



*Growing Communities One Family At A Time*

**ADDENDUM NO. 3  
February 5th, 2026**

**INVITATION FOR BID (IFB)  
IFB NO. 2025-12  
RADON MITIGATION VARIOUS SITES**

This addendum to subject IFB, is a result of drawing and specification updates that occurred after the issue of the IFB dated January 12<sup>th</sup>, 2026. Additional questions are expected, but none are addressed in this addendum. The additional questions will be responded to in a follow-up addendum.

**Question 3.1: Lincoln Park Building 405 unit B has an existing radon mitigation system. I did not check to see if the fan was operating, but this may be a repair.**

*Answer 3.1: It is our understanding that that system is no longer functioning.*

**Question 3.2: Is post mitigation testing required in the scope of this project?**

*Answer 3.2: Yes, See specification 312113 section 3.3 and 3.4 of the project manual.*

**Question 3.3: Stone Manor has a TPO rubber roof, would you like the fan installed on the roof or switch to a full exterior system?**

*Answer 3.3: To align with how the other properties are designed and installed, please install the fan on the roof.*

**Question 3.4: Are there any phase or schedule restrictions? We would like to start and finish in one go, but if HHA has any schedule or plan that may change pricing.**

*Answer 3.4: Phasing is not required. There are HHA working schedule restrictions indicated in specification 011000, section 1.6. Please note that section 011000 1.5 indicates that each of the six sites will be occupied the whole time. Coordination with owner for unit access will be required.*

**Question 3.5: What would HHA like the protocol to be upon entering units with unsanitary working conditions (Cockroaches, Bed Bugs. etc)?**

**Answer 3.5:** *If unsanitary or unsafe working conditions are encountered upon entry, the contractor shall immediately notify the Property Manager. If the Property Manager is unavailable, the contractor may contact HHA's Public Housing Director directly at 256-755-6313 for further direction before proceeding.*

**Question 3.6: Will there be a maintenance person available to move tenant materials in proposed locations for installation?**

**Answer 3.6:** *HHA can make maintenance staff available on an as-needed basis to assist with moving tenant materials; however, staffing availability is limited. Contractors should coordinate in advance and be prepared to proceed efficiently, as maintenance staff will not be assigned to remain on-site without active tasks due to ongoing unit turnover and staffing constraints.*

**Question 3.7: Testing: Are we to retest the entire building with the elevated unit? Or just the unit we mitigated? Location: Are exterior systems acceptable for ALL units requiring mitigation?**

**Answer 3.7:** *See specification 312113 section 3.3 and 3.4 of the project manual. Testing of each system installed on this project is required. Refer to Question and Response 3.3 of this document.*

**Clarification 3.8:** *Specification 312113 is re-issued to remove the “Preliminary Stamp” that was on page 1 of the original IFB documents.*

**Clarification 3.9:** *Sheet A-101.1 – Updated legend definitions. The work involves units that that tested above 4.0 pCi/L.*

**Clarification 3.10:** *Sheet A-102.1 – Updated legend definitions. The work involves units that that tested above 4.0 pCi/L.*

**Clarification 3.11:** *Sheet A-103.1 – Updated legend definitions. The work involves units that that tested above 4.0 pCi/L.*

**Clarification 3.12:** *Sheet A-103.2 – Added a legend. Note: New chases may pass units that that tested below 4.0 pCi/L. Also added “preferred placement” text.*

**Clarification 3.13:** *Sheet A-103.3 – Added a legend. Note: New chases may pass units that that tested below 4.0 pCi/L. Also added “preferred placement” text.*

**Clarification 3.14:** *Sheet A-104.1 – Updated legend definitions. The work involves units that that tested above 4.0 pCi/L.*

**Clarification 3.15:** *Sheet A-105.1 – Updated legend definitions. The work involves units that that tested above 4.0 pCi/L.*

**Clarification 3.16:** *Sheet A-106.1 – Updated legend definitions. The work involves units that that tested above 4.0 pCi/L. Note: New chases may pass units that that tested below 4.0 pCi/L.*

\* All other aspects of the scope are not affected by this addendum and shall be bid accordingly.

