum available length in place; ends cut square, tapered square edges.

2.2 ACCESSORIES

A. Gypsum Board Accessories: ASTM C1047; metal, metal and paper combination; corner beads, edge trim, and expansion joints.
   1. Metal Accessories: Galvanized steel.
   2. Edge Trim: Type LC or U bead.

B. Joint Materials: ASTM C475/C475M, reinforcing tape, joint compound, and water.

C. Fasteners: ASTM C1002; Type S12 hardened screws, length to suit application.

D. Gypsum Board Screws: ASTM C1002; Type W or S hardened screws, length to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions are ready to receive work.

3.2 INSTALLATION

A. Gypsum Board:
   1. Install gypsum board in accordance with GA-216 and GA-600.
   2. Fasten gypsum board to furring or framing with screws.
   3. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.
   4. Seal cut edges and holes in moisture resistant gypsum board with sealant.

B. Joint Treatment:
   1. Finish in accordance with GA-214 Level 4.
   2. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   3. Feather coats onto adjoining surfaces so camber is maximum 1/32 inch.

3.3 SCHEDULE

A. Match existing / adjacent finishes as applicable to the conditions. General intent is repair existing gypsum board finishes to a Level 4 standard finish. Prep, repair, and skim as required to achieve desired finish.

B. Interior walls [except where noted otherwise]: GB-1. Level 4 finish.

C. Interior Walls / Ceilings at Demising Wall Locations: GB-1, Level 4 finish.

END OF SECTION

SECTION 09 90 00 - PAINTING AND COATING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and field application of paints and other coatings.

B. Paint/Stain all exposed surfaces, new and existing, unless otherwise indicated.
   1. Interior Work
      a. Walls and ceilings.
      b. Conduits / Junction boxes

C. Do not paint prefinished items, finished metal surfaces, operating parts, labels, and materials obviously intended to be left exposed such as brick and tile.

D. Unless otherwise indicated do not paint concealed surfaces.

E. Obtain primers and undercoat materials for each coating system from the same manufacturer as the finish coats. Primer and finish coat shall be factory applied, finish coat shall be field applied.

F. **Extra Materials**: Deliver to Owner **any extra materials**, properly labeled, factory sealed, of each color and type of finish coat paint used on project for each building in contract. Materials shall be signed for by GDPM Construction Inspector.

G. Minimum surface temperature of 50 degrees required for all coating systems.

H. Store all materials in tightly closed containers when not in use, away from heat, electrical equipment, sparks and open flames. Use approved bonding and grounding procedures. Keep out of the reach of children and residents.

I. Transfer materials to approved containers with complete and appropriate labeling.

1.2 APPLICATORS QUALIFICATIONS

A. Engage an experienced applicator with a minimum of <u>five</u> years experience and who has completed painting systems application similar in materials and extend to those indicated for the Project and that have resulted in a construction record of successful in-service performance.

1.3 SUBMITTALS

A. Product Data and Color Samples: Provide product data on each coating system component indicating VOC and environmental requirements. Coordinate coating systems for each material/substrate.

1.4 MOCKUP

A. Full-coat finish sample (benchmark sample) of each type of coating, substrate, color, and finish required in area of not less than 100 sq. ft. Comply with PDCA P5. Contractor shall not begin work until final approval is given on color and finish.

1.5 REFERENCES AND REGULATIONS:

A. Standards: Comply with applicable provisions and recommendations of the following, except when otherwise shown or specified:
   1. OSHA Safety Standards for the Construction Industry, Title 29 - Labor, Subtitle B – Regulations Relating to Labor, Occupational Safety and Health Administration (OSHA) 1926, 07/01/93 editions.
   2. OSHA Worker Safety and Health Act Regulation 29 CFR No. Parts 1900 through 1910.1400, 07/01/93 and later editions.
   3. SSPC Volume 1, Good Painting Practice, 1989 edition.

4. SSPC Volume 2, Systems and Specifications, 1991 edition, Surface Preparation Guide and Paint Application Specifications of the Steel Structures Painting Council.
5. NACE Standards, Volume I and II, 1992 editions of the National Association of Corrosion Engineers.
6. SSPC and NACE Painter Safety Guidelines, latest editions.

B. Requirements of Regulatory Agencies, conform with the following:
1. Clean Air Act (CAA) – hazardous Air Emissions by U.S. EPA or State Agency under Regulation 40 CFR 61 or state equivalent.
2. Clean Water Act (CWA) – hazardous Water Releases by U.S. EPA or State Agency under Regulation 40 CFR 116 through 117 or state equivalent.
3. Toxic Substances Control Act (TSCA) – Toxic substance by U.S. EPA under Regulation 40 CFR 761.
4. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or "SuperFund") – Uncontrolled Hazardous Waste Sites and Hazardous Substance Release by U.S. EPA under Regulation 40 CFR 302.
5. Resource Conservation and Recovery Act (RCRA) – Generation, Transportation, Treatment, Storage and Disposal of hazardous waste by U.S. EPA or State Agency under Regulation 40 CFR 260 through 267 or state equivalent.
6. Hazardous and Solid Waste Amendments (HSWA) – Further regulation of hazardous waste by U.S. EPA or State Agency under Regulation 40 CFR through 267 or state equivalent.
7. Hazardous Material Transportation Act (HMTA) – Transportation of Hazardous Material by DOT or State Agency under Regulation 49 CFR 171 through 179 or state equivalent.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit maintenance and cleaning instructions.

1.7 QUALITY ASSURANCE

A. Surface Burning Characteristics:
1. Fire Retardant Finishes: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

PART 2 PRODUCTS

2.1 COLORS AND FINISHES

A. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
1. Lead: Measurable lead content in either the pigment or binder will not be permitted.
2. The finish coats shall match colors selected.

B. Finish Quality:
1. Finishes shall exhibit a high quality, commercial grade appearance of uniform thickness.
2. Finishes shall be free of runs, sags, drips, waves, orange peel, festoons, dry spray, cloudiness, spotting, ropiness, brush marks, roller marks, fish eyes or other surface imperfections, voids, discontinuities, pinholes, holidays and overspray.
3. Final coat shall be uniform in texture, color and gloss, and shall provide an acceptable match with the approved drawdown sample sheet.

2.2 COATINGS

A. Manufacturer
1. Sherwin-Williams (SW)
2. PPG Porter
3. Benjamin Moore

B. Colors: As selected from a full range of manufacturer's offerings, including premium colors.

2.3 INTERIOR COATINGS

A. Interior Latex Primer: SW ProMar 200 Zero VOC Wall Primer B28W02600, or equal.
   1. Interior Latex Primer
   2. VOC: maximum 0g/L; 0.0 lb/gal
   3. Volume Solids: 26 +/- 2%

B. Interior Latex: SW ProMar 200 Zero VOC Interior Latex Flat B30-2600 Series, or equal.
   1. Interior Latex Flat Acrylic
   2. VOC: maximum 0g/L; 0.0 lb/gal
   3. Volume Solids: 41 +/- 2%

C. Interior Latex: SW ProMar 200 Zero VOC Eg-Shel B20-2600 Series, or equal.
   1. Interior Latex Eggshell Acrylic
   2. VOC: maximum 0g/L; 0.0 lb/gal
   3. Volume Solids: 42 +/- 2%

D. Interior Latex: SW ProMar 200 Zero VOC Semi-Gloss B31-2600 Series, or equal.
   1. Interior Latex Semi-Gloss Acrylic
   2. VOC: maximum 0g/L; 0.0 lb/gal
   3. Volume Solids: 39 +/- 2%

E. Interior Acrylic Primer: SW Pro Industrial DTM Acrylic Primer B66W1
   1. Interior Acrylic Primer
   2. VOC: <150 g/L, 1.25 lb/gal
   3. Volume Solids: 46% +/- 2%

F. Interior Acrylic Finish: SW DTM Acrylic Finish B66W01151 Series
   1. Interior Acrylic Coating
   2. VOC: <50 g/L, 0.42 lb/gal

PART 3 EXECUTION

3.1 SURFACE PREPARATION

A. Comply with paint manufacturer's written instructions for surface preparation, environmental and substrate conditions, product mixing, and application.

B. Perform all surface preparation in accordance with SSPC specifications, guidelines and good painting practices.

C. Patch all holes and imperfections with spackle joint compound and sand smooth.

D. Seal all stains from water, smoke, ink, pencil, grease, etc. with SW Prep-Rite Interior Latex Primer or equal.

E. Fill all cracks, voids and crevices with caulk after priming the surface.

F. Do not paint until surface is thoroughly dry and in sound condition.

3.2 APPLICATION

A. Examination and Verification of Condition: Contractor shall verify the areas and conditions under which the work is to be performed and notify the Owner in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until satisfactory conditions have been corrected. Do not coat over chalk, dirt, scale, moisture, oil, surface contaminants, coatings that have exceeded the manufacturer's re-coat guidelines, or conditions otherwise detrimental to the formation of a durable high quality coating system.

B. Comply with manufacturer's instructions and SSPC Good Paint Practices Volumes 1 and 2.

C. Comply with OSHA regulations, City of Dayton, State of Ohio and Federal laws, ordinances, and guidelines.

D. Coating systems require a minimum surface temperature of 77 degrees F at 50% RH for proper drying and curing with a minimum temperature of 50 degrees and a maximum relative humidity of 85%. Follow label directions for each type of coating. Substrate temperatures to be coated shall be a minimum of 5 degree F above dew point and rising. Ambient surface to be painted and coating materials shall be a minimum maintained temperature of 50 degree F for 24 hours.

E. Refer to SDS sheets before using any product.

F. All surfaces must be thoroughly dry before coating applications.

G. Apply coatings using brush or roller only.

3.3 INTERIOR PAINT APPLICATION SCHEDULE

A. Gypsum Board:
   1. Concrete / Gypsum board ceilings:
      a. Interior Latex Primer: SW ProMar 200 Zero VOC Primer at 1.3 MILS DFT per coat, one coat.
      b. Interior Latex: SW ProMar 200 FLAT Interior Latex at 1.7 MILS DFT per coat, two coats.
   2. Concrete Block / Gypsum board walls:
      a. Interior Latex Primer: SW ProMar 200 Zero VOC Primer at 1.3 MILS DFT per coat, one coat.
      b. Interior Latex: SW ProMar 200 Zero VOC Eggshell Interior Latex at 1.6 MILS DFT, two coats.

B. Steel Substrates [miscellaneous metal surfaces, conduits, etc.]:
   1. Interior Primer: SW DTM Acrylic Primer at 2.5-5.0 MILS DFT, one coat, where required for spot priming / bare metal conditions.
   2. Interior Acrylic: SW Pro Industrial DTM Acrylic Semi-Gloss Interior Coating at 2.5-4.0 MILS DFT, two coats.

3.4 CLEAN UP

A. Clean site and remove debris and empty cans daily. Remove all paint from adjacent surfaces. Clean spills and splatters immediately.

B. Clean hands and tools immediately after use with soap and water for water based products and with mineral spirits for oil based products.

C. Follow manufacturer’s safety recommendations when using mineral spirits.

3.5 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

END OF SECTION

ELECTRICAL

SECTION 16000

INDEX

ELECTRICAL

SECTION 16000

1. RELATED DOCUMENTS

   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

2. SCOPE

   A. The work included under this section shall consist of the furnishing of all labor, materials, equipment and incidentals necessary to install the electrical and related work indicated on the drawings and as called out in the following technical specifications. This shall include all testing and adjustments required and/or specified.

3. DESCRIPTION OF WORK

   A. The following is a summary of the principal categories of work under this section. Note, however, that this listing is for general information only and work will not necessarily be limited to these categories. The detailed drawings and the following specifications cover the full extent of the work.

   B. Power:

      1. Replace existing Fire Alarm system.

      2. Provide new branch circuits where required.

   C. Demolition:

      1. Removal of existing electrical devices that are noted on drawings and those devices in the area of the remodeling that are obviously necessary to be removed or relocated.

4. PERMITS, FEES, INSPECTIONS, LAWS & REGULATIONS

   A. Obtain and pay for all permits required in connection with this section of the work. In addition, pay all necessary inspection fees or similar charges. Laws and regulations which bear upon or affect this work shall be complied with and are hereby made a part of this section of the work. All work which such laws require to be inspected shall be submitted to the proper public officials for inspection.

   B. The requirements of the National Electrical Code (NEC) as well as all local ordinances and regulations, including those of the local utility company, shall be

followed and adhered to with regard to the work under this section. Where the contract documents (plans, specifications, etc.) exceed the minimum requirements of the NEC and/or other regulations, etc., the document requirements shall govern.

C. At completion of the project furnish to the Owner, at no additional charge, a certificate(s) of inspection issued by the authorized agency (or agencies) having jurisdiction over this portion of the project, stating that all work executed under this section complies with the minimum requirements.

D. Note that the General Building Permit will be obtained and paid for by the successful Electrical Contract Bidder. Contractors bidding this section of the work shall make a sufficient allowance in their bid to reimburse the Electrical Prime Contractor for their proportionate share of the permit cost.

E. Additional fees, charges, etc. imposed by other contractors and/or tradesmen, professional consultants, etc. for services rendered in connection with performing any portion of the work under this section shall be included as part of the work. This shall include surveys, profiles and/or other miscellaneous drawings, etc. that may be required in addition to the contract documents by any governing authority.

5. SITE INVESTIGATION

A. Prior to bidding, it is recommended that the contractor visit the job site and investigate all details which may have any effect on the installation, progress or completion of the project.

B. When a bid is received, it will be assumed that the contractor has made the job site visit(s) and is familiar with the conditions as they exist and any adjustments and/or modifications that may be necessary in order to perform and complete the work as specified.

C. At project start-up, certain areas will be designated for the storage of materials and equipment and cooperation with the Owner in minimizing interference with existing operations will be mandatory.

6. DRAWINGS

A. The drawings prepared for this project are an outline to show where conduit, devices and distribution equipment must go in order to harmonize with the building and installations of the various trades. All work must be installed in accordance with the drawings insofar as possible. All drawings shall be carefully checked during the course of bidding and construction. If any discrepancies, errors or omissions or overlaps with other trades are discovered prior to or during the construction phase, notify the Engineer immediately for interpretation or correction. Note that an overlap with another trade does not relieve the contractor from the obligation of

performing the work indicated on the drawings for this section of the project unless written notification stating such is obtained from the Engineer.

B. Take all necessary measurements and be responsible for same, including clearances for all equipment that is to be furnished. The Engineer shall reserve the right to make minor location changes of equipment where such adjustments are deemed desirable from an appearance, installation or operational standpoint. Such changes will normally be initiated sufficiently in advance to avoid extra work or unduly delay progress on the project.

C. In general, the conduit and wiring layouts shall be considered as diagrammatic for clearness and legibility and are to be used as a guide. Therefore, it is not intended that the drawings indicate all necessary offsets, junction boxes, pull boxes, etc. Conduit, wiring, fixtures, equipment, etc. may have to be offset, lowered or raised as required or as directed at the site in order to accommodate field conditions. In addition, relocate or shift equipment, fixtures and devices without cost, when so directed by the Engineer, providing such items have not been installed and the revised location is not greater than 10 feet from the location indicated.

D. Note also that electrical connections indicated on the drawings may not be shown in the correct location for the equipment, fixtures, devices, etc., actually selected for the project. Verify all connection locations with shop drawings of the item to be installed or make field measurements before proceeding with any rough-in work.

E. The general building and / or structural drawings shall be used to obtain dimensions and exact locations and as a check with other contractors to avoid interference with their work. Refer to applicable drawings on all branches of the work where other trades are involved on the project so that added field work and/or job delays resulting from conflicts between crafts can be avoided.

7. SPECIFICATIONS

A. Specifications shall be interpreted in conjunction with the drawings hereinbefore described and if anything is shown on the drawings and not mentioned in the specifications or vice versa, it is to be included in the work the same as though clearly set forth by both.

B. Furthermore, all materials or labor obviously required to fully complete the work shall be included in the bid, even though each item necessarily involved is not specifically mentioned or shown. Such work and/or material shall be furnished and shall be of the same grade or quality as the parts actually specified and shown. Should there be a conflict between the plans and specifications, the greater quantity or better quality shall be furnished.

C. Should an overlap of work between the various trades become evident, the Engineer shall be notified. Such an event shall not relieve any trade of the

responsibility for the work called for under his branch of the specifications until a written clarification or directive is issued concerning the matter.

D. When selecting equipment to be used on this project, refer to Item EQUIPMENT CLEARANCES AND REQUIREMENTS in these specifications.

E. Note that all systems and items of equipment involved under this contract heading shall be furnished and installed in accordance with applicable requirements of federal, state and local codes including the ADA (Americans with Disabilities Act), OSHA requirements and applicable portions of NFPA. The above includes adhering to applicable requirements governing mounting heights for occupant operable controls.

F. All references made to codes, standards, etc. in these specifications or on the drawings shall be taken to mean the latest edition, amendment and/or revision of such reference in effect as of the date indicated on the Bid Documents.

8. MATERIALS AND WORKMANSHIP

A. Materials supplied under this contract shall be new and in strict accordance with the provisions of these plans and specifications. Any material required which is not specifically represented by a manufacturer's catalog number of quality standard, shall be subject to the approval of the Engineer in all cases. When two or more items of the same equipment are involved, they shall be identical in quality and made by the same manufacturer.

B. Materials shall be the latest design of that manufacturer and shall be shipped to the job in the original container with proper identification as to size, type and dates of inspection and shipment.