This addendum forms a part of the Contract Documents and modifies the original IFB. All terms and conditions in the original IFB dated January 12th, 2026, and subsequent addendums, remain the same.

Additionally, your submitted response shall acknowledge the receipt of this Addendum.



**L.R. PATTON**  
**291 SEMINOLE DRIVE**  
**HUNTSVILLE, ALABAMA**



**LEGEND:**

- BUILDING - A  
200
- (A)
- [Red Box]
- [Grey Box]
- 
- [Green Box]

- BUILDING TYPE  
BUILDING NUMBER
- UNIT TYPE
- UNITS WITH RADON  
LEVELS ABOVE 4.0 pCi/L
- UNITS WITH RADON  
LEVELS BELOW 4.0 pCi/L
- CONTRACT LIMITS
- UNTESTED/INVALID TESTING  
(NOT IN CONTRACT)

**SITE PLAN**  
 LR PATTON ARCHITECTURAL SITE PLAN  
 1" = 40'-0"  
 0 10' 20' 40' 80'



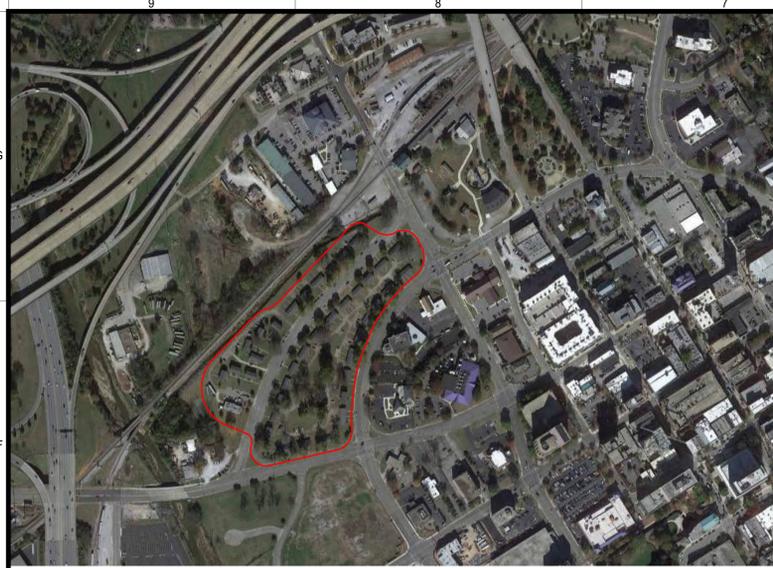
**HHA RADON VARIOUS SITES**  
 OWNER: HUNTSVILLE HOUSING AUTHORITY  
 PROJECT ADDRESS: 291 SEMINOLE STREET  
 P.O. BOX 488  
 HUNTSVILLE, AL 35804

ISSUE DATE: 02/04/2026  
 ISSUED: BID DOCUMENTS  
 ADPH NUMBER:  
 PROJECT NUMBER: 26T-00100 & 26T-00200

REVISIONS	No	Description	Date
1	ADDENDUM #2		1/29/26
2	ADDENDUM #3		2/4/2026

DRAWING TITLE:  
**LR PATTON**  
**ARCHITECTURAL**  
**SITE PLAN**

DRAWING NO.  
**A-101.1**



**SEARCY HOMES**  
**426 DALLAS AVENUE**  
**HUNTSVILLE, ALABAMA**

**LEGEND:**

- BUILDING - A  
200
- (A)
- [Red Box]
- [Grey Box]
- [Green Box]

- BUILDING TYPE  
BUILDING NUMBER
- UNIT TYPE
- UNITS WITH RADON  
LEVELS ABOVE 4.0 pCi/L
- UNITS WITH RADON  
LEVELS BELOW 4.0 pCi/L
- CONTRACT LIMITS
- UNTESTED/INVALID TESTING  
(NOT IN CONTRACT)