C. Electrical work shall be performed by mechanics skilled in their respective trades. Tool marks will not be permitted on any exposed materials, fixture or fitting. In addition, all exposed materials, fixtures, equipment, etc. shall be installed in straight horizontal and/or vertical lines, parallel to the building lines wherever possible. Carelessly executed work as well as workmanship that is determined to be below normal industry standards of best practice, and/or work not conforming to the requirements of this item, shall be redone or repaired as required prior to final acceptance.

9. CUTTING AND PATCHING

A. All cutting and/or drilling of walls, slabs, structural members, etc., required in conjunction with work under this section shall be performed as part of the work and shall be done under the supervision of the General Contractor. Work shall be neatly done, without unnecessary removal of material. Holes, openings, etc. shall be located where they will not weaken the structure. No beams, joists, etc., shall be cut without written authorization from the Engineer.

B. Cutting of holes in masonry and/or concrete shall be performed with a core drill to minimize spalling, etc. Locations shall be accurately determined and checked and the appropriate drill bit shall be used to minimize hole size.

C. Sleeves or thimbles for these holes as well as escutcheons and trim plates shall be provided as described in Item SLEEVES AND THIMBLES.

D. NOTE: Cutting of water lines, electric conduit or similar service lines in the course of work performed under this section shall be immediately repaired as part of the work of this section.

E. Patching and/or repairing of all work, including finished surfaces, necessitated by the demolition or installation of work under this section shall be considered as part of this work. It shall, however, be performed by mechanics of the appropriate trade in order to achieve a workmanlike job. This shall include, but not be limited to, all items of concrete and masonry work, millwork, gypsum board and/or plaster work, painting, floor finishes and ceiling finishes as well as all other surface finishes.

F. When the need for such patching or repairs arises, immediate arrangements shall be made with the appropriate trade(s) or with the General Contractor to perform the necessary work at no additional cost to the Owner. The final responsibility for acceptance of such work by the Owner's representative shall reside with the contractor for this section of the project.

10. PROTECTION

A. Provide proper protection to the building during the execution of all work involved under this contract heading.

B. This protection shall include covering all apparatus, building surfaces and/or other materials to protect same from dirt; adequate temporary connections to protect apparatus from damage of any sort; and required shielding to protect finished parts of the building. The following shall apply where applicable:

1. Protect finished floors from chips and cutting oil by the use of a metal chip receiving pan and an oil proof floor cover.

2. Protect equipment and finished surfaces from welding and cutting spatters with baffles and spatter blankets.

3. Protect all electrical equipment finished surfaces from paint droppings, insulation adhesive and sizing droppings, etc., by the use of drop cloths.

C. Exercise extreme caution in the handling and storage of tools, material and equipment in order to prevent damage to other contractor's work and/or materials and to avoid repair costs. All switchgear, fixtures and other electrical equipment

stored at the site with exposed openings, bearings, etc. shall be covered to exclude dust and moisture. All stockpiled conduit shall be placed on dunnage and protected from weather and from entry of foreign material.

D. Furnish necessary devices, strip heaters, wiring, connections, power, etc. to provide temporary heat to keep moisture out of apparatus and equipment such as transformers, motors, etc. furnished under this section.

11. PREPARATION OF BIDS

A. All bids shall be based upon furnishing and installing the make of materials and apparatus specified herein WITHOUT SUBSTITUTION, in order that all bids may be properly compared.

B. Other materials, equipment or systems that the bidder may desire to use as a substitute for that specified will be considered IF PROPOSED AT THE TIME OF BIDDING and shown on the substitution sheet of the proposal. Such alternate items shall be of equally high quality with all safeguards, design features and operational requirements as shown on the drawings and/or as specified herein.

C. It is understood that proposals to use such substitutes shall be made in addition to and separate from the base bid in order to receive consideration and the addition to or deduction from base bid, if any, shall be duly noted on the bid form.

D. Regarding substitutes, note that any deviations from the following specifications or any special equipment requirements (ambient conditions, services, power conditioning, etc.) necessary for full time operation shall be clearly stated and completely itemized. Failure to meet these stipulations could result in additional expense that would be assigned to this section of the work and not considered as an extra. These substitute proposals will not, however, be considered as a basis for determining the low bidder unless they are specifically listed by Addendum as alternate proposals. Each substitute proposal offered shall list the manufacturer, the catalog number of the substitute item, and the specified item to be replaced by the substitute. In addition to this information, state the amount to be added to or deducted from base bid in the event the substitute proposal is accepted.

E. If no proposals for substitutes are listed on the bid form, no such proposals will be permitted for later consideration unless delivery schedules or other factors beyond the Contractor's control justify same.

F. If more than one make of material or equipment is specified, the proposed manufacturer, brand, type, etc. shall be identified. If this provision is not complied with, the Owner may then make this selection without change in contract price.

G. Note that in the following specifications, where more than one manufacturer is listed for a particular item of operating equipment, the design will be based on the first named. If equipment by the other named manufacturer(s) or a proposed

substitute requires redesign work, revised/modified services, or specific additional field work by other trade(s), the price submitted for providing this equipment must include the required additional amount to cover such work.

H. Lump sum pricing by suppliers on two or more dissimilar classifications of materials, without an accompanying price breakdown on the individual classifications, will not be tolerated. Notify the Engineer, upon receipt of a lump-sum quotation which prevents a legitimate comparison with other competitive individual quotations.

12. SHOP DRAWINGS

A. Prepare or obtain from the manufacturer, certified shop or erection drawings of all items of equipment to be furnished under this section and submit copies of same as required for review. This shall be done as soon as possible, well prior to proceeding with installation or construction and in the proper sequence to avoid delays in the work, the work of the Owner or other contractors. Unless otherwise indicated, a minimum of ten (10) sets shall be submitted. These drawings shall be complete in every respect, showing pertinent details regarding size, external and internal features, mechanical and/or electrical arrangements, locations of connections, installation and mounting instructions, materials, gauges, electrical characteristics, wiring diagrams, and other information necessary to show compliance with the intent of the contract documents. Note that in the following items of this specification, where more than one equipment manufacturer is listed, the first named has been used as the basis for design. All departures or deviations in performance, service requirements, size, etc. from first named by the make submitted shall be noted on the shop drawings. Where departures or deviations do occur, the contractor shall additionally itemize same on the cover sheet that accompanies the submittals. Failure to do so will risk subsequent rejection at the job site. (With regard to voluntary substitutions, refer also to Item BIDDING in this specification and item EQUIPMENT CLEARANCES AND REQUIREMENTS.

B. By submitting such drawings, the Contractor represents that he has selected and verified the materials and equipment, taken necessary field measurements, noted field construction criteria, etc., related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and the Contract Documents.

C. Materials and equipment to be furnished for this project shall be of current production by manufacturers regularly engaged in the manufacture of such items. When two or more similar units are required, they shall be the product of one manufacturer.

D. The review of shop drawings shall not be construed as a complete check but will indicate only that the capacity, general method of construction and/or detailing

is satisfactory. Carefully check and verify dimensions for installation and service requirements before ordering equipment for the project.

E. Submittals shall be itemized on a standardized shop drawing submittal form stating the name of the project, specification section, paragraph and/or drawing numbers applicable to submittal and shall bear the contractor's review stamp as evidence that the items have been initially checked for compliance with Contract Documents as stated above.

F. After review, shop drawings will be returned marked in one of the following ways:

1. "NO EXCEPTIONS NOTED" - Copies may be distributed as required for construction, shipment, etc. to proceed.

2. "EXCEPTIONS NOTED" - Contractor may proceed with and/or authorize construction, shipment, etc. taking into account the necessary corrections.

3. "EXCEPTIONS NOTED - REVISE AND RESUBMIT" - Contractor will be required to resubmit shop drawings in their entirety. No fabrication, erection or installation shall be authorized or initiated until shop drawings so marked have been completely revised, resubmitted and subsequently marked in accordance with either of the two preceding subparagraphs. Only shop drawings officially marked "NO EXCEPTIONS NOTED" or "EXCEPTIONS NOTED" will be permitted on the jobsite.

G. Upon return of submittals take appropriate action as specified above. Note that any shop drawing copies received beyond the number required will be destroyed (not returned). Also note that if an insufficient number of copies has been submitted, no review will take place until all required copies have been received.

H. Where resubmittal is required, four (4) copies will be so noted by the reviewer, of which two (2) copies will be returned for corrections (one (l) copy for the contractor and one (l) copy for the supplier/subcontractor).

I. The following is a list, where applicable, of items requiring submittals.

1. Lighting fixtures

2. Wiring Devices and Cover Plates

J. Note that submittal review is for general construction, detailing and application only. Carefully check and verify dimensions for installation as well as clearance and service requirements before ordering equipment for the project. In addition, where an elevator(s) is involved, verify all equipment specific electrical requirements with the selected equipment supplier in order to verify breaker type,

feeder sizing, etc. At completion, the entire installation shall be such that all equipment will function and be serviceable in a normal and satisfactory manner.

K. Shop drawings will be provided by the Owner for any Owner furnished equipment requiring service or connections under this section.

L. A complete set of shop drawings, officially marked in the prescribed manner noted previously, shall be filed on the job site. Such drawings shall be kept together, maintained in good condition and shall be readily available for reference.

13. SUPPORTING MEMBERS

A. Furnish and install all steel angles, channels, bars or clamps required to support any type of permanent apparatus to be furnished and/or installed under this section.

14. EQUIPMENT IDENTIFICATION

A. All cover plates shall have identification with regard to panel number, circuit number, item controlled, etc.

15. CLEAN UP

A. All rubbish resulting from the work herein specified shall be removed from the premises as fast as it accumulates.

B. Upon completion of the work, remove from the project site all tools, equipment, surplus materials and rubbish pertaining to the work under this contract heading. Responsibility for this shall include paying all costs for such removal and disposition including hauling, dumping, proper and legal disposal of hazardous materials, etc.

1. Note that when the work on this project involves replacement of fluorescent fixtures and/or lamps, the proper disposal of these lamps shall be through an EPA authorized lamp recycling center. Prior to completion of the work the Contractor shall furnish the Owner with written documentation from the agency attesting to the fact that a specific number of lamps have, in fact, been delivered for recycling. All associated costs involved with this procedure shall be borne by the Contractor.

16. MAINTENANCE OF EXISTING FACILITIES

A. Prior to the severing of the electrical service to any portion of the existing building, submit a plan to the Engineer and the Owner's Representative, stating the nature and duration of the proposed interruption, as well as the method of procedure. Do not under any circumstances proceed with an interruption of service of any type

without the Owner's written authorization.

17. WORK IN EXISTING BUILDING

A. All equipment shown dotted and associated wiring and conduit, etc shall be disconnected and removed.

B. Existing electrical circuits and outlets which are to stay in use shall remain on the existing electrical panels. New work shall be connected to the new panels unless indicated otherwise.

C. All cutting and patching of existing walls, floors and ceilings required for the installation of any and all electrical work in the remodeled portions of the existing building shall be done under this section. (See Item CUTTING AND PATCHING).

D. All electrical work to be installed in finished rooms of the existing building shall be installed concealed unless otherwise noted on the drawings.

E. Painting of all patched work in the existing building will be the responsibility of this Contractor.

F. Provide coverplates on all open boxes discovered in areas being renovated.

18. TESTING, LOAD BALANCE AND ADJUSTMENT

A. Load balancing, adjustments and electrical testing shall be done under this section of the work.

B. A person skilled in the field of electrical testing and operating with proper test equipment shall perform the following:

1. Each special system installed under this contract, shall be inspected and operationally tested by a qualified representative of the equipment vendor.

2. Submit a written report of each test to the Engineer immediately following completion of the balance and test procedures.

19. RECORD DRAWINGS

A. Keep a running record of each change and / or deviation from the drawings. This record shall be kept on two clean sets of prints used for no other purpose. The “As- Built” prints shall be available at all times during the project for review by the Owner or Engineer. Before submitting a requisition for final payment, all project modifications, changes and/or deviations must be recorded on these documents, showing the work exactly as installed.

B. Record Drawings shall show deviations / changes with regard to the following:

1. Size, type capacity, etc. of any material, device or piece of equipment.

2. Location of any device or piece of equipment.

3. Location of any outlet or source in building service systems.

4. Routing of any piping, conduit, ducts or other building services.

5. Circuit Number.

6. Schedule modifications.

C. These sets of record drawings shall also show the location of any concealed electric service, pull boxes, raceways, conduit, etc., obtained by actual field-measured dimensions to these items from readily identifiable and accessible elements of the building such as columns, walls, etc.

D. Record drawings must be complete and accurate. Unless they are sufficiently accurate to permit immediate location and identification of concealed work with a minimum of cutting, such drawings will be considered inadequate and the contract work deemed incomplete. If it is determined that the Contractor has made a good faith effort to compile a complete and accurate set of "As-Built" mark-ups, the Engineer will submit that, subject to the following, the Contractor has fulfilled his obligations with regard to this item of the specifications.

20. INSTRUCTIONS AND MANUALS

A. Provide four (4) complete brochures in hard backed binders, each containing all operating, servicing, and maintenance information as well as parts lists for all equipment installed under this contract. Where diagrams are too large for the binder, arrange manila pockets with reinforced holes to hold folded drawings. The binder shall also contain a title sheet showing the Contractor's name and address and an index sheet listing the contents of the manual. A copy shall be submitted to the Engineer for verification prior to being submitted to the Owner.

B. Information shall be complete, indexed, and bound as described above. The following shall be clearly printed on the front cover of the binder:

1. Project name, address and date.

2. Name and address of Engineer.

3. Section of Work covered, i.e., Electrical

4. Name and address of Contractor.

5. Telephone number of Contractor, including night or emergency numbers.

C. Incorporate, within the binders, individual sections containing an index sheet, written operating instructions, shop drawings, equipment catalog cuts, manufacturer's instructions, and a list of equipment into the binders.

1. First Page - Title of Job, Owner, Address, Date of Submittal, Name of Contractor and Name of Engineer...Emergency operating instructions and/or list of service organizations (including address and telephone numbers) capable of rendering emergency service on 24 hour calls shall be furnished.

2. Second Page - Index/Table of Contents

3. Third Page - Introduction to First Section...This shall contain a complete written description of the system.

4. First Section: A written description of system contents, where the system is actually located in the building, how each part functions individually and how the system works as a whole...Conclude with a list of the items requiring service and either state the service and frequency needed or refer to the manufacturer's data in the binder that describes the proper service.

5. Second Section: A copy of each approved shop drawing, (clearly marked to identify the item furnished) with an index at the beginning of the section. Provide a separate list of all lighting fixtures and luminaires used on the job. The list shall include but not be limited to fixture type, manufacturer's catalog number and voltage, number of lamps, lamp type, ballast catalog number, manufacturer's name and quantity when required, catalog number and quantity of any replacement glass and/or plastic parts.

6. Third Section: A copy of each manufacturer's operating instructions with an index at the beginning of the section.

7. Fourth Section: A list of all equipment used on the job, Contractor's purchase order numbers, supplier's name and address.

D. Arrange for technical instruction of the Owner's maintenance personnel for such time as would be reasonably required to acquaint them with their duties. In addition, deliver to the Owner all special tools or equipment required for making normal adjustments on any equipment or apparatus furnished under this contract heading.

E. Technical instructions involving installed equipment shall include a demonstration of the equipment and/or the operating system(s) with a description of the operation explained to the owner's representatives. It shall be this

Contractor's responsibility to arrange this demonstration with the Owner as well as representatives of suppliers. The demonstration shall take place after all testing and balancing and written reports of such work have been submitted to and accepted by the Engineer. The time when the satisfactory completion of this technical instruction and demonstration takes place will establish the date of final acceptance of the system and/or project unless otherwise stipulated.

21. CONTRACTORS' FOREMAN

A. With reference to the work under this section, a competent foreman shall be assigned to the project. The foreman shall remain on the job during all normal working hours until the project is complete and shall be authorized to act as the Contractor's agent in the absence of said Contractor. This foreman shall not be relieved of his duties on the project except by permission or by request of the Engineer.

22. WARRANTIES

A. Provide warranties to the Owner that the materials and equipment furnished are new, unless otherwise specified, and that all work is of good quality, free from faults and defects and in conformance with the Contract Documents. Unless otherwise specified, all warrants shall extend for a period of 12 months or greater as noted below. However, latent defects in materials, equipment or workmanship that are not discovered until sometime during the second year following acceptance, shall remain the contractor’s responsibility to correct.

B. Warranties on all work and equipment shall commence on the date of substantial completion of the work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. These warranties and all related documents shall be presented in writing prior to the issuance of any Certificates. Warranties shall include equipment manufacturer's written certificates warranting the equipment furnished complies with all requirements of the drawings and specifications. This documentation shall be submitted in an appropriately marked, 3-ring hard cover binder.

C. If, within one year after the date of substantial completion of the work or within one year after acceptance by the Owner or within such longer period of time as noted above or as may be prescribed by the terms of any applicable special warranty stipulated in the Contract Documents, any portion of the work is found to be defective, functioning improperly, or not in accordance with the Contract Documents, it shall be promptly corrected upon receipt of official notification to do so. This obligation shall survive termination of the contract.

23. PAINTING

A. The following items of painting work shall be included in this Section:

1. Equipment which has been factory finished but where the finish has become marred or rusted, shall be sanded and refinished equal to the original factory finish.

2. All bare metal items or prime painted items installed as a part of this contract which have not received a factory finish (or otherwise treated to prevent rust such as galvanizing) and which is exposed to view when the building is completed shall be given one coat of primer and two coats of a good grade enamel to inhibit corrosion. This shall include such items as hangers, supports, wireways, gutters, etc., which are exposed in mechanical spaces, closets and utility rooms. Color to be grey unless otherwise directed by Engineer and/or Owner.

3. All patched work in the existing building.

24. HOISTS, RIGGING, TRANSPORTATION AND SCAFFOLDING

A. Provide all necessary scaffolding, staging, cribbing, tackle, hoists and rigging to locate the material, equipment, etc. of this section in its proper place on the project. All such temporary work shall be removed from the premises when no longer required.

B. Pay all costs related to the transportation of materials and equipment to the job site. These costs shall be covered in the bid as no additional allowance will be made by the Owner.

C. Scaffolding and hoisting equipment shall comply with requirements of all pertinent Federal, State and Local Laws and Codes.

25. EQUIPMENT PREPARATION

A. At the completion of the job, or at such time as a portion of the work is to be turned over to the Owner, thoroughly clean all equipment installed under this section of the work. This includes switchgear, lighting fixtures, wall plates, etc. and involves the removal of all traces of grease, dirt, dust, etc., as well as temporary labels, shipping tags and the like. Equipment shall be turned over in factory inspected condition. See Item PAINTING.

26. REMOVALS, ALTERATIONS AND REUSE

A. The demolition drawings may not show all existing walls, lighting fixtures, devices, etc. that are to be removed. Investigate the site and review all currently available drawings of the building to evaluate the work necessary to fulfill the requirements of the contract documents.

B.

C. Conduit:

1. All power and system conduit no longer utilized shall be removed and disposed of.

2. Conduit located in the permanent structure or in unaltered parts of the structure shall remain in place.

D. Boxes:

1. Any box located in an advantageous location and in good condition may be utilized in the new system. Close all unused openings in box.

E. Wire:

1. Wire that is removed may not be reused.

2. All wire that is to be installed shall be new.

3. Existing materials, equipment, lighting fixtures, devices, panelboards, conduit and wiring that is removed and not reused shall be disposed of or placed in storage as directed by the Owner's representative.

27. HAZARDOUS MATERIALS

A. This item of the specifications has been inserted to address the potential problem or problems occurring when hazardous materials (asbestos type insulations, Askarel insulation, etc.) are encountered on a project involving work in an existing structure. Since the extent to which hazardous materials may have to be dealt with or whether, in fact, they will even be present on the site cannot always be determined prior to the actual demolition/construction phase of the project, the Contractor under this section of the work shall file a written request for inspection with the proper government agency or authority as described in the following paragraphs.

B. Regarding contract involvement with equipment utilizing Askarel or similar substances that contain PCB (polychlorinatedbiphenyl) formulations:

1. The inspection request shall be filed with the Owner and the Engineer, listing the equipment involved, its location, and other pertinent data such as size/capacity and manufacturer. A decision concerning the course of action to be taken with regard to this equipment will then be made by the Owner and will become a matter of record.

28. WIRE, CABLE AND CONNECTORS

A. All building feeder and branch circuit wiring not specifically shown or

necessarily covered by code, shall be type THHN/THWN 600 volt insulation - 75 deg. C copper conductors, complying, with NEC Standards.

B. Any wire size not specifically noted on the plans shall be at least equal in capacity to the rating of the overcurrent device serving the item to be connected and, in addition, shall be sized in accordance with the requirements of Articles 210.19 (a) and 215.2 (b) of the N.E.C. Note that where wire sizes specifically shown on the drawings have ampacity in excess of the protection device rating, those sizes shall be the minimum provided. Wiring run from fixture junction boxes and in fixture wireways shall be 600 volt, 90 C type THHN wire or RHH.

C. Conductors shall not be drawn into a conduit segment until that segment of the conduit system is complete, with all terminations properly bushed and with the conduit free of moisture, foreign material, etc.

D. All connectors and lugs shall be of the solderless type and large enough to enclose all strands of the conductors with sufficient mechanical strength to withstand vibration and normal strains.

E. All connectors for conductors sized #10 AWG and smaller shall be 3-M SCOTCHLOK, Ideal Wingnut or Buchanan B-Cap's. Connections for conductors sized #8 AWG and larger shall be made with pressure type mechanical connectors and insulated with electrical tape to 150% of the insulating value of the conductor insulation.

F. Joints or splices in branch circuit wiring and feeders must be located as per NEC. All joints and splices shall be made electrically and mechanically sound in accordance with best practice.

G. All parallel runs of conductors shall be cut to equal length and installed accordingly.

H. Note that common neutrals are prohibited. An individual neutral must be provided for each circuit.

I. Low voltage system wiring shall be sized in strict accordance with the individual equipment and/or system manufacturer's specifications and/or recommendations and shall be plenum rated when not run in conduit. In addition, the wire type utilized shall be as recommended by the equipment manufacturer. Note that where code requirements dictate, or where specified, this wiring shall be run in conduit.

29. CIRCUIT AND CONDUCTOR IDENTIFICATION

A. All branch circuit wiring for this work shall be color coded to match existing. If branch circuit wiring for the existing facility is not color coded, consult the Owner

regarding desired color coding for this project. Each phase shall be a different color and the phase color shall be the same thruout the project including branch circuiting.

B. All feeders and conductors not color coded shall be identified with permanent, legibly marked, self-sticking labels stating circuit number, voltage, phasing and circuit origination. Labels shall be as manufactured by W. H. Brady Co. or approved equal. Labels made by embossing machines will not be acceptable.

30. CONDUIT AND OUTLET BOXES

A. All wiring to be installed for this project shall be enclosed in rigid or intermediate metal conduit (RMC or IMC) or electrical metallic tubing conduit (EMT).

B. All metal conduit shall be steel and in strict accordance with applicable ANSI standards for steel conduit. Each length shall bear the UL label.

C. Conduit throughout shall be a minimum 3/4" size except for special connections, as detailed, and flexible runouts to fixtures, motors, etc., which may be 3/8".

D. Unless otherwise specified, conduit imbedded in poured concrete shall be PVC. Note that generally, conduit shall not be run in concrete floor slabs except where surface mounted fixtures are indicated, cast-in-place boxes are indicated, or where specifically directed.

E. All conduit installed on the project shall be concealed, wherever possible, unless otherwise noted or indicated on the drawings or unless permission is obtained from the Engineer to run exposed. Where conduit is exposed, it shall be run parallel or perpendicular to the building lines. (See Item MATERIALS AND WORKMANSHIP).

1. Steel set screw type fittings or compression type steel couplings and connectors shall be used with EMT and may be used with IMC.

F. All empty conduit including conduit installed under this section for others, shall be provided with solid steel pull wire or nylon pull cord.

G. Watertight conduit expansion joints, bonding jumpers, etc., shall be provided wherever the construction dictates such devices.

H. Conduit accessories such as outlet boxes, condulets, bends, fittings, etc.,shall be manufactured by Appleton, Steel City, Russell and Stoll, Raco, Crouse Hinds or Midwest.

I. All outlet and device boxes shall be flush mounted in areas with finished surfaces. They shall be rigidly attached to the structure by means of steel straps or channels. Boxes shall be aligned true to building lines. Listed mounting heights and

dimensions shall be to the centerline of the box.

31. JUNCTION BOXES AND ACCESS DOORS

A. Junction boxes, other than those furnished integrally with specific items of equipment or described elsewhere in the contract documents, shall be furnished and installed as required and shall be in strict accordance with NEC guidelines. Boxes shall be of minimum 12 ga. galvanized steel and shall have removable covers fastened with flat head countersunk bolts on maximum 8" centers. Note that where construction conditions dictate, junction boxes shall be watertight.

B. Junction boxes shall be labeled to indicate circuits within. Use black permanent markers with minimum 1" letters. Such markers shall be visible from point(s) of accessibility.

C. All boxes shall be installed in accessible locations or shall be provided with a suitable means of access. Where other acceptable means of access is not available, provide approved access doors of the proper size and type to meet accessibility requirements for the equipment involved.

D. Access doors in rated walls and plastered, gypsum board or similar ceilings that are rated shall be fire rated as required. They shall meet NFPA requirements and carry the UL 1-1/2 hour "B" label. Construction shall incorporate a minimum 20 ga. Steel insulated panel door, self-latching lock and continuous hinge. These doors shall be factory treated with a rust inhibitor and given a baked enamel primer.

E. Access doors for other plastered surfaces shall be similar to Milcor Style K or L with 16 ga. steel frame and 14 ga. steel panel. A 22 ga. casing bead shall surround the frame and the unit shall be finished similar to the labeled doors.

F. Access doors for all other construction conditions shall be all aluminum with extruded frame. Doors shall have a continuous hinge and flush latch. The units shall have a brush satin finish and shall be of a model suitable for the type of construction in which they are installed.

G. Access doors shall be as manufactured by Acudor, Cierra, Karp, Larsen's or Milcor.

32. GROUNDING

A. Provide a complete grounding system as required to conform to the latest standards and to comply with all pertinent articles of the N.E.C.

B. Equipment grounding conductors shall be run with the circuit conductors and shall consist of insulated solid or stranded copper conductors. No conduit grounding methods will be permitted.

C. All grounding system connections shall be exothermically welded. Installation shall be made in strict accordance with manufacturer's instructions, utilizing the proper mold, miscellaneous supplies, etc. for each connection. All material used, including mold, weld material, tools and accessories, shall be supplied by one manufacturer. The connection material shall be by Cadweld, Thermoweld, or approved equal.

D. Submit, for review, a written description of the method or methods to be used for grounding and the extent of the standards being implemented, taking into account the necessity for full compliance to applicable codes, ordinances and utility company requirements.

33. SLEEVES AND THIMBLES

A. In general, sleeves thru outside walls shall be of minimum 16 ga. galvanized metal or PVC pipe and shall be large enough to permit packing with picked oakum. The final 3" from the inside and outside faces of the wall shall be caulked with lead or waterproof plastic.

B. Sleeves shall be set for bus duct openings cut in masonry where required to conceal rough or irregular edges or for openings in non-masonry walls, partitions, etc. Sleeves shall be of galvanized sheet metal with flanged ends and shall be securely mounted in place. Voids between masonry and sleeve shall be filled with mortar. Openings between bus duct and structure, wall or sleeve shall be filled with a sealant as described below.

C. Provide thimbles wherever exposed conduit, etc., pass thru interior non-masonry walls, partitions, etc. They shall be telescoping type, made from 22 ga. galvanized sheet metal and of minimum size. Thimble ends shall have cast or stamped metal plates attached thereto. Floor penetrations shall be lined with thimbles extending above the floor line.

D. In all cases where conduit passes between floors, rated walls, and/or rated partitions, the spaces between the structure or sleeve and the penetrating member shall be provided with an approved firestop sealant to produce a fire, smoke, and water barrier. Sealant material and installation shall be as described in Item FIRESTOPPING.

E. Individual inserts (concrete expansion anchors) shall conform to applicable requirements of Federal Specification FF-S-325. Embedment, anchor length and size shall be in accordance with manufacturer's recommendations. Anchors 3/8" thru 3/4" shall be U.L. listed for conduit hangers.

F. Conduit penetrations of walls, floors, etc. in exposed areas shall be provided with escutcheons. They shall have concealed hinge and set screw and shall be securely attached to the conduit. In finished areas, escutcheons shall be polished brass or chrome plated steel. In mechanical or service areas, escutcheons shall be

galvanized cast iron. Floor penetrations shall be provided with deep pattern floor plates set flush with the floor and designed to cover the entire sleeve projection. Note: Where required by code considerations, non-metallic sleeves shall be covered by escutcheons.

G. Penetrations thru the roof structure shall be carefully made (see Item CUTTING AND PATCHING) and located in designated areas only. Pitch pockets shall be utilized as required to eliminate any chance of moisture penetration. They shall be made from 16 oz. sheet copper (ASTM B 370, temper H00) and shall extend approximately 4" above the finished roof.

34. FIRESTOPPING

A. Furnish and install the required firestopping as referenced in the item of the specifications covering inserts and sleeves. Materials, installation, etc., shall be as described below. Products shall be as manufactured by Hilti Inc., Specified Technologies Inc. or United States Gypsum Co.

B. Definition:

1. Firestopping is defined as the material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, water and hot gases through penetrations in fire rated wall and floor assemblies.

C. Application:

1. Tested firestop systems shall be used for all penetrations for the passage of ductwork and piping through floors, fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.

D. Quality Assurance:

1. A manufacturer's direct representative (not distributor or agent) shall be on site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.

2. Firestop system installations must meet requirements of ASTM E-814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated. In addition, proposed firestop materials and methods shall conform to applicable governing codes having jurisdiction.

3. For those firestop applications that occur for which no UL tested system

is available through any manufacturer, a drawing representing the manufacturer's engineering judgment, derived from similar UL system designs or other tests, shall be submitted to local authorities having jurisdiction for review and approval prior to installation. Engineer judgment drawings must follow current requirements set forth by the International Firestop Council.

E. Submittals:

1. Manufacturer's submittals shall include specifications and technical data for each type of material including its composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions to comply with Section 1300. The submittal shall also include material safety data sheets as well as any engineering judgement drawings previously approved by local authorities.

F. Installer Qualifications:

1. The firestop system installer must be certified, licensed, or otherwise qualified by the firestopping manufacturer as having the necessary experience, staff, and training to install manufacturer's products per specified requirements as previously stated in Quality Assurance.

G. Requirements:

1. All holes, voids, miscellaneous openings, etc., made by penetrations in floor slabs (above grade) for systems provided under this section shall be completely sealed to insure water tight integrity. Installation of firestopping shall be scheduled after completion of penetrating item installation but prior to covering or concealing of openings.

2. Provide firestopping utilizing components that are compatible with adjacent surfaces, the substrates forming openings, and the items penetrating the firestopping under conditions of service and application as demonstrated by the firestopping manufacturer, based on testing and field experience. Note that materials containing flammable solvents shall not be used.

H. Materials:

1. Use only firestop products that have been UL 1479, ASTM E-814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each specific application.

2. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe that is PVC jacketed, flexible

cable or cable bundles and plastic pipe (closed piping systems), an Intumescent material is required to maintain fire rating of the assembly penetrated.

3. A firestop system with an "F" rating as determined by UL 1479, ASTM E814 or UL 2079, which is equal to the time rating of the construction being penetrated, must be utilized.

I. Preparation:

1. Surfaces to which firestop materials will be applied shall be examined for detrimental conditions. They shall be free of any substances that may effect proper adhesion.

2. Observe and comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

J. Installation:

1. Firestop materials shall be installed in accordance with published recommendations listed under the heading "Through-Penetration Firestop Systems" in the UL Fire Resistance Directory. In addition, the manufacturer's instructions for installation of through-penetration materials shall be strictly followed.

2. Consult with the engineer prior to installation of any UL firestop systems that might hamper the performance of fire dampers as they pertains to duct work.

K. Miscellaneous:

1. Sealed penetration areas shall be checked thoroughly to ensure proper installation before concealing or enclosing said areas.

35. WIRING DEVICES AND PLATES

A. All wiring devices shall be furnished in strict accordance with the catalog numbers listed on the drawings and here-in specified.

B. Switches:

1. Light switches shall be flush wall mounted, side and back wired design with ivory toggle. They shall be rated 20 amp - 120/277 volt AC, specification grade. Toggles shall be of high impact thermoplastic such as nylon. The following table lists acceptable manufacturers along with their appropriate catalog numbers for the various switch types.

	Hubbell	P & S	A-H / Cooper	Bryant
1-pole	1221	20AC11991	4901	
3-way	1223	20AC31993	4903	
Pilot Lt.	1221PL	20AC1-RPL	2999R	4901PL
Illum.	1221ILC	20AC1-ISL	1891IL	4901ILC

C. Receptacles, General:

1. All receptacles shall be flush wall mounted unless otherwise approved. The mounting heights are from centerline of device above finished floor. Standard mounting heights are listed on the legend and non-standard are shown on the plan.

D. Convenience Receptacle, General Purpose:

1. Receptacle shall be a duplex 20 amp, 120 volt, 3 wire grounding type. The face shall be of high impact thermoplastic such as nylon. The strap shall wrap around the device. Ground contacts shall be mounted to the strap. An auto- ground clip shall be provided. The device shall be a Hubbell 5352-I, P & S 5362-I, A-H/Cooper 5735-1, Sierra 1462, or Bryant 5352-I.

E. GFCI Receptacle:

1. This device shall be provided where indicated on the drawings and shall be a Hubbell GF5352-I, P & S 1591-FI, A-H/Cooper GF5342-I, or Bryant GF5262R.

F. Wall Plates:

1. Provide wall plates for each device application. Standard plates shall be smooth thermoplastic such as nylon, Lexan, or glass-reinforced polyester. Unless otherwise indicated, plate color shall match the device color. All materials shall meet appropriate design and test requirements of NEMA-WD1-1974 as well as UL Plates shall be Hubbell series P, Sierra series RP, or approved equal.

2. Weatherproof covers shall be of cast aluminum or stainless steel construction. Use Hubbell WP8M “In-Use Coverplate” or approved equal.

3. Device plates shall have identification as described in item EQUIPMENT

IDENTIFICATION.

4. Plates shall be attached by metal screws finished to match plate color.

5. Plates shall be installed in a vertical position, unless otherwise indicated, with an alignment tolerance of 1/32".

36. MISCELLANEOUS EQUIPMENT CONNECTIONS

A. Various items of computer equipment will be furnished and set in place by others. This equipment, unless otherwise shown on the drawings, will be furnished with necessary electrical plugs, operating and control switches, terminations in an electrical outlet box, or equivalent electrical connector located on the equipment. This Contractor shall furnish power wiring and outlets to these various items of computer equipment.

B. Disconnect switches shall be installed in an accessible location. Switches within finished areas, shall be located in an inconspicuous place. Under-counter installation of disconnect switches is preferred to locations above counter. However, care shall be taken that such switches will be accessible and that their location does not interfere with the installation of equipment.