**EDITHA**  
 ARCHITECTURE

8514 Whitesburg Drive  
 Huntsville, AL 35802  
 office 256.883.8496  
 www.edthta.com

STATE OF ALABAMA  
 JENNIFER THORINGTON-HINES  
 REG. NO. 70959  
 REGISTERED ARCHITECT

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**HHA RADON VARIOUS SITES**

OWNER:  
 HUNTSVILLE HOUSING AUTHORITY

PROJECT ADDRESS:  
 426 DALLAS AVENUE  
 P.O. BOX 488  
 HUNTSVILLE, AL 35804

ISSUE DATE  
 02/04/2026

ISSUED  
 BID DOCUMENTS

ADPH NUMBER

PROJECT NUMBER  
 26T-00100 & 26T-00200

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1	ADDENDUM #2		1/29/26
2	ADDENDUM #3		2/4/2026

DRAWING TITLE  
**SEARCY HOMES**  
**ARCHITECTURAL**  
**SITE PLAN**

DRAWING NO.  
**A-102.1**

**SITE PLAN**  
 SEARCY HOMES\_ARCHITECTURAL SITE PLAN

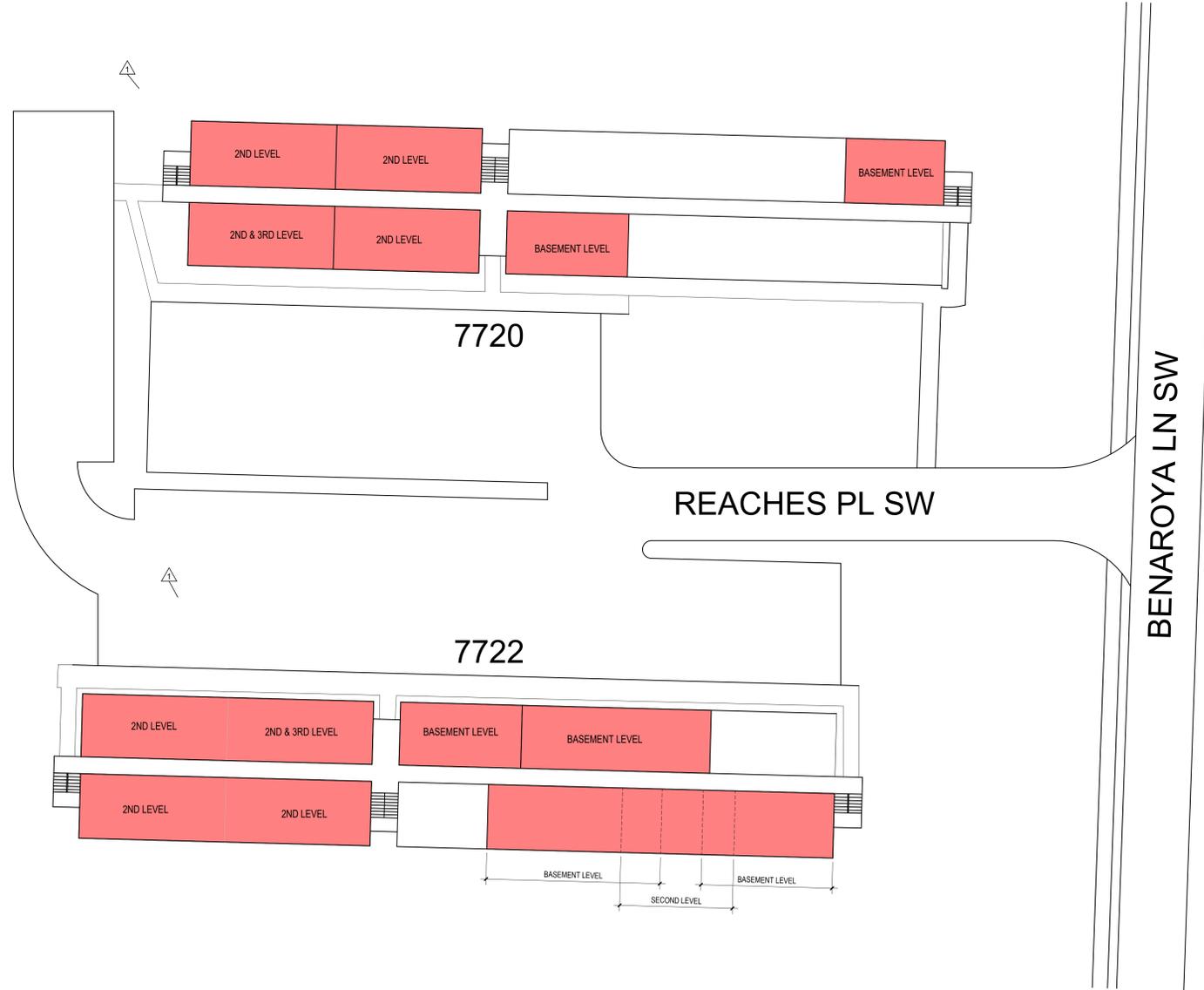
1" = 40'-0"