C. Roughing-in drawings for equipment shall be obtained from the other Contractors, etc. through the Engineer as the time approaches when such equipment is required. (Allow a reasonable period from the time of notice to secure this information.)

37. TEMPORARY SERVICE FOR CONSTRUCTION

A. Utilize existing facilities for temporary power. Coordinate with Owner’s representative prior to use of any existing facilities.

B. Contractors on the project will provide their own electrical cords and plugs up to a capacity of 20 amperes. However, services for larger items of equipment and for welding machines shall be provided, as requested, under this section of the work. Reimbursement will be made by the contractor requesting such service.

C. Upon completion of the project, the disconnecting of all temporary circuits and the removal of all temporary wiring from the permanent system shall be done under this section of the work. The continuation of the warranty for the system, or any part thereof, shall not be affected by the foregoing.

38. DIGITAL ADDRESSABLE FIRE ALARM SYSTEM

Part 1 – General

A. Provide all permits, labor, equipment, materials and services to furnish and install

a fully tested functional, UL Listed, code compliant, intelligent addressable networked fire alarm, emergency communications system, including but not limited to all initiation and notification appliances, all raceways and wiring, connection to a central monitoring station.

B. The system supplied under this specification shall utilize modular low voltage design with direct wired, panel to panel, IPv6 communications. The system shall utilize independently addressed, fire detection devices, input/output control modules, audio amplifiers, telephone communications and notification appliances as described in this specification. Network panels shall contain the required user interfaces for all functions.

C. Also included are system wiring, raceways, pull boxes, terminal cabinets, mounting boxes, and any accessories and miscellaneous items required for a code compliant system.

D. The system drawings show the intended coverage and suggested device locations. Final device quantity, location, and AHJ approval are the responsibility of the contractor.

E. The final system shall be complete, tested, and ready for operation as described elsewhere in this specification, before owner acceptance.

F. Strict conformance to this specification is required to ensure that the installed and programmed system will function as designed, is compatible with existing systems, and will accommodate the future requirements and operations of the building owner. All specified operational features must be met without exception.

1.1. Summary

A. General Alarm: A system general alarm shall include:

1. Indication of alarm condition at the FACP.

2. Identification of the device or zone that is the source of the alarm at the FACP.

3. Operation of audible and visible notification devices throughout the building until silenced at FACP.

4. Initiation of elevator recall in accordance with ASME/ANSI A17.1, when specified detectors or sensors are activated.

B. Apartment alarm:

1. A smoke detector inside an apartment sets off a local alarm, including all rooms in each suite, and annunciates at the main fire alarm control panel.

Alarm condition inside an apartment sounds individual room alarm only including all rooms in each suite. Alarm shall not activate building signaling appliance.

2. Once the smoke enters a common/public area then the building alarms shall go into alarm.

3. If any sprinkler in the building goes off or a pull station is activated, the building alarms will go into alarm.

1.1.1. Fire and MN

A. Provide all permits, labor, equipment, materials and services to furnish and install a fully tested functional, UL Listed, code compliant, intelligent addressable networked fire alarm, emergency communications system, including but not limited to all initiation and notification appliances, all raceways and wiring, connection to a central monitoring station.

B. The system supplied under this specification shall utilize modular low voltage design with direct wired, panel to panel, IPv6 communications. The system shall utilize independently addressed, fire detection devices, input/output control modules, audio amplifiers, telephone communications and notification appliances as described in this specification. Network panels shall contain the required user interfaces for all functions. All equipment shall be new and the current products of a single manufacturer, actively engaged in the manufacturing and sale of digital fire detection devices for over ten years.

C. Also included are system wiring, raceways, pull boxes, terminal cabinets, mounting boxes, and any accessories and miscellaneous items required for a code compliant system.

D. The system drawings show the intended coverage and suggested device locations. Final device quantity, location, and AHJ approval are the responsibility of the contractor.

E. The final system shall be complete, tested, and ready for operation as described elsewhere in this specification, before owner acceptance.

F. Strict conformance to this specification is required to ensure that the installed and programmed system will function as designed, is compatible with existing systems, and will accommodate the future requirements and operations of the building owner. All specified operational features must be met without exception.

1.2. System Description

1.2.1. General Fire

A. The system supplied under this specification shall be a new UL Listed modular Life Safety platform capable of supporting the functions required by fire alarm, mass notification that uses independently addressed fire detection devices, input/output control modules, amplifiers, speakers and notification appliances.

B. The network shall utilize IPv6 for panel to panel and panel to annunciator communications and shall support communications to occur over a single copper pair or single fiber strand. The network shall consist of a main panel and multiple remote Autonomous Control Unit/Fire Alarm Control Panels (ACU/FACP). To enhance survivability, each panel shall be an equal, active functional member of the network, capable of making all local decisions and initiating network tasks for other panels. In the event of a panel failure or communications failure between panels, panels shall be capable of forming sub-networks and remain operational between communicating panels.

C. The system shall be fully field programmable such that virtually any combination of system output functions may be correlated to any type of input event(s). Inputs may be combined using Boolean logic, be time dependent or under manual control, as defined by required system operation. All software operations shall be stored in a non-volatile programmable memory within the fire alarm control panels. There shall be no limit, other than maximum system capacity, as to the number of addressable devices which may be in alarm simultaneously.

D. Addressable smoke detector sensitivity settings for both pre-alarm and alarm activation shall be automatically individually configurable for both daytime and nighttime operation. Addressable smoke detectors shall be UL listed for automatic sensitivity testing.

E. Ease of maintenance shall be facilitated by the use of panel based and PC based system diagnostics.

1. The system shall automatically test smoke detector sensitivity, eliminating the need for manual sensitivity testing.

2. Ground fault detection and annunciation shall be by individual module address for supervised input and output devices.

3. System test operation shall be configurable by individual addressable devices, and not disable entire circuits.

4. The system shall be capable of generating a graphical map of connected addressable devices to aide in circuit troubleshooting.

5. Placement supervision of addressable devices shall couple a device's location (not its address) to the programmed system response.

F. The system shall be designed, inspected, tested and approved to provide occupant notification audibility levels of 15 dBA over ambient conditions. Intelligibility shall be designed to ensure Common Intelligibility Standard (CIS) rating of 0.7 or Sound Transmission Index of 0.5 in all areas designated on the drawings to have intelligible audio.

G. The system shall provide a one-way multi-channel emergency communication sub-system for the distribution of emergency messages to facility occupants.

H. The system shall support Carbon Monoxide (CO) detection devices with appropriate independent annunciation and signal processing.

I. The system shall interface with other building systems as required by the fire codes.

J. The system shall transmit required signals to a central monitoring station.

K. The existing fire alarm shall be removed and discarded and new control panels, power supplies, audio/visual indicating appliances and related equipment shall be installed as specified.

1.2.2. Fire Alarm Performance

1.2.2.1. General Requirements

A. Comply with the provisions of NFPA 72 and the operational requirements of this specification.

B. The system shall identify all off normal conditions and log each condition into the system as an event.

a. The system shall automatically display on the control panel Color Liquid Crystal Display (LCD) the first (oldest) event of the highest priority by type. The event priority shall be alarm, supervisory, trouble, and monitor.

b. The display shall incorporate a touch screen to aid in navigation between event types and system operation.

c. The system shall not require a user to navigate the LCD display to operate the main control functions of (Panel Silence, Alarm Silence, and Reset). These controls shall be located near the LCD display, be easily found, be tactile in nature and be provided with color coding and be local language/dialect adaptable, operation of the switch shall provide illuminated feedback of the switch activation.

d. The touch screen option of the LCD display must be operable without the use of a stylus and must be resistive in nature, capacitive touch screens shall not be considered as operationally equivalent. A minimum of 8 events must be visible on the LCD without operator intervention.

e. The system shall utilize a minimum of ten color coded event queues on the LCD screen to group event types.

f. The system shall provide the following event queues as a minimum each to include a count of active events for the queue type including a visible indicator showing if events have not been reviewed: Alarm, Emergency, Supervisory, Disable/Test, Trouble, Ground Fault, Monitor, FirePhone call in, Requested/Granted control.

g. Labeled, color coded indicators shall be provided for each of the following event groups in addition to the LCD queues, indicators shall be provided for alarm - red, supervisory - yellow, trouble - yellow, monitor - Green. The colors used for display of events shall follow the Federal Standard 595 Safety Color chart using the following colors: red (11120), yellow (13591), green (14120), and blue (15092). When an unviewed event exists for a given type, the queue indicator shall be marked.

h. For each event, the display shall include a sequential event number, time stamp, the type of event, and a minimum of 40 character custom user location description.

i. The display shall support a rich set of Unicode symbols to better define messaging including but not limited to radioactive symbol, poisonous substances (skull and crossbones) symbol, biological hazard symbol and Caduceus symbol.

j. The user shall be able to review each event queue by simply selecting scroll arrows (up-down) or 'swipe' navigation for the event type.

k. New alarm, supervisory, or trouble events shall sound a distinct, silenceable audible signal at the control panel. Silenced audible signal will resound in a time period acceptable to the AHJ if off normal condition has not been resolved.

l. The LCD shall show the system time and disabled points in the system.

m. Specific input/output devices shall operate in accordance with the alarm, supervisory, trouble, monitor sections that follow and the input/output matrix.

n. A detailed report of specific off normal conditions shall be accessible directly from the displayed event.

o. For disabled devices the ability to select the disable event, view details and enable the device shall be accomplished in no more than 3 screen touches.

C. All critical systems, sub-systems and circuits shall be monitored for integrity. System faults shall be annunciated.

D. Strobes shall be synchronized on each floor.

E. Audio shall be synchronized on each floor.

F. Batteries shall be sized to support the system for 24 Hrs. of standby operation followed by 15 minutes of alarm operation at the end of the 24 Hour period. Battery sizing calculations shall include a minimum of 20% oversizing or as defined elsewhere in this specification.

G. Off premises reporting of the loss of AC mains power to any system component shall be automatically delayed for a period of time acceptable to the AHJ to reduce traffic at the central monitoring station due to wide-area power failures.

H. The system shall provide configurable service groups to facilitate “one man” testing of the system based on the physical layout of the building. Each service group shall be capable of supporting any combination of system devices, independent of the circuit on which they are installed. Systems that disable entire circuits, circuits serving multiple floors or fire zones for testing shall not be considered as equal. Activated or faulted devices and circuits in a service group shall be capable of initiating alternative system test responses to facilitate system maintenance and minimizing occupant disturbances while in test mode.

I. Event processing and display shall be prioritized as follows:

1. Life Safety

b. Property Safety

c. Supervisory/System Integrity events

d. All other events

1.3. Submittals

1.3.1. Submittal General

A. The contractor shall not purchase any equipment for the specified system until the owner has approved the project submittals in their entirety and has returned them to the contractor.

B. Approved submittals allow the contractor to proceed with the installation and shall

not be construed to mean that the contractor has satisfied the requirements of these specifications.

C. Each submittal shall include a detailed list of variations that the submittal may have from the requirements of the contract documents.

D. The contractor shall provide specific notation on each shop drawing, sample, data sheet, installation manual, etc. submitted for review and approval, of each variation.

E. Any conflicts in the contract documents and/or with Authority Having Jurisdiction (AHJ) requirements shall be submitted to the owner in writing 7 days prior to bid.

F. Submittals shall be approved by authorities having jurisdiction prior to submitting them to the Architect.

1.4. Handling

1.4.1. Delivery and Storage

Receiving

A. The Contractor shall be responsible for all receiving, handling, and storage of his materials at the job site.

B. Overnight storage of materials is limited to the assigned storage area. Materials brought to the work area shall be installed the same day, or returned to the assigned storage area unless previously approved by the Owner.

C. The Contractor shall remove rubbish and debris resulting from his work on a daily basis. Rubbish not removed by the Contractor will be removed by the Owner and back-charged to the Contractor.

1.5.1. Responsibility

D. It shall be the contractor's responsibility to inspect the job site and become familiar with the conditions under which the work will be performed.

E. A pre-bid meeting will be held to familiarize the contractors with the project. Failure to attend the pre-bid meeting may be considered cause for rejection of the contractor's bid. The minutes of this meeting will be distributed to all attendees and shall constitute an addendum to these specifications.

F. All work may be conducted during normal working hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, or as agreed to with Owner.

1.6. Warranty

1.6.1. Installation Workmanship and Parts

A. The contractor shall warranty the installation and workmanship for one (1) year and all parts for thirty-six (36) months from date of final acceptance. A copy of the manufacturer's warranty shall be provided with closeout documentation and included with the operation and installation manuals. The full cost of maintenance, labor and materials required to correct any defect during the warranty period shall be included in the submittal bid.

B. During the warranty period, each year the contractor shall perform detector sensitivity testing and provide a report to the owner. If the system is UL Listed to perform automatic detector sensitivity testing without manual intervention, and if a detector falls outside of sensitivity window the system automatically indicates a devices trouble, then this requirement shall be waived. Documentation from UL shall be provided as proof of automatic sensitivity testing operation.

C. The system supplier shall maintain a service organization with adequate spare parts stock within 75 miles of the installation. Provide a telephone response to owner's questions within 4 hours and on-site assistance within 24 hours.

D. Permit the owner's fire alarm technicians to perform temporary bypasses and emergency repairs on the system without voiding the warranty.

1.7. Startup and Commissioning

1.7.1. Test and Inspection

A. Testing, general

1. In addition to tests required in this section, the contractor shall perform all electrical and mechanical tests required by the equipment manufacturer, the architect and the authority having jurisdiction.

2. The contractor shall perform all testing in occupied facilities at times of day that present the lowest impact and disruption to business and activities. Coordinate all testing in occupied buildings with the building owner's representative to assure that fire alarm system testing does not interrupt operations. This may require extensive after hours work to perform such testing.

3. All equipment, instruments, tools and labor required to conduct the system tests shall be provided by the installing contractor. At a minimum, the following equipment shall be made available for testing:

a. Ladders and scaffolds as required to reach all installed equipment.

b. Meters for reading voltage, current and resistance.

c. Two-way communication devices

d. Simulated smoke, heat-producing devices for heat detectors, extension poles for introducing smoke into detectors, as needed.

e. Manufacturer's instruments to measure air flow through duct smoke detectors.

f. Decibel meter and intelligibility testing equipment.

g. Status and diagnostic software and PC.

B. All testing shall utilize a written acceptance test plan for testing the system components and operation in accordance with NFPA 72 and this specification. The contractor shall be responsible for the performance of the acceptance test plan, demonstrating the function of the system and verifying the correct operation of all system components, circuits, and system programming.

1. The systems operation matrix created by the equipment supplier shall be used to identify each alarm input and verify all associated output functions.

C. The system test plan shall include but not be limited to the following:

1. Visually inspect all wiring.

2. Verify the absence of unwanted voltages between circuit conductors and ground. The tests shall be accomplished at the preliminary test with results available at the final acceptance test.

3. System wiring shall be tested to demonstrate correct system response for the following conditions:

a. Open, shorted and grounded signal line circuits.

b. Open, shorted and grounded notification appliance circuits.

D. System indications shall be demonstrated as follows:

1. Correct message content for each alarm input at all system displays.

2. Correct annunciator light for each alarm input at each graphic display.

3. Correct history logging for all system activity.

4. Correct sensitivity for all smoke detection devices. The use of system generated sensitivity reports is acceptable in meeting this requirement.

a. Correct signals sent to the Central Monitoring Station.

5. Notification appliances shall be demonstrated as follows:

a. All alarm notification appliances actuate as programmed

b. Audibility and visibility at required levels. The system shall be tested for interior building audibility of 15 dBA-fast over ambient condition and intelligibility. Intelligibility shall be tested to ensure Common Intelligibility Standard (CIS) rating of 0.7 or Sound Transmission Index of 0.5 in all areas designated on the drawings to have intelligible audio. The mean value of at least 3 readings shall be required to compute the intelligibility score at each test location.

c. HPSAs shall be tested for an outside audibility level of 15 dBA-fast over ambient condition and intelligibility. Intelligibility shall be tested to ensure Common Intelligibility Standard (CIS) rating of 0.7 or Sound Transmission Index of 0.5 in outdoor areas during normal weather conditions. Intelligibility may be less than 0.7 CIS in areas of the zone if it can be determined that a voice signal is being broadcast and an individual could walk less than 164 feet to find a location in the zone with at least 0.7 CIS. Values of 0.65 through 0.74 shall be rounded to 0.7. The mean value of at least 3 readings shall be required to compute the intelligibility score at each test location.

d. For 24VDC NACS, measure and record the voltage at the most remote appliance on each notification appliance circuit, while operating.

6. System control functions shall be demonstrated as follows:

a. In accordance with the system operation matrix.

7. System off premises reporting functions shall be demonstrated as follows:

a. Correct information received for each alarm and trouble event.

8. Secondary power supply (battery) capacity capabilities shall be demonstrated as follows:

a. System battery voltages and charging currents shall be measured and recorded at the fire alarm control panels.

b. System primary power shall be disconnected for 24 hours. At the end of that period, an alarm condition shall be created and the system shall perform as specified for a period of 5 minutes.

c. System primary power shall be restored for forty-eight (48) hours.

d. System battery voltages and charging currents shall again be measured and recorded at the fire alarm control panels.

9. Verify the “As Built” record drawings are accurate.

E. Preliminary Testing

1. Conduct preliminary tests to ensure that all devices and circuits are functioning properly. Tests shall meet the requirements of the written test plan. Correct any deficiencies, omissions or anomalies and retest the affected devices to assure proper function per the specification.

F. Acceptance Testing

1. A final acceptance test shall not be scheduled until the system manuals are provided to and approved by the owner and the following are provided at the job site:

a. “As Built” record drawings of the system as actually installed

b. A copy of the system operation matrix.