**STONE MANOR**  
**7720 & 7722 BENAROYA LN SW,**  
**HUNTSVILLE, AL 35802**

**LEGEND:**

- BUILDING - A  
200
- (A)
- [Red Box] BUILDING TYPE
- [Grey Box] BUILDING NUMBER
- [Red Box] UNIT TYPE
- [Red Box] UNITS WITH RADON LEVELS ABOVE 4.0 pCi/L
- [Grey Box] UNITS WITH RADON LEVELS BELOW 4.0 pCi/L
- [Dashed Line] CONTRACT LIMITS
- [Green Box] UNTESTED/INVALID TESTING (NOT IN CONTRACT)



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**HHA RADON VARIOUS SITES**  
 OWNER: HUNTSVILLE HOUSING AUTHORITY  
 PROJECT ADDRESS: 7720 BENAROYA LN SW, P.O. BOX 488, HUNTSVILLE, AL 35804

ISSUE DATE: 02/04/2026  
 ISSUED: BID DOCUMENTS  
 ADPH NUMBER:  
 PROJECT NUMBER: 26T-00100 & 26T-00200

REVISIONS		
No.	Description	Date
1	ADDENDUM #2	1/29/26
2	ADDENDUM #3	2/4/2026

DRAWING TITLE:  
**STONE MANOR**  
**ARCHITECTURAL**  
**SITE PLAN**

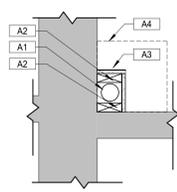
DRAWING NO.  
**A-103.1**

Key Value	Keynote Text
A1	NEW 4" PVC PIPE.
A2	NEW 2X6 WOOD STUDS. STUDS TO BE RIPPED DOWN TO 4.25" WHERE SPACE IS LIMITED.
A3	NEW 1/2" GYP BD OVER NEW WOOD STUDS.
A4	APPROXIMATE EXTENT OF EXISTING SLAB CUTTING.