2. The acceptance inspector shall use the system “As Built” record drawings in combination with the system operation matrix and the written acceptance test plan during the testing to verify system operation.

3. Should the system not perform to the above criteria it shall not be accepted and the contractor shall correct all deficiencies and shall re-test the system at contractor's expense in the presence of the architect using the same test criteria.

4. The building owner’s representative shall witness the final tests.

5. The central monitoring station and/or fire department shall be notified before final test in accordance with local requirements.

6. Operate every installed device to verify proper operation and correct annunciation at control panel.

7. Open signaling line circuits and notification appliance circuits in at least 2 locations to verify presence of supervision.

G. Test Reports

1. A "Fire Alarm System Record of Completion" per the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA72 and the "Inspection and Testing Form" in the "Records" Section of the

"Inspection, Testing and Maintenance" Chapter in NFPA72 shall be prepared by the Contractor. Submit three (3) copies to the Architect. The report shall include, but not be limited to:

A list of all equipment installed and wired.

Certification that all equipment is properly installed and functions and conforms with these specifications.

Sensitivity settings for each smoke detector as measured in place with the HVAC system operating.

Technician's name, certificate number and date.

1.7.2. Training

A. The system supplier shall schedule and present a minimum of eight (8) hours of formal site specific instruction for the building owner, detailing the proper operation and maintenance of the installed system.

B. The instruction shall be presented in an organized and professional manner by a person factory trained in the operation and maintenance of the equipment and who is also thoroughly familiar with the installation.

C. The instruction shall cover the schedule of maintenance required by NFPA 72 and any additional maintenance recommended by the system manufacturer.

D. Copies of all training aids, presentations, etc. shall be left with the owner.

1.8. Maintenance

1.8.1. Spare Parts

A. The contractor shall furnish the following extra material that matches the products installed. Spares shall be packaged with protective covering for storage and identified with labels describing contents.

B. Automatic detection devices - Two (2) percent of the installed quantity of each type, no less than one piece.

C. Manual fire alarm stations - Two (2) percent of the installed quantity of each type, no less than one piece.

D. Glass rods or panels for break glass manual fire alarm stations - Ten percent of the installed quantity, but no less than two devices.

E. Audible and visible devices - One (1) percent of the installed quantity of each type, but no less than two (2) devices.

F. Keys - A minimum of three (3) sets of keys shall be provided and appropriately identified.

1.8.2. Maintenance Contract

A. The supplier shall offer for the owner's consideration at the time of system submittal a priced inspection, test, maintenance and repair agreement for the installed system in compliance with the inspection and maintenance requirements of NFPA 72 for a period of 12 months, to commence after the expiration of the maintenance agreement included in this contract.

B. The owner shall have the option of renewing the agreement at the price quoted, in yearly increments up to a maximum of five (5) years.

2. Part 2 - Products

2.1. Acceptable Manufacturers

A. The manufacturer of the system equipment shall be regularly involved in the design, manufacture, and distribution of the products specified in this document. These processes shall be monitored under a quality assurance program that meets ISO 9000/9001 requirements.

B. The catalog numbers used are those of EDWARDS, a UTC Company, and constitute the type and quality of equipment to be furnished. For a list of EDWARDS authorized fire alarm vendors, contact: http://edwardsfiresafety.com Other acceptable manufacturers are Siemens or Notifier.

C. All products used shall be of a single manufacturer. All products shall be listed by the manufacturer for their intended purpose. Submission of notification appliances, auxiliary relays, or documentation from other than a single manufacturer shall not be acceptable and will be grounds for immediate disapproval without comment.

D. Approved Products: All panels and peripheral devices shall be of the standard product of single manufacturer and shall display the manufacturer's name of each component. The catalog numbers specified under this section are those of EDWARDS, a UTC Company, and shall constitute the type, product quality, material and desired operating features.

2.2. Fire Alarm Panel

2.2.1. General - Fire

Overview

A. All materials, equipment, accessories, devices and other facilities and appurtenances covered by these specifications or noted on the drawings shall be

new, best suited for the intended use and shall conform to applicable and recognized standards for their use, and supplied by a single manufacturer. Should any equipment provided under this specification be supplied by a different manufacturer, that equipment shall be recognized compatible by BOTH manufacturers and listed as such as required by Underwriters' Laboratories.

B. The fire alarm control panel(s) shall be a multi-processor based networked system designed specifically for fire, one-way and two-way emergency, and audio communications. The control panel shall be listed and approved for the application standard(s) as listed in the References section of this specification.

C. The control panel shall include all required hardware, software and site specific system programming to provide a complete and operational system. The control panel(s) shall be designed such that interactions between any applications can be configured, and modified using software provided by the manufacturer. The control panel(s) operational priority shall assure that life safety takes precedence among the activities coordinated by the control panel.

D. The operating controls shall be located in a dead-front steel enclosure behind a locked door with viewing window. All control modules shall be labeled, and all zone locations shall be identified. All panel modules shall be placement supervised and signal a trouble if damaged or removed.

E. System Features

Each control panel shall include the following capabilities:

1. Support multiple languages / dialects.

2. Supervision of the system electronics, wiring, detection devices and software

3. Up to 2500 analog/addressable input/output points

4. Network, a dedicated IPv6 configuration and support mesh configuration.

5. Network configuration support for Class A, Class B, Class X, Class N.

6. Network physical media connections via fiber, twisted pair, or CAT5 in any combination.

7. Network distance between two panels up to 3,280ft using CAT5 wire, 5,000 feet using twisted pair wire.

8. Networks deployed with CAT5 wire shall support Class A, Class B, Class X, Class N, mesh wiring topologies.

9. Network support for back-to-back pass through degraded-mode operation for media to media applications.

10. Network back-to-back pass though shall maintain network connectivity on power down or catastrophic failure of a single panel.

11. The ability to download all applications and firmware from the configuration computer at a single location on the fire network.

12. The ability to upload project files from any location on the fire network

13. Panel time, panel audible signal patterns, and indicator flash rates are synchronized across the network.

14. Connections to outside systems shall be made via a listed for the purpose firewall interface.

15. Support multiple dialers (DACTs) and modems, IP communication to the central station and cellular connections.

16. Support multiple IP connections to external services including, central stations, email servers, web interfaces, and reports.

17. Email messages support multiple languages in native characters and match the languages supported in the panel.

18. Email messages support symbolic and color alarm event high lighting.

19. System reports provide a graphical representation of sensitivity thresholds, detector dirty level and CO Life left.

20. An internal audible signal with different patterns to distinguish between alarm, supervisory, trouble and monitor events

21. Support multiple 24 VDC and Audio NACs

22. Configurable switches and LED indicators to support auxiliary functions with software selectable LED colors of Red, Yellow, Blue, Green or White.

23. User interface through color touch screen LCD display.

24. Log up to 20,000 chronological events

25. A real-time clock for time stamps and timed event control with onboard power back-up

26. Electronic addressing of intelligent addressable devices

27. Provide an independent hardware watchdog to supervise software and CPU operation

28. The ability for “Dry” alarm, trouble and supervisory relay contacts

29. Control panel modules shall plug into a chassis assembly for ease of maintenance

30. Field wiring shall connect to the panel using removable connectors

F. User Oriented Features

Each control panel shall include the following user oriented features:

1. A color touchscreen LCD user interface control/display that shall annunciate and control system functions.

2. Provide discreet system control switches for reset, alarm silence, panel silence, drill switch, these system control switches shall be constructed of a silicon rubber to provide tactile feedback and include an accompanying indicator that shall provide additional visual feedback of switch activation. Overlay style embedded switches are not considered equal.

3. The reset, alarm silence, panel silence and drill system control switches shall provide color coding for ease of distinguishing one from the other.

4. Color LCD shall provide visibility of 8 events hands free. Each event can include a minimum 40 character site specific location text. The LCD allows the use of on screen scrolling via display switches or by ‘swiping’ the display screen.

5. A “lamp test” feature shall verify operation of all visual indicators on the panel and a visual test of the LCD.

6. An authorized user shall have the ability to operate or modify system functions including system time, date, passwords, holiday dates, restart the system and clear control panel event history file.

7. An authorized user shall have the ability to disable/enable devices, zones, actions, timers and sequences.

8. An authorized user shall have the ability to activate/restore outputs, actions, sequences, and simulate detector smoke levels. The selection of devices, zones, actions, timers and sequences shall be made via a descriptive facility structure view removing the need for look up books or entry of numerical addresses. Systems requiring the entry of numeric addresses shall not be considered as equal.

9. An authorized user shall have the ability to enter time and date, reconfigure an external port for download programming, initiate programming and change passwords.

10. An authorized user shall have the ability to test the functions of the installed system.

11. Service groups shall facilitate one-man walk testing. Service/test groups shall be capable of being configured with any combination of addressable devices, independent of SLC wiring. It shall be possible to program alternate device responses when the device's service group is active. Devices not in an active service group shall process all events normally.

A. Provide internal system diagnostics and maintenance user interface controls to display/report the power, communication, and general status of specific panel components, detectors, and modules.

B. SLC loop controller diagnostics shall identify common alarm, trouble, ground fault, Class A fault, and map faults. Map faults include wire changes, device type changes by location, device additions/deletions and conventional open, short, and ground conditions. Ground faults on the supervised circuit wiring of remote addressable modules shall be identified by device. Systems that provide only device address are not considered equal.

C. An authorized user shall have the ability to generate a report history for alarm, supervisory, monitor, trouble including restore activity.

D. The panel history shall support storage of up to 20,000 events. History events shall include but not be limited to Event Type, System Command operations, Date and time of the event. Reports shall be displayed locally on the panel LCD display, printed to a system printer, review through a web browser and support exporting to .xml file format.

E. To enhance forensic examination of history, the system shall support the ability to store the FIFO event history log into a separate region of the database, not impacted by the FIFO operation of events preventing overwriting during forensic examination of an incident. Placing an archive of the History into a separate region of the database shall not interrupt FIFO of the main history or erase any portion of the main History.

F. Both FIFO history and archived history shall be available for review through the panel LCD display, be printable through the system printer, retrievable through web services interfaces and be exportable as .xlm formatted file.

G. Web browser based History shall be easily sorted by History for today, History from yesterday, History this week, History last week, History this month, History last month, History this year, History last year, and in combinations.

H. System reports shall provide detailed description of the status of system parameters for corrective action or for preventative maintenance programs. Reports shall be displayed by the operator interface or capable of being printed on a printer.

I. The system shall support multiple printers on the network, printers may be configured for event printing, reports printer or a combination of tasks. Printing of reports and events shall be supported across the entire fire panel network initiated from any LCD user interface point on the network. There must be a method to cancel a report while printing.

J. The system shall support printer connections to a panel or remote annunciators as required by the specific project requirements.

K. Printing shall support alarm event high lighting by symbolic character on monochrome printers.

L. The system shall support single button press printing to configured printers of an active event queue.

M. Remote connection to the panel shall be by interconnection between the owner's existing TCP/IP network and the native fire panel IP network equipment supplied under this contract as described elsewhere in this specification.

N. Fire panel remote connections shall include Cybersecurity measures that meet or exceed FIPS PUB 197.

O. The system shall not use easily removable devices, such as SD cards or external memory storage for system critical information including programming and project files storage.

P. Security relevant information, such as: failed login attempts, failed unauthorized accesses, and user modification shall be logged to panel history. Unsuccessful authentication attempts shall not leak information regarding the presence of the system or users.

Q. The system shall only transmit credentials that are encrypted. The system shall provide for multiple users, roles to ensure proper access by user for the role they perform on the system. All passwords shall use a Cypher Algorithm, password must use a hash, no password or authentication shall be exposed in any format in the system database viewable as plain text. Sensitive information shall not be logged to history or displayed on service tools (eg. passwords, PINs etc.).

R. The system shall support all default passwords and pass phrases being changed in order to complete the setup, prior to being operational. This includes SSID passphrases, default accounts, admin accounts, etc.

S. No special software or hardware shall be required remotely to retrieve reports;

report shall be accessed through the use of a web browser so that any device supporting a web browser may be used.

T. Proper authentication shall be required to access the system with a web browser.

U. An authorized user shall have the ability to display/report the condition of addressable analog detectors. Reports shall include device address, device type, percent obscuration, and maintenance indication. The maintenance indication shall provide the user with a measure of contamination of a device upon which cleaning decisions can be made.

Programmability

A. Windows-based Configuration Utility (CU) shall be used to create the site-specific system programming. The utility shall facilitate programming of any input point to any output point. The utility shall allow customization of fundamental system operations using initiating events to start actions, timers, sequences and logical algorithms.

- Zoning of initiation devices.
- Initiation of events by time of day, day of week, day of year.
- Initiation of events by matrix groups (X-Y coordinate relationships) for releasing systems.
- Initiation of events using OR, AND, NOT and counting functions.
- Prioritizing system events.
- Programmable activation of detector sounder bases by detector, groups of bases, or all bases.
- Directing selected device messages to specific panel annunciators
- Detector sensitivity selection by time of day
- Support of 256 Central Monitoring Station accounts and directing selected device messages to any one of ten Central Monitoring Stations.
- Support for event driven Email notifications
- Support for event driven SMS notifications via SMTP servers

B. The configuration utility shall time and date stamp all changes to the site-specific program, and shall facilitate program versioning and shall store all previous program version data. The utility shall provide a compare feature to identify the

differences between different versions of the site-specific program.

C. The configuration utility shall be capable of generating reports which detail the configurations of all fire alarm panels, addressable devices and their configuration settings including generating electrical maps of the addressable device SLCs.

D. The configuration utility shall support the use of bar code and QR code readers to expedite electronic addressing and custom programming functions.

E. Please refer to the General, System Description Section for this project's site-specific system operating requirements.

F. The fire alarm control panel shall be an EDWARDS EST4 and support components in an appropriately sized enclosure.

2.2.2. Power Supply

A. System power supply(s) shall be a high efficiency switched mode design providing multiple supervised power limited 24 VDC output circuits as required by the panel and external loads fed by the panel. Initial power supply loading shall not exceed 80% of power supply capacity in order to allow for future system expansion.

B. Each system power supply shall be individually supervised. Power supply trouble signals shall identify the specific supply and the nature of the trouble condition.

C. It shall be possible to parallel system power supplies to increase capacity or to provide redundant operation.

D. Upon failure of normal (AC) power, the affected portion(s) of the system shall automatically switch over to secondary power without losing any system functionality.

E. All system power supplies shall be capable of recharging their associated batteries, from a fully discharged condition to a capacity sufficient to allow the system to perform consistent with the requirements of this section, in 48 hours maximum.

F. All standby batteries shall be continuously monitored by the power supply. The power supply shall be able to perform an automatic load test of batteries and indicate a trouble condition if the batteries fall outside a predetermined range. Power supplies shall incorporate the ability to adjust the charge rate of batteries based on ambient temperatures. The power supply shall automatically disconnect the battery before low voltage damages the battery. Low battery and disconnection of battery power supply conditions shall immediately annunciated as battery trouble and identify the specific power supply(s) affected.

G. Batteries shall utilize sealed lead acid chemistry. Initial battery capacity shall provide 125% of calculated capacity requirements in order to allow for future

system expansion.

H. All AC power connections shall be to the building's designated emergency electrical power circuit (if available) and shall meet the requirements of NFPA 70 and NFPA 72. The power circuit disconnect means shall be clearly labeled FIRE ALARM CIRCUIT CONTROL and shall have a red marking. The location of the circuit disconnect shall be labeled permanently inside the each control panel the disconnect serves.

I. The power supply shall be an EDWARDS 3-PPS/M series.

2.2.3. User Interface

2.2.3.1. Audio Annunciation and Control

A. Provide emergency audio as part of the fire alarm control. The emergency audio shall contain a paging microphone, pre-recorded messages and zoned amplifiers capable of delivering multi-channel audio messages. The system shall support a minimum of 100 audio channels. Transmission of audio shall be over the same data network cabling as the fire panel data. The network cabling shall be a dedicated single copper twisted pair to remote parts of the facility.

B. For systems requiring multiple locations for paging control, the ability to Request/Grant/Deny page privileges shall be supported in any combination. Priorities based on wiring locations are not considered equal. Priorities shall be configured in software for operational needs between Autonomous Control Units (ACU), Central Control Station (CCS) and Local Operators Consoles (LOCs). The system shall support a minimum of 9 priority levels.

C. Each panel shall store digitally up to 750 minutes of pre-recorded audio message files without the need to add additional memory storage devices. These messages shall be automatically played in various areas of a facility under program control. The system shall have the capacity to store up to 250 individual audio messages. The system shall support up to 100 channels of audio. An audio channel shall support up to 250 individual messages. Each panel shall support simultaneous play back of seven (7) different message channels in addition to a live page message. Systems that cause signaling devices to go silent while performing any signaling functions will not be accepted. The system shall support repeat counts of audio messages and stacking of audio messages in a FIFO configuration.

D. During non-alarm conditions, each panel shall supervise its amplifiers, inter-panel networking shall be supervised and audio hardware shall be supervised providing total audio path supervision.

E. Each FACP containing an audio amplifier or audio source connection shall contain its locally required pre-recorded messaging onboard. Should a fire AND a control network system failure occur, the programmed pre-recorded messages shall be

played from the locally stored data. Should local pre-recorded audio be unavailable, the local amplifiers shall provide an integral backup 1 KHz temporal tone generator which shall operate in the event primary audio signals are lost and the amplifier is instructed to broadcast alarm information. The amplifier shall support an alert pattern distinct from the evacuation temporal tone pattern.