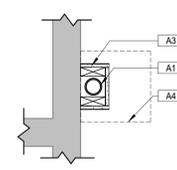
  

LEGEND	
123	UNIT NUMBER WITH RADON LEVELS ABOVE 4.0 pCi/L
789	UNIT NUMBER WITH RADON LEVELS BELOW 4.0 pCi/L

NOTE: NEW CHASES MAY PASS THROUGH UNITS WITH LEVELS BELOW 4.0 pCi/L

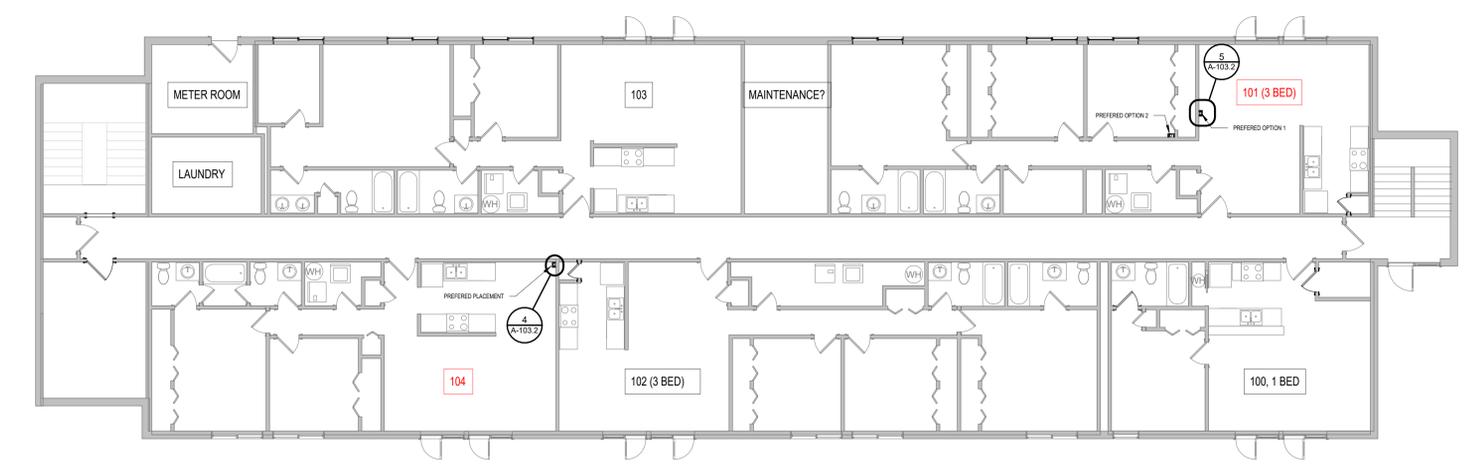


4 PLAN ENLARGEMENT  
DETAIL 1" = 1'-0"



5 PLAN ENLARGEMENT  
DETAIL 1" = 1'-0"

1 FLOOR PLAN  
STONE MANOR 7720 - BASEMENT FLOOR 1/8" = 1'-0"



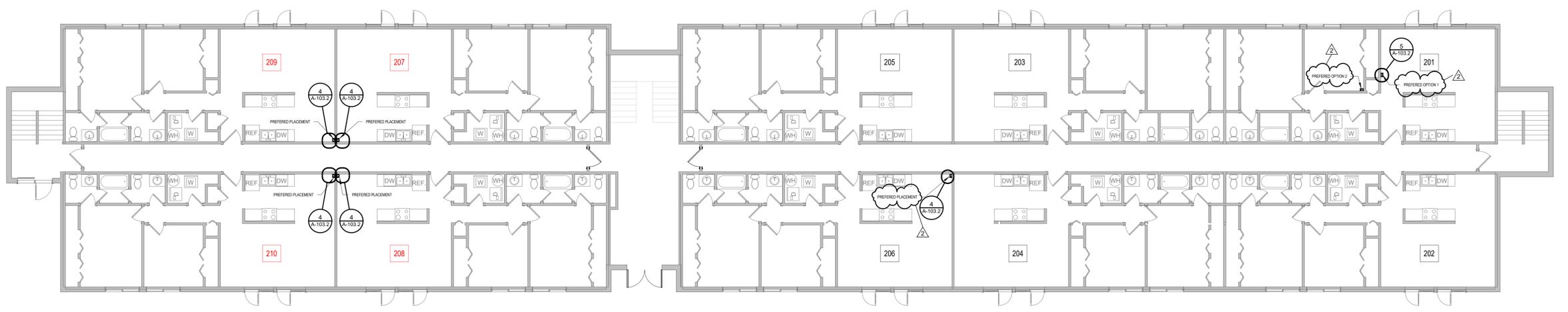
PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 101, 201, 301. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

FOR EACH SLAB DE-PRESSURIZATION INSTALLATION, A 3/8" TEST HOLE WILL NEED TO BE DRILLED FOR A COMMUNICATION TEST. TEST HOLE TO PATCHED USING A VINYL REPAIR KIT. COLOR OF PATCH TO MATCH EXISTING