F. The system shall provide color LCD display to direct live paging messages as follows in any combination:

- "All Call" to direct the page messages to wide areas in the facility, overriding all other messages and tones. "All Call" shall automatically, without user intervention, not affect signaling in areas defined as 'other' nor active Mass Notification areas.
- "Page to Evacuation Area" to direct the message to the evacuation area(s), overriding all other messages and tones.
- "Page to Alert Area" to direct page messages to the area(s) receiving the alert message and tones, overriding all other messages and tones.
- "Page to Balance of Building" to direct page messages to the areas in the facility NOT receiving either the evacuation area or alert area messages.
- "Page by Phone" to select the firefighter's telephone system as the paging source.
- "Page to Emergency" shall provide paging into areas with active Mass Notification events.

G. The system shall support selection, in any combination, of the above audio controls

H. The system shall provide configurable pre-announce tones for emergency and non-emergency paging. The tones shall be separate and differentiated between the two operations.

I. The system shall automatically deliver a configurable pre-announce tone or message when the emergency operator presses the microphone PTT key for each premise/building. A 'ready to page' LED shall flash during the pre-announce phase, and turn steady when the system is ready for the user's page delivery. The system shall include a page deactivation timer which activates for 10 seconds when the emergency user release the microphone talk key. Should the user subsequently press the microphone key during the deactivation period a page can be delivered immediately. Should the timer complete its cycle the system shall automatically restore emergency signaling and any subsequent paging will be preceded by the pre-announce tone.

J. Each paging microphone assembly shall include a three color VU meter display

indicating to the emergency operator their voice level.

K. The system shall support line level input as an audio source. The line level input to output relationship shall be controlled through programming and it shall be possible for the input to be programmed to any output on any system channel. The system shall assign priorities to audio channels based on system programming.

L. The fire alarm control panels shall support remote cabinets with zoned amplifiers to receive, amplify and distribute live voice paging, line level input and locally stored pre-recorded messages through speakers over supervised circuits.

M. The system shall provide confirmation of audio channels status for pre-recorded messages, when streaming live audio or from external inputs.

N. The emergency audio control shall consist of EDWARDS 4-MIC.

2.2.4. Signaling Line Circuits

2.2.4.1. Intelligent Addressable Device

A. The signaling line circuit connecting panels/nodes to intelligent addressable devices including, detectors, monitor modules, control modules, isolation modules and notification circuit modules shall be Class B. All signaling line circuits shall be supervised and power limited.

B. When the addressable devices on a signaling line circuit cover more than one designated fire/smoke compartment, a wire-to-wire short on the circuit shall not affect the operation of the addressable devices in other fire/smoke compartments.

C. Each SLC shall support 125 addressable detector addresses and 125 module addresses. The SLC shall support 100% of all addressable devices in alarm and provide support for a 100% compliment of detector isolator bases. Initial circuit loading shall not exceed 80% in order to allow for future system expansion.

D. T-taps (branching) shall be permitted on Class B circuits. Where possible, the devices installed at the end of each branch should be easily accessible for troubleshooting, e.g. a pull station at normal mounting height.

E. The addressable device SLC module shall be UL Listed for use with code compliant, electrically sound existing wiring.

F. Each intelligent addressable device shall transmit information about its location with respect to other devices on the circuit. This information shall be used to create an “As-Built” wiring diagram as well as provide enhanced supervision of a device’s physical location. The device message and programmed system output function shall be associated with the device’s location on the SLC circuit location and not a device address.

G. The SLC module shall allow replacement of "same type" devices without the need to address and reload the "location" parameters on replacement devices.

H. The SLC/Panels shall notify the user when un-programmed devices are detected on the SLC circuit. The SLC/Panels shall notify the user when the wrong device type is installed at a location configured for a different device type on the SLC circuit.

I. Should an SLC Controller CPU fail to communicate, the SLC circuit shall go into the stand-alone mode. The circuit shall be capable of producing a loop alarm if an alarm type device becomes active during stand-alone mode to enhance system integrity.

J. The addressable device signaling line circuit module shall be an EDWARDS 3-SDDC1.

2.2.5. Notification Appliance Circuits

2.2.5.1. Notification Appliance CircuitsGeneral

A. All notification circuits shall be supervised and power limited. Non-power limited circuits are not acceptable. All notification appliance circuits shall be Class A.

B. Initial circuit loading shall not exceed 80% in order to allow for future system expansion.

C. 24 VDC Notification Appliance circuits

1. Notification appliance circuits shall have a minimum circuit output rating of 2 amps @ 24 VDC.

2. 24VDC NACs shall be polarized and provide both strobe synchronization and a horn silence signals on a single pair of wires.

D. Audio Notification Appliance Circuits

1. Audio notification appliance circuits shall be polarized and have a minimum circuit output rating of 50 watts @ 25V audio, and 35 watts @ 70V audio.

2.2.5.2. Audio Amplifiers

A. Provide emergency audio as part of the main fire alarm control panel. The emergency audio shall contain a paging microphone and zoned amplifiers capable of delivering multi-channel audio messages. The system shall support a minimum of 100 audio channels. Transmission of live paging audio shall be over the same data network cabling as the fire panel data. Pre-recorded messages shall be stored locally at each panel, to reduce the impact of wire faults during a fire event. Transmission of pre-recorded audio across the network for notification during an

event is not acceptable.

B. The audio system zoned amplifiers must be able to operate 25 VRMS or 70 VRMS speakers and be power limited and protected from short circuit conditions on the audio circuit. The amplifier output must be power limited, and wired in a Class B configuration. The amplifiers shall source pre-recorded messages locally, and shall not have to rely on network communications to receive pre-recorded messaging. Should local audio be unavailable the amplifiers shall provide an integral backup 1000 Hz temporal (3-3-3) tone generator evacuation notification and 20PPM for alert notification which shall operate in the event primary audio signals are lost and the amplifier is instructed to broadcast alarm information.

C. Amplifiers shall also include a 24 VDC notification appliance circuit rated at 24Vdc @ 3.5A for connection of visible (strobe) appliances. This circuit shall be fully programmable.

D. Provide as minimum, one twenty (20) watt audio amplifier per paging zone. Initial amplifier loading shall not exceed 80% in order to allow for future system expansion. Calculations shall assume each speaker is connected at one (1) watt.

E. Audio amplifiers shall be EDWARDS 3-ZA series.

2.2.6. Initiating Device Circuits

2.2.6.1. Initiating Device Circuits

A. Conventional (2-wire) initiating device circuits monitoring manual fire alarm stations, smoke and heat detectors, waterflow switches, valve supervisory switches, fire pump functions, and air pressure supervisory switches shall be Class B.

B. Initiating device circuits shall be configurable for latched or non-latched operation and configurable to initiate alarm, supervisory or monitor events.

C. End-of-line resistors for conventional initiating device circuits shall be covered with insulated tubing, terminated with ring lugs and display a UL label.

2.2.7. Off Premises Communications

2.2.7.1. DACT

A. The owner shall arrange for a physical connection to the building IP infrastructure and needed IP configuration data including but not limited to DHCP server detail or static IP address with subnet mask, Default gateway, DNS server addresses, and port number.

B. The IP/DACT shall be an Edwards 4-FWAL2 4-FWAL4.

C. The communication to the Central Station transmission shall be via Cellular network.

D. The system shall provide off premises communications capability using a cellular Digital Alarm Communications Transmitter (Cell/DACT) for sending system events to multiple Central Monitoring Station (CMS) receivers over a Cellular network.

E. Any cellular communication hardware used for this purpose shall be UL listed and compatibility listed for use with the fire panel. Third party cellular equipment is acceptable but generic compatibility statements are not acceptable, only devices shown in the panels UL controlled compatibility list shall be accepted.

2.3. Remote Booster Power Supply

2.3.1. Remote Booster Power Supply

A. Install Remote NAC Power Supplies (boosters) at the locations shown on the drawings, as required, to minimize NAC voltage drops. Remote NAC power supplies shall be treated as peripheral NAC devices and shall not be considered fire alarm control units.

B. The NAC power supplies shall be fully enclosed in a surface mounted steel enclosure with hinged door and cylinder lock, and finished in red enamel. Door keys shall be the identical to FACP enclosure keys. The enclosure shall have factory installed mounting brackets for additional UL listed fire alarm equipment within its cabinet. Enclosures shall be sized to allow ample space for interconnection of all components and field wiring, and up to 10AH batteries. The enclosure shall have provisions for an optional tamper switch. All FACP addressable control modules required to initiate the required NAC power supply output functions shall be installed within the NAC power supply enclosure.

C. Remote NAC power supply input circuits shall be configurable as Class B supervised inputs or for connection to any 6 to 45 VDC initiation source.

D. The power supply NACs shall be configurable to operate independently at any one of the following rates: continuous synchronized, or 3-3-3 temporal. It shall be possible to configure the NACs to follow the main FACP NAC or activate from intelligent addressable synchronized modules. All visible <audible> NACs within the facility shall be synchronized.

E. Upon failure of primary AC power, the remote power supply shall automatically switch over to secondary battery power without losing any system functions. It shall be possible to delay reporting of an AC power failure for up to 6 hours. All standby batteries shall be continuously monitored by the power supply. Low battery and disconnection of battery power supply conditions shall immediately be annunciated locally as battery trouble. All power supply trouble conditions (DC power failure, ground faults, low batteries, and IDC/NAC circuit faults) shall identify the specific remote power supply affected at the main FACP. All power supply trouble conditions except loss of AC power shall report immediately. Interconnecting NAC Booster power supplies in a manner which prevents identification of an individual

power supply trouble shall not be considered as an equal.

F. The remote booster power supply shall be capable of recharging up to 24AH batteries to 70% capacity in 24 hours maximum. Batteries provided shall be sized to meet the same power supply performance requirements as the main FACP, as detailed elsewhere in this specification.

G. All AC power connections shall be to the building's designated dedicated emergency electrical power circuit. The power circuit disconnect means shall be clearly labeled FIRE ALARM CIRCUIT CONTROL and shall have a red marking. The location of the circuit disconnect shall be labeled permanently inside each remote NAC power supply the disconnect serves.

H. The remote NAC power supplies shall be EDWARDS model BPS/APS series.

2.4. Annunciators

2.4.1. Local Operating Console

A. Provide a UL864 listed semi-flush mounted annunciator / local operating consoles (LOC) at the location(s) shown on the drawings. When semi-flush mounting the outer door shall not protrude into the occupied space beyond 4.5 inches.

B. The LOC shall utilize standard fire alarm user interface components to provide the ability to operate the Autonomous Control Unit/Fire Alarm Control Panel functions from alternate locations within the building. The LOC shall be capable of receiving the same event information and issuing the same system commands as the ACU/FACP to which it is connected, as specified in the functional matrix elsewhere in this specification. Functions shall include initiating all pre-recorded messages and live page messages.

C. The following common indicators and controls shall be provided on the LOC.

D. The LOC shall be equipped with a key locked see-through door. The LOC shall be powered by a battery backed up nominal 24 VDC power source.

E. All communication between the LOC annunciator and the fire alarm control panel shall be via an IPv6 network.

F. The Annunciator / LOC shall be EDWARDS 4-ANN series.

2.5. Peripheral Components

2.5.1. Addresssable

2.5.1.1. Detectors

2.5.1.1.1. General

General Requirements for Intelligent Addressable Heat, Smoke and CO Detectors

A. Each detector shall contain an integral microprocessor which shall determine if the device is normal, in alarm, or has an internal trouble. The microprocessor's non-volatile memory shall permanently store the detector's serial number, device type and system address. It shall be possible to address each intelligent device without the use of switches. Devices requiring switches for addressing shall not be considered as equal. Memory shall automatically be updated with the hours of operation, last maintenance date, number of alarms and troubles, time of last alarm, and analog signal patterns for each sensing element just before the last alarm.

B. Each detector shall be capable of identifying up to 32 diagnostic codes. This information shall be available for system maintenance. The diagnostic code shall be stored at the detector.

C. Each addressable detector on the Signaling Line Circuit (SLC) shall transmit information regarding its location with respect to other intelligent devices on the signaling line circuit to the control panel, creating an "As-Built" circuit map. The circuit mapping function shall provide location supervision of all intelligent devices on the signaling line circuit. An intelligent detector's programmed system response functions shall be associated with the detector's actual *location* on the signaling line circuit and *not with the detector's address*. After system commissioning, detectors improperly installed in the wrong location shall function according to the mapped programmed response for its *location* on the circuit, not its detector's address.

D. A status indicator shall be provided on each detector. Flashing green shall indicate normal operation; flashing RED shall indicate the alarm state. The indicator shall be visible from any direction.

E. The system shall allow for changing of detector types for service replacement purposes without the need to reprogram the system. The replacement detector type shall automatically continue to operate with the same programmed sensitivity levels and functions as the detector it replaced, without the need for reprogramming. System shall display an off-normal condition until the proper detector type is installed or a change in the device type profile has been made.

F. Detectors shall be rated for operation in the following environment unless specifically noted:

- Temperature: 32°F to 120°F
- Humidity: 0-93% RH, non-condensing

G. Detectors with addressing components in the base shall not be considered as equal.

H. The intelligent detectors shall be EDWARDS Signature Series devices.

2.5.1.1.2. Photo-Heat-CO Detector

A. Provide analog/addressable combination photoelectric smoke-heat and carbon monoxide (CO) detectors at the locations shown on the drawings.

B. The combination smoke-heat & CO detector shall provide two independent signals (fire & CO) to the control panel for programming system responses. When mounted in a sounder base, the detector shall be capable of initiating a temporal 3-3-3 when smoke or heat is detected or temporal 4-4-4-4 when CO is detected. Detectors that transmit a common signal for both fire and CO alarms shall not be considered as equal. The detector shall be listed under standards UL-268 and UL-2075.

C. Each smoke-heat detector shall be individually programmable to operate at any one of five (5) sensitivity settings. The detector shall also store pre-alarm and alternate pre-alarm sensitivity settings. Pre alarm sensitivity values shall be configurable in 5% increments of the alarm and alternate alarm sensitivity settings respectively. The detector shall be able to differentiate between a long term drift above the pre alarm threshold and fast rise above the threshold. The detector shall monitor the sensitivity of the smoke sensor. If the sensitivity shifts outside the UL limits, a trouble signal shall be sent to the panel. It shall be possible to automatically change the sensitivity of individual intelligent addressable smoke detectors for day and night (alternate) periods.

D. Each detector shall utilize an environmental compensation algorithm that shall automatically adjust for background environmental conditions such as dust, temperature, and pressure. The detector shall provide a maintenance alert signal when 80% (dirty) of the available compensation range has been used. The detector shall provide a dirty fault signal when 100% or greater compensation has been used.

E. A low mass thermistor shall act as fixed temperature 130 to 140 °F heat sensors.

F. The electro-chemical CO sensor shall generate a CO alarm in compliance with the UL-2034 requirements. The sensor shall have a nominal six-year life. When the sensor approaches the end of its useful life, it shall transmit a maintenance condition to the control panel, indicating the CO sensor board replacement is required. Only when the sensor is no longer operational shall a trouble condition be sent to the control panel. Sensors that transmit a common trouble indication for both sensor end-of-life and other causes of detector trouble shall not be considered as equal. Performing a “sensitivity” check from the panel shall report the approximate number months of CO sensor life remaining.

G. Placing the CO detector in test mode shall facilitate the use of direct injection of small quantities of CO to check detector functionality.

H. The Combination photoelectric smoke-heat & CO detector shall be an EDWARDS

SIGA-PHCD.

2.5.1.1.3. Photo-CO Detector

A. Provide analog/addressable combination photoelectric smoke and carbon monoxide (CO) detectors at the locations shown on the drawings.

B. The combination smoke and CO detector shall provide two independent signals (smoke & CO) to the control panel for programming system responses. When mounted in a sounder base, the detector shall be capable of initiating a temporal 3-3-3 when smoke is detected or temporal 4-4-4-4 when CO is detected. Detectors that transmit a common signal to the control panel for both smoke and CO alarms shall not be considered as equals. The detector shall be listed under standards UL-268 and UL-2075.

C. Each smoke detector shall be individually programmable to operate at any one of five (5) sensitivity settings. The detector shall also store pre-alarm and alternate pre-alarm sensitivity settings. Pre alarm sensitivity values shall be configurable in 5% increments of the alarm and alternate alarm sensitivity settings respectively. The detector shall be able to differentiate between a long term drift above the pre alarm threshold and fast rise above the threshold. The detector shall monitor the sensitivity of the smoke sensor. If the sensitivity shifts outside the UL limits, a trouble signal shall be sent to the panel. It shall be possible to automatically change the sensitivity of individual intelligent addressable smoke detectors for day and night (alternate) periods.

D. Each detector shall utilize an environmental compensation algorithm that shall automatically adjust for background environmental conditions such as dust, temperature, and pressure. The detector shall provide a maintenance alert signal when 80% (dirty) of the available compensation range has been used. The detector shall provide a dirty fault signal when 100% or greater compensation has been used.

E. The electro-chemical CO sensor shall generate a CO alarm in compliance with UL-2034 requirements. The sensor shall have a nominal six-year life. When the sensor approaches the end of its useful life, it shall transmit a maintenance condition to the control panel, indicating the CO sensor board replacement is required. Only when the sensor is no longer operational shall a trouble condition be sent to the control panel. Sensors that transmit a common trouble indication for both sensor end-of-life and other causes of detector trouble shall not be considered as equal. Performing a “sensitivity” check from the panel shall report the approximate number months of CO sensor life remaining.

F. Placing the CO detector in test mode shall facilitate the use of direct injection of small quantities of CO to check detector functionality.

G. The Combination photoelectric smoke & CO detector shall be an EDWARDS SIGA-PCD.

2.5.1.1.4. Heat-CO Detector

A. Provide analog/addressable combination heat and carbon monoxide (CO) detectors at the locations shown on the drawings.

B. A Low mass thermistor shall provide a 135°F fixed-temperature heat sensing for the detection of heat due to fire. The sensor monitors the temperature of the surrounding air and determines whether an alarm should be initiated.

C. The combination heat and CO detector shall provide two independent signals (fire & CO) to the control panel for programming system responses. When mounted in a sounder base, the detector shall be capable of initiating a temporal 3-3-3 when heat is detected or temporal 4-4-4-4 when CO is detected. Detectors that transmit a common signal to the control panel for both heat and CO alarms shall not be considered as equals. The detector shall be listed under standards UL-521 and UL-2075.

D. The electro-chemical CO sensor shall generate a CO alarm in compliance with UL-2034 requirements. The sensor shall have a nominal six-year life. When the sensor approaches the end of its useful life, it shall transmit a maintenance condition to the control panel, indicating the CO sensor board replacement is required. Only when the sensor is no longer operational shall a trouble condition be sent to the control panel. Sensors that transmit a common trouble indication for both sensor end-of-life and other causes of detector trouble shall not be considered as equal. Performing a “sensitivity” check from the panel shall report the approximate number months of CO sensor life remaining.

E. Placing the CO detector in test mode shall facilitate the use of direct injection of small quantities of CO to check detector functionality.

F. The Combination heat & CO detector shall be an EDWARDS SIGA-HCD.

2.5.1.1.6. Rate of Rise Detector

A. Provide intelligent combination fixed temperature / rate-of-rise heat detectors at the locations shown on the drawings.

B. The detector shall continually monitor the temperature of the air in its surroundings to minimize thermal lag to the time required to process an alarm. The detector shall utilize a low mass thermistor heat sensor and operate at a nominal fixed temperature alarm point rating of 135°F and at a temperature rate-of-rise alarm point of 15°F per minute. The integral microprocessor shall determine if an alarm condition exists and initiate an alarm based on the analysis of thermistor data. Systems using central intelligence for alarm decisions shall not be considered as equal.

C. The heat detector shall be rated for ceiling installation at a minimum of 50 ft centers and also be suitable for wall mount applications.

D. The Intelligent combination fixed temperature / rate-of-rise heat detector shall an EDWARDS SIGA-HRD.

2.5.1.1.7. CO Detector

A. Provide addressable carbon monoxide (CO) detectors at the locations shown on the drawings.

B. The CO detector shall provide a signal to the control panel for programming system responses. When mounted in a sounder base, the detector shall be capable of initiating a temporal 4-4-4-4 signal when CO is detected. The detector shall be listed under standard UL-2075.

C. The electro-chemical CO sensor shall generate a CO alarm in compliance with UL-2034 requirements. The sensor shall have a nominal six-year life. Performing a "sensitivity" check from the panel shall report the approximate number months of sensor life remaining. When the sensor approaches the end of its useful life, it shall transmit a maintenance condition to the control panel, indicating the CO sensor board replacement is required. Only when the sensor is no longer operational shall a trouble condition be sent to the control panel. Detectors that transmit a common trouble indication for both sensor end-of-life and other causes of detector trouble shall not be considered as equal.

D. Placing the CO detector in test mode shall facilitate the use of direct injection of small quantities of CO to check detector functionality.

E. The CO detector shall be an EDWARDS SIGA-COD.

2.5.1.1.8. Standard Base

A. Provide standard detector bases suitable for mounting on either North American 1-gang, 3½ or 4 inch octagon box and 4 inch square box, European BESA or 1-gang box.

B. The bases shall utilize a twist-lock design and provide screw terminals for all field wiring connections.

C. The base shall contain no active electronics and support all Signature series detector types.

D. The base shall be capable of supporting a Remote Alarm LED Indicator. Provide remote LED alarm indicators where shown on the plans.

E. Removal of the respective detector shall not affect communications with other detectors.

F. The standard addressable detector base shall be an EDWARDS SIGA-SB or SB4.

G. The remote LED indicator shall be an EDWARDS SIGA-LED

2.5.1.1.9. Relay Base

A. Provide relay detector bases suitable for mounting on either North American 1-gang, 3½ or 4 inch octagon box and 4 inch square box, European BESA or 1-gang box; at the locations shown on the drawings.

B. The bases shall utilize a twist-lock design and provide screw terminals for all field wiring connections.

C. The base shall contain no electronics and support all Signature series detector types.

D. Removal of the respective detector shall not affect communications with other detectors.

E. The relay base shall meet the following requirements:

1. The relay shall be a bi-stable type and selectable for normally open or normally closed operation.

2. The position of the relay contact shall be supervised.

3. The operation of the base relay shall be configurable for control by its respective detector or for independent programmable control from the fire alarm panel. Relay bases not configurable for detector or panel operation shall not be considered equal.

4. The base relay shall provide form "C" contacts with a minimum rating of 1 amp @ 30 Vdc and be listed for pilot duty.

5. The standard addressable relay detector base shall be an EDWARDS SIGA-RB or RB4.

2.5.1.1.10. Sounder Base

A. Provide audible detector mounting bases suitable for mounting on a North American 1-gang, 3½ or 4 inch octagon box and 4 inch square box, or European BESA or 1-gang box; at the locations shown on the drawings.

B. The bases shall utilize a twist-lock design and provide screw terminals for all field wiring connections.

C. Removal of the respective detector shall not affect communications with other detectors.

D. The audible base shall support all detector types and shall be capable of single or group operation.

E. The audible base shall emit a temporal 3-3-3 fire alarm tone when smoke or heat has been detected. The audible base shall emit a temporal 4-4-4-4 CO alarm tone when CO has been detected. The outputs shall be configurable for low or high output by moving a reversible jumper. The system shall be UL2017 listed for dual signaling for this purpose.

F. The audible bases shall provide a UL-268 reverberant room sound output of 90.8 dBA at 10ft for temporal 3-3-3 fire alarm and 84.1 dBA at 10 ft. for temporal 4-4-4-4 CO alarm.

G. The detector sounder base shall be an EDWARDS SIGA-AB4GT.

2.5.1.1.11. Low Frequency Sounder Base

A. Provide audible detector mounting bases suitable for mounting on a North American 1-gang, 3½ or 4 inch octagon box and 4 inch square box or AB4G-SB surface mount box; at the locations shown on the drawings.

B. The bases shall utilize a twist-lock design and provide screw terminals for all field wiring connections.

C. Removal of the respective detector shall not affect communications with other detectors.

D. The audible base shall support all detector types and shall be capable of single or group operation.

E. The audible base shall emit a 520 Hz tone as defined by NFPA 72 2010 edition and NFPA 720 2012 edition standards in a temporal 3-3-3 fire alarm pattern when smoke or heat has been detected or a temporal 4-4-4-4 CO alarm pattern when CO has been detected. The sound outputs shall be configurable for low or high output by moving a reversible jumper. The system shall be UL2017 listed for dual signaling for this purpose.

F. The audible bases shall be listed to UL 268 and UL 464.

G. The detector sounder base shall be an EDWARDS SIGA-AB4G-LF.

2.5.1.2. Manual Stations

2.5.1.2.1. Single Action Single Stage

A. Provide addressable single action, single stage fire alarm stations at the locations shown on the drawings.

B. The manual station shall be suitable for mounting on North American 2 ½ deep 1-gang boxes and 1 ½ deep 4 square boxes with 1-gang covers. If indicated as surface

mounted, provide manufacturer's surface back box.

C. The fire alarm station shall be of metal construction, shall be finished in red with silver "PULL IN CASE OF FIRE" lettering, shall show visible indication of operation and incorporate an internal toggle switch.

D. The manual pull station will have an addressable module integral to the unit.

E. The station shall be reset using a common tool.

F. Manual pull stations that initiated an alarm condition when opening the unit are not acceptable.

G. The addressable single action, single stage fire alarm station shall be an EDWARDS SIGA-270

2.5.1.3. Modules

2.5.1.3.1. General

General Requirements for Intelligent Addressable Heat, Smoke and CO Detectors

A. Each detector shall contain an integral microprocessor which shall determine if the device is normal, in alarm, or has an internal trouble. The microprocessor's non-volatile memory shall permanently store the detector's serial number, device type and system address. It shall be possible to address each intelligent device without the use of switches. Devices requiring switches for addressing shall not be considered as equal. Memory shall automatically be updated with the hours of operation, last maintenance date, number of alarms and troubles, time of last alarm, and analog signal patterns for each sensing element just before the last alarm.

B. Each detector shall be capable of identifying up to 32 diagnostic codes. This information shall be available for system maintenance. The diagnostic code shall be stored at the detector.

C. Each addressable detector on the Signaling Line Circuit (SLC) shall transmit information regarding its location with respect to other intelligent devices on the signaling line circuit to the control panel, creating an "As-Built" circuit map. The circuit mapping function shall provide location supervision of all intelligent devices on the signaling line circuit. An intelligent detector's programmed system response functions shall be associated with the detector's actual location on the signaling line circuit and not with the detector's address. After system commissioning, detectors improperly installed in the wrong location shall function according to the mapped programmed response for its location on the circuit, not its detector's address.

D. A status indicator shall be provided on each detector. Flashing green shall indicate normal operation; flashing RED shall indicate the alarm state. The indicator shall

be visible from any direction.

E. The system shall allow for changing of detector types for service replacement purposes without the need to reprogram the system. The replacement detector type shall automatically continue to operate with the same programmed sensitivity levels and functions as the detector it replaced, without the need for reprogramming. System shall display an off-normal condition until the proper detector type is installed or a change in the device type profile has been made.

F. Detectors shall be rated for operation in the following environment unless specifically noted:

- Temperature: 32°F to 120°F
- Humidity: 0-93% RH, non-condensing

G. Detectors with addressing components in the base shall not be considered as equal.

H. The intelligent detectors shall be EDWARDS Signature Series devices.

2.5.1.3.2. One Input Monitor

A. Provide addressable single input multifunction modules at the locations shown on the drawings.

B. The module shall be suitable for mounting on North American 2½" deep 1-gang boxes and 1½" deep 4" square boxes with 1-gang covers.

C. Each module shall provide one (1) supervised Class B input circuit configurable as one of the following "personalities."

1. Normally-Open Alarm Latching (for alarm initiation applications)
2. Normally-Open Alarm Delayed Latching (for waterflow switch applications)
3. Normally-Open Active Non-Latching (for limit switch and monitor applications)
4. Normally-Open Active Latching (for tamper switch and supervisory applications)

D. Each module shall identify and report by device address, ground faults and opens associated with its initiating device circuit, to the control panel. Single function modules or without individual ground fault detection identification capability shall not be considered as equal.

E. The Intelligent Single Input Module shall be an EDWARDS SIGA-CT1.

2.5.1.3.3. Two Input Monitor

A. Provide addressable dual input multifunction modules at the locations shown on the drawings.

B. The module shall be suitable for mounting on North American 2½" deep 1-gang boxes and 1½" deep 4" square boxes with 1-gang covers.

C. Each module shall provide two (2) supervised Class B input circuit configurable as one of the following "personalities."

1. Normally-Open Alarm Latching (for alarm initiation applications)

2. Normally-Open Alarm Delayed Latching (for waterflow switch applications)

3. Normally-Open Active Non-Latching (for limit switch and monitor applications)

4. Normally-Open Active Latching (for tamper switch and supervisory applications)

D. Each module shall identify and report by device address, ground faults and opens associated with its initiating device circuits, to the control panel. Single function modules or without individual ground fault detection identification capability shall not be considered as equal.

E. The Addressable Dual Input Module shall be an EDWARDS SIGA-CT2.

2.5.1.3.4. Notification Circuit

F. Provide addressable notification appliance circuit modules at the locations shown on the drawings.

G. The module shall be suitable for mounting in North American 2 ½" deep 2-gang boxes and 1 ½" deep 4" square boxes with 2-gang covers, or European 100mm square boxes.

H. The addressable NAC module shall provide one (1) supervised Class B notification appliance circuit.

I. The NAC control module shall be configurable for the following operations:

- 24 VDC synchronized NAC circuit, 2 amps @ 24 VDC.

- Audio notification circuit 25Vrms @ 50 watts or 70 Vrms @ 35 watts

J. The addressable notification appliance circuit module shall be an EDWARDS SIGA-CC1

2.5.1.3.5. Waterflow-Tamper

K. Provide addressable dual input waterflow / tamper modules at the locations shown on the drawings.

L. The module shall be suitable for mounting on North American 2½" deep 1-gang boxes and 1½"deep 4" square boxes with 1-gang covers.

M. Each module shall provide two (2) supervised Class B input circuit configured as:

1. Normally-Open Alarm Delayed Latching for waterflow switch applications.

2. 2. Normally-Open Active Latching for tamper switch and supervisory applications.

N. Each module shall identify and report by device address, ground faults and opens associated with its initiating device circuits, to the control panel. Modules or without individual ground fault detection identification capability shall not be considered as equal.

2.5.2. Notification Appliances

2.5.2.1. Low Profile

2.5.2.1.1. LED Compact Notification Devices

A. Provide low profile wall mounted horn-strobes at the locations shown on the drawings.

B. Low profile LED horns, strobes and horn-strobes shall mount in a North American 1-gang box, and protrude less than 1" from the finished wall.Units shall support interchangeable covers with alternate markings and colors. Cover shall be able to be removed while device is mounted on wall.

C. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd. Selected strobe rating shall be visible when the strobe is in its installed position. Candela setting switch shall be accessable while device is mounted on wall. Current draw shall not exceed 24 mA VDC (32 mA FWR) per device.

D. The horn-strobe shall provide an audible output of at least 86 dBA at 10 ft. when measured in reverberation room per UL-464, and have a selectable steady or synchronized temporal (3-3-3) output pattern and high/low dB settings

E. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd. Selected strobe rating shall be visible when the horn-strobe is in its installed position. Candela setting switch shall be accessable while device is mounted on wall. Current draw shall not exceed 45 mA VDC (55 mA FWR) per device.

F. When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules. LED light pulse width shall be less than twenty (20) milliseconds.

G. Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware. Units shall be equipped with a diagnostics port to allow for checking of supply voltage without removing device from the wall.

H. The horns, strobes and horn-strobes shall be EDWARDS Genesis LED G1 Series.

2.5.2.1.2. LED Wall Mount Notification Devices

A. Provide low profile wall mounted horns, strobes and horn-strobes at the locations shown on the drawings.

B. Low profile LED strobes shall mount in standard North American 1-gang, 2-gang, 4-inch octagon, and 4-inch square electrical boxes, and protrude less than 1.5” from the finished wall. Units shall support interchangeable covers with alternate markings and colors. Cover shall be able to be removed while device is mounted on wall.

C. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd and 110cd. Selected strobe rating shall be visible when the strobe is in its installed position. Candela setting switch shall be accessible while device is mounted on wall. Current draw shall not exceed 28 mA VDC (34 mA FWR) per device.

D. The horn-strobe shall provide an audible output of at least 85 dBA at 10 ft. when measured in reverberation room per UL-464, and have a selectable steady or synchronized temporal (3-3-3) output pattern and high/low dB settings

E. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd and 110cd. Selected strobe rating shall be visible when the horn-strobe is in its installed position. Candela setting switch shall be accessible while device is mounted on wall. Current draw for horn-strobe shall not exceed 50 mA VDC (60 mA FWR) per device.

F. When multiple strobes are installed within view of each other, their outputs shall

be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules. LED light pulse width shall be less than twenty (20) milliseconds.

G. Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware. Units shall be equipped with a room side wiring plate including a diagnostics check bar for continuity verification.

H. The horns, strobes and horn-strobes shall be EDWARDS Genesis LED G4 Series.

2.5.2.1.3. Horns

A. Provide low profile wall mounted horns at the locations shown on the drawings.

B. Low profile horns shall mount in a North American 1-gang box, and protrude less than 1” from the finished wall. The word FIRE shall be prominently displayed on the housing.

C. The horns shall provide an audible output of 85 dBA at 10 ft. when measured in reverberation room per UL-464, and have a selectable steady or synchronized temporal (3-3-3) output pattern.

D. Horn power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

E. The horns shall be EDWARDS Genesis G1 Series.

2.5.2.1.4. Low Frequency Speakers

A. The audible and/or visible signal shall be United Technologies Genesis G4HF Hi-Fidelity or GCHF Hi-Fidelity Series or approved equal and shall be listed by Underwriters Laboratories Inc. per agency listings and approval meeting ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971; complies with UL1480 Fifth Edition. UL/ULC File Number: S2813. FM, MEA, CSFM approved. CSFM File Number: 7320-1657: 0211/0285. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.

B. Agency listings and approvals, Low Frequency G4HF Models shall be listed by Underwriters Laboratories Inc. per UL 464 listed for low frequency signaling applications. Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971; complies with UL1480 Fifth Edition. FM, MEA, CSFM pending. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.

C. The notification appliance (combination audible/visible) shall produce a peak sound output of 90dBA or greater as measured in an anechoic chamber. The signaling appliance shall also have the capability to silence the audible signal while leaving the visible signal energized with the use of a single pair of power wires.

D. The audible/visible and visible signaling appliance shall also maintain a minimum strobe flash rate of one flash per second. The strobe flash synchronization for all strobes shall be one flash per second (fps) within 200 milliseconds over 30 minutes on common circuit. All strobes synchronization source shall comply with UL 1971 synchronization standard. Temporal setting (private mode only): synchronized to temporal output on the same circuit. Synchronization sources shall be SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO Series, Fireshield Plus 3, 5 and 10 zones.

E. The appliance shall be intended for indoor wall mounted applications only. Speakers and speaker-strobes shall be flush mounted to a North American 4" square electrical box, 21/8" (54 mm) deep or a European 100 mm square box. Signals may be surface mounted to a Genesis surface-mount box. The appliance wire connection screw terminals shall have separate inputs for speaker and strobe. Field wiring shall be connected to Genesis signals with terminals that accommodate #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wiring. The unit shall be provided with a mounting bracket with terminals and barriers for input/output wiring and shall be flush mounted to a North American 4" square electrical box, 21/8" (54 mm) deep or a European 100 mm square box. Signals may be surface mounted to a Genesis surface-mount box.

F. The appliance shall have a strobe operating voltage of 16 - 33 Vdc Regulated, 16-33 V Full wave rectified (UL Voltage Designations "Regulated 24" and "24 fwr"). The appliance shall be capable of DC blocking capacitor for audio circuit supervision. Also, the appliance shall be capable of mounting to a surface back box. The unit shall also be able to verify voltage at the unit without removing unit.

2.5.2.1.5. Low Frequency Audible Signals

A. The low-profile wall-mounted low frequency audible/strobe shall be listed to UL 1971 and UL 464 and for fire protective signaling service. The low frequency audible/strobe shall serve as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1Hz over the strobe lights entire operating voltage range. The strobe light shall have field-selectable candela settings including 15, 30, 75 and 110. The strobe light shall consist of a xenon flash tube.

B. The low frequency audible shall comply with UL 464, Section 24.3 for Low Frequency Audible Output. Appliances shall have an option to switch between a temporal three-pattern and a non-temporal (continuous) pattern at standard or low audible output levels. The low frequency audible on low frequency audible-only

appliances shall be capable of operating on a coded notification appliance circuit.

C. The low frequency strobe shall operate between 32°F and 120°F and be listed to operate on filtered/regulated as well as full-wave rectified EDWARDS Genesis compatible notification appliance circuits.

D. Audibles, strobes and Audible/strobes shall all function on one pair of wires. Appliances that require separate wires for strobes and separate wires for audible are not acceptable.

E. All audible and visible signals on the same notification appliance circuit and in the same operating zone shall be fully synchronized to within 10 milliseconds.

F. The low frequency Audible strobe shall mount to a standard 4 × 4 × 1½-inch back box or appliance manufacturer provided surface-mount back box.

G. All notification appliances shall be 100 per cent compatible with EDWARDS Genesis communication and synchronization protocols. The low frequency Audible/strobe appliances shall be EDWARDS G4LF Series.

2.5.2.1.6. Strobes

A. Provide low profile wall mounted strobes at the locations shown on the drawings.

B. Low profile strobes shall mount in a North American 1-gang box, and protrude less than 1” from the finished wall. The word FIRE shall be prominently displayed on the housing.

C. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd & 110cd. Selected strobe rating shall be visible when the strobe is in its installed position. Amber lens strobes shall be available with outputs of 12/24/60/88cd. Light shall be evenly distributed throughout the required volume using cavity and mask “FullLight” technology to prevent hot spots. Strobes using specular reflectors shall not be considered as equal.

D. When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules.

E. Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

F. The strobes shall be EDWARDS Genesis G1 Series.

2.5.2.1.7. Horn-Strobes

A. Provide low profile wall mounted horn-strobes at the locations shown on the drawings.

B. Low profile horn-strobes shall mount in a North American 1-gang box, and protrude less than 1" from the finished wall. The word FIRE shall be prominently displayed on the housing. The word FIRE shall be prominently displayed on the housing.

C. The horn-strobe shall provide an audible output of 85 dBA at 10 ft. when measured in reverberation room per UL-464, and have a selectable steady or synchronized temporal (3-3-3) output pattern.

D. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd & 110cd. Selected strobe rating shall be visible when the horn-strobe is in its installed position. Amber lens strobes shall be available with outputs of 12/24/60/88cd. Light shall be evenly distributed throughout the required volume using cavity and mask "FullLight" technology to prevent hot spots. Strobes using specular reflectors shall not be considered as equal.

E. When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules.

F. Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. In and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

G. The horn-strobes shall be EDWARDS Genesis G1 Series.

2.5.2.1.8. Speaker-Strobe-Wall

A. Provide low profile wall mounted speaker-strobes at the locations shown on the drawings.

B. The low profile speaker-strobes shall mount in a North American 4" x 2 1/8" square electrical box, without trims or extension rings, and protrude less than 1" from the finished wall. The word FIRE shall be prominently displayed on the housing.

C. The speaker output shall be switch selectable from the following available settings: 2W (90dBA), 1W (87dBA), 1/2W (84dBA), or 1/4W (81dBA) at 10 ft. when measured in reverberation room per UL-464. Frequency response shall be 400 to 4,000Hz. The selected speaker wattage shall be visible when the speaker-strobe is in its installed position.

D. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd & 110cd. Selected strobe rating shall be visible when the speaker-strobe is in its installed position. Amber lens strobes

shall be available with outputs of 12/24/60/88cd. Light shall be evenly distributed throughout the required volume using cavity and mask “FullLight” technology to prevent hot spots. Strobes using specular reflectors shall not be considered as equal.

E. When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules

F. Horn and strobe power, horn silencing, and strobe synchronization shall be accomplished over a single pair of wires. Both the speaker and strobe elements shall provide in and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

G. The low profile wall mounted speaker-strobes shall be an EDWARDS G4HF series.

2.5.2.1.9. Speaker-Strobe-Ceiling

A. Provide low profile ceiling mounted speaker-strobes at the locations shown on the drawings.

B. Speaker-strobes shall mount in a North American 4” x 2 1/8” square electrical box, or a 960A-4RF round flush box, and protrude less than 1.6” from the finished ceiling. The word FIRE shall be prominently displayed on the housing.

C. The speaker output shall be switch selectable from the following available settings: 2W (91dBA), 1W (87dBA), 1/2W (84dBA), or 1/4W (80dBA) at 10 ft. when measured in reverberation room per UL-1480. Frequency response shall be 400 to 4,000Hz. The selected speaker wattage shall be visible when the speaker-strobe is in its installed position.

D. The strobe output shall be switch selectable as required by its application from the following available settings: 15cd, 30cd, 75cd & 95cd or 95cd, 115cd, 150cd, &177cd. Selected strobe rating shall be visible when the speaker-strobe is in its installed position. Amber lens strobes shall be available with outputs of 13/26/65/82cd or 82/100/130/155cd.

E. When multiple strobes are installed within view of each other, their outputs shall be synchronized within ten (10) milliseconds of each other for an indefinite period without the need for separate synchronization modules

F. Strobe power and synchronization shall be accomplished over a single pair of wires. Both the speaker and strobe elements shall provide in and out screw terminals shall accommodate 18AWG to 12 AWG wiring and have captive hardware.

G. The low profile ceiling mounted speaker-strobes shall be an EDWARDS Genesis GCHF series.

2.5.3. Accessories

2.5.3.2. Surge Suppression Devices

A. The system shall utilize the following electrical surge protection devices to prevent damage and nuisance alarms caused by nearby lightning strikes, stray currents, or voltage transients.

B. On the AC Input of all fire alarm panels, remote power supplies and HPSA sites: Transtector ACO100BWN3, Leviton OEM-120EFI, EFI HWM-120, Ditek DTK-120HW or DTK-120/240 CM. *AC Surge protectors shall be installed at the electrical panel board feeding the fire alarm equipment*. Excess lead length shall be trimmed. The branch circuit conductor shall be formed into a 5-10 turn 1" diameter tie-wrapped coil just downstream of the suppressor connection.

C. On each DC fire alarm circuit entering or leaving the building: Transtector TSP8601, Citel American B280 -24V, Edco P264 and P642, Ditek DTKxLVL series, or equal.

3. Part 3 - Execution

3.1. Installation

3.1.1. General

General

A. The entire system shall be installed in a skillful manner in accordance with approved manufacturer's installation manuals, shop drawings and wiring diagrams.

B. All work shall be performed in accordance with the requirements of NFPA 70 and NFPA 72.

C. Coordinate locations of all devices with all other divisions' drawings and specifications.

All fire alarm devices shall be accessible for periodic maintenance. Should a device location indicated on the contract drawings not meet this requirement, it shall be the responsibility of the installing contractor to bring it, in writing, to the attention of the Project Engineer.

D. EFasten equipment to structural members of building or metal supports attached to structure, or to concrete surfaces.

E. All systems and system components listed to UL864 Control Units for Fire Protective Signaling Systems may be installed within a common conduit raceway system, in accordance with the manufacture's recommendations. System(s) or

system components not listed to the UL864 standard shall utilize a separate conduit raceway system for each of the sub-systems.

F. No wiring except life safety system circuits and system power supply circuits shall be permitted in the control panel enclosures.

G. Any low-voltage copper wiring that leaves the protection of a building shall be provided with a compatible UL 497B listed transient protection devices where the circuit leaves the building and where it enters the next building.

H. Devices containing end-of-line resistors shall be appropriately labeled. Devices should be labeled such that removal of the device is not required to identify the EOL device.

I. Concrete floors shall be X-rayed prior to core drilling on post tension slabs. Verify with engineer on type of slab prior to bid.

3.1.2. Electrical

Electrical

BOXES, ENCLOSURES AND WIRING DEVICES

A. Boxes shall be installed plumb and firmly in position.

B. Extension rings with blank covers shall be installed on junction boxes where required.

C. Junction boxes served by concealed conduit shall be flush mounted.

D. Fire alarm system junction box covers shall be painted red.

E. Wiring within cabinets, enclosures, boxes, junction boxes and fittings shall be installed in a neat and workmanlike manner, installed parallel with or at right angles to the sides and back of any box, enclosure or cabinet, and routed to allow access for maintenance. All conductors that are terminated, spliced, or otherwise interrupted in any enclosure, cabinet, mounting or junction box shall be connected to terminal blocks. Mark each terminal in accordance with the wiring diagrams of the system. Make all connections with approved pressure type terminal blocks, which are securely mounted. All terminal block screws shall have pressure wire connectors of the self-lifting or box lug type. No more than two conductors shall be installed under one connection. Wire nuts, crimp splices and similar devices shall not be used.

CONDUCTORS

A. Each conductor shall be identified as shown on the drawings at terminal points.

Permanent wire markers shall be located within 2 inches of the wire termination. Marker text shall be visible with protective doors or covers removed.

B. Maintain a consistent color code for fire alarm system conductor functions throughout the installation.

C. All wiring shall be installed in compliance with the National Electric Code, NFPA 70, and the equipment manufacturer's requirements.

D. Wiring for Signaling Line Circuit and Initiating Device Circuit field wiring shall be solid copper, No. 18 AWG twisted pair conductors at a minimum. Speaker circuits; 16 AWG twisted pair at a minimum. Telephone circuits shall be 18 AWG twisted-shielded pair at a minimum. 24VDC visual and audible Notification Appliance Circuits shall be solid copper No. 14 AWG size conductors at a minimum. The wiring sizes listed herein are minimum sizes. Use larger wire sizes when recommended by the manufacturer, based on system configuration and project specific calculations.

E. Where shielded wiring is used, the shield shall be grounded at only one point, which shall be in or adjacent to the FACP or other control equipment. Shields shall be continuous, treated as a third conductor, and insulated from ground except as noted.

F. T-taps (branches) are permitted in Class B SLC circuits with interconnections occurring on terminal strips.

G. Circuits to third-party systems (HVAC, Elevators, fire pumps, etc.) shall terminate in terminal cabinets within three (3) feet of the controllers for those systems.

H. AC power wiring shall be No. 12 AWG solid copper having insulation rated for 600 volts.

I. Crimp type spade lugs shall be used for terminations of stranded conductors to binder screws or stud type terminals.

J. All wiring shall be checked and tested to insure that there are no grounds, opens or shorts.

DEVICES

A. All devices and appliances shall be mounted to or in an approved electrical box.

RACEWAYS

A. Conduits shall be sized according to the conductors contained therein. Cross sectional area percentage fill for system conduits shall not exceed 40%.

B. Install all conductors in rigid metal conduit or electro-metallic tubing, utilizing

compression type fittings and couplings, with a minimum diameter 3/4". The use of flexible metal conduit not exceeding a six (6) foot length shall be permitted for initiating device circuits.

C. All fire alarm conduit systems shall be routed and installed to minimize the potential for physical, mechanical or fire damage, and shall not interfere with existing building systems, facilities or equipment.

D. Run conduit or tubing concealed in finished areas unless specifically shown otherwise on the drawings. Conduit may be exposed in unfinished mechanical/electrical rooms, and basement levels.

E. All system conduits, junction boxes, pull boxes, terminal cabinets, electrical enclosures and device back box locations shall be readily accessible for inspection, testing, service and maintenance.

OPEN CABLE

A. Power Limited cable, when not installed in UL listed metal conduit or raceway, shall be mechanically protected by building construction features per NFPA 70, Article 760, and shall be plenum rated when not run in conduit.

B. Installation shall be in areas not subjected to mechanical injury.

C. All circuits shall be supported by the building structure. Cable shall be attached by straps or bridal rings to the building structure at intervals not greater than 10 feet. The use of staples is prohibited. Fire alarm wiring shall not be bundled or strapped to existing conduit, pipe or wire in the facility.

D. Where wiring is installed above drop ceilings, cable shall not be laid on ceiling tiles.

E. Cable shall not be fastened in a manner that puts tension on the cable.

F. Power Limited Cable shall be FPLP, FPLR or FPL, or permitted substitute.

3.1.3. FA Components

DEVICES

A. All devices and appliances shall be mounted to or in an approved electrical box.

B. All wall mounted control equipment shall comply with requirements defined by the International Building Code.

FIRE ALARM CONTROL PANELS

A. Mount the enclosure with the top of the cabinet 72” above the finished floor or

center the cabinet at 63”, whichever is lower.

B. Label the fire alarm panels with the room number, electrical panel number and circuit breaker number feeding them.

C. Paint the handles of the dedicated circuit breakers feeding fire alarm panels red, and install handle locks.

D. Within the panel, all non-power limited wiring must be properly separated from power limited circuits.

E. Grounds shall comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

REMOTE ANNUNCIATORR

A. Mount the panel; with the top of the panel 72” above the finished floor or center the panel at 63”, whichever is lower.

REMOTE POWER SUPPLIES AND AUXILIARY FIRE ALARM PANELS

A. Locate the panel or cabinet with the top of the panel 72” above the finished floor or center the panel at 63”, whichever is lower.

B. Do not locate these panels above ceilings or where inaccessible by a person standing on the finished floor of the space.

C. Label the power supplies and auxiliary FACPs with the room number, electrical panel number and circuit breaker number feeding them.

D. Paint the handles of the dedicated circuit breakers feeding fire alarm panels red, and install handle locks.

E. Within the panel, all non-power limited wiring must be properly separated from power limited circuits.

MANUAL PULL STATIONS

A. Mount stations so that their operating handles are between 42” and 48” above the finished floor.

NOTIFICATION APPLIANCES

Mount assemblies as follows:

A. All wall mounted audio/visual devices shall be mounted so the entire lens is between 80” and 96” above the finished floor. Where low ceilings exist, devices shall be mounted within 6” of the ceiling.

B. Each speaker's (horn) output shall be set to the wattage value indicated for its specific location as shown on the drawings.

C. Each strobe's output shall be set to the candela value indicated for its specific location as shown on the drawings.

D. Each speaker (horn)-strobe's outputs shall be set to the wattage/candela value indicated for its specific location as shown on the drawings.

1. Where ceiling height exceeds 30 feet, appliances shall be suspended from the ceiling to a height of 30 feet maximum above the finished floor.

2. Appliances installed outdoors shall be UL listed for outdoor use.

SMOKE DETECTORS

1. Smoke and heat detector heads shall not be installed until after construction clean-up is completed. Detector heads installed prior to construction clean-up shall be cleaned by the manufacturer or replaced.

2. Detectors located on the wall shall have the top of the detector at least 4" and not more than 12" below the ceiling.

3. On smooth ceilings, detectors shall not be installed over 30 ft. apart in any direction.

4. Install smoke detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.

5. Locate detectors no closer than 12" from any part of a lighting fixture.

END OF LINE RESISTORS

1. Devices containing end-of-line resistors shall be appropriately labeled.

REMOTE STATUS AND ALARM INDICATORS

1. Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.

SINGLE STATION SMOKE ALARMS

1. Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound.

CO DETECTORS

1. Ceiling mounted CO detectors should be kept 12” from sidewalls.

2. Wall mounted CO detectors should be at least 48” above the finished floor, but less than 6” from the ceiling.

3. Locate at least 60” from fuel burning appliances.

4. Install CO detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.

HEAT DETECTORS

1. Heat detectors shall be installed in strict accordance with their UL listing and the requirements of NFPA 72.

2. Heat detectors installed in the elevator machinery room to meet ANSI A17.1 requirements for elevator power disconnect, shall be located adjacent to each sprinkler head. Coordinate temperature rating and location with sprinkler rating and location.

ADDRESSABLE CONTROL (RELAY) MODULES

1. Install the module less than 3 feet from the device controlled.

2. Orient the device mounting for best maintenance access.

3. Label all addressable control modules as to their function.

4. Provide a dedicated 24VDC circuit to feed all auxiliary relays required for inductive loads (auxiliary relays, door holders). Circuits shall be supervised via an end-of-line relay and addressable input module. Auxiliary relays shall not derive their power from the starter or load being controlled.

3.1.4. Fire Stopping

1.Provide fire stopping for holes at conduit penetrations through floor slabs, fire rated walls, partitions with fire rated doors, corridor walls, and vertical service shafts in accordance with the fire stopping provisions of this contract.

* * * END OF SECTION * * *