NOTE: WHERE PVC VERTICAL PIPES DON'T ALIGN BETWEEN FLOORS, RUN PIPE HORIZONTALLY ALONG FLOOR JOISTS. DO NOT INSTALL NEW PVC PIPES THROUGH EXISTING JOIST

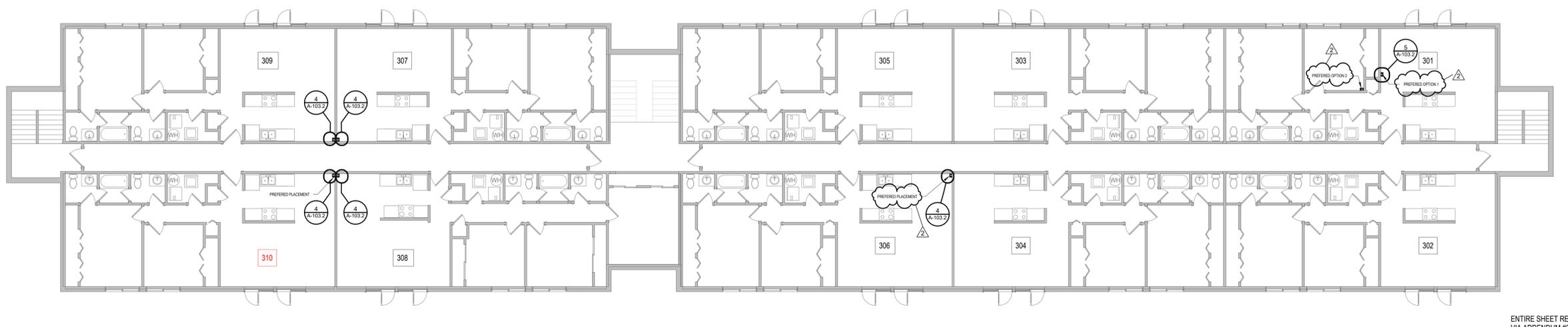
PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 101, 201, 301. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

2 FLOOR PLAN  
STONE MANOR 7720 - SECOND FLOOR PLAN 1/8" = 1'-0"



PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 101, 201, 301. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

3 FLOOR PLAN  
STONE MANOR 7720 - THIRD FLOOR PLAN 1/8" = 1'-0"



ENTIRE SHEET REVISED VIA ADDENDUM #2

**EDITHA**  
ARCHITECTURE

8514 Whitesburg Drive  
Huntsville, AL 35802  
office 256.883.8496  
www.edthta.com

JENNIFER THORINGTON-HINES  
REG. NO. 7099  
REGISTERED ARCHITECT

**HHA RADON VARIOUS SITES**

OWNER: HUNTSVILLE HOUSING AUTHORITY  
PROJECT ADDRESS: 1000 W. GUNN ST. P.O. BOX 488 HUNTSVILLE, AL 35804

ISSUE DATE: 02/04/2026

ISSUED: BID DOCUMENTS

ADPH NUMBER:

PROJECT NUMBER: 26T-00100 & 26T-00200

REVISIONS	No.	Description	Date
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	2	ADDENDUM #3	2/4/2026

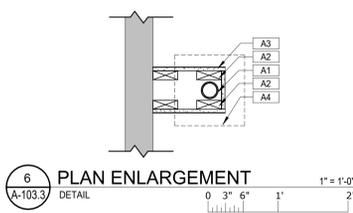
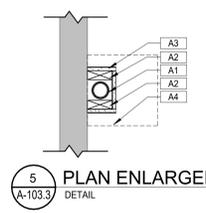
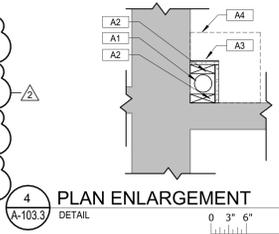
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DRAWING NO. **A-103.2**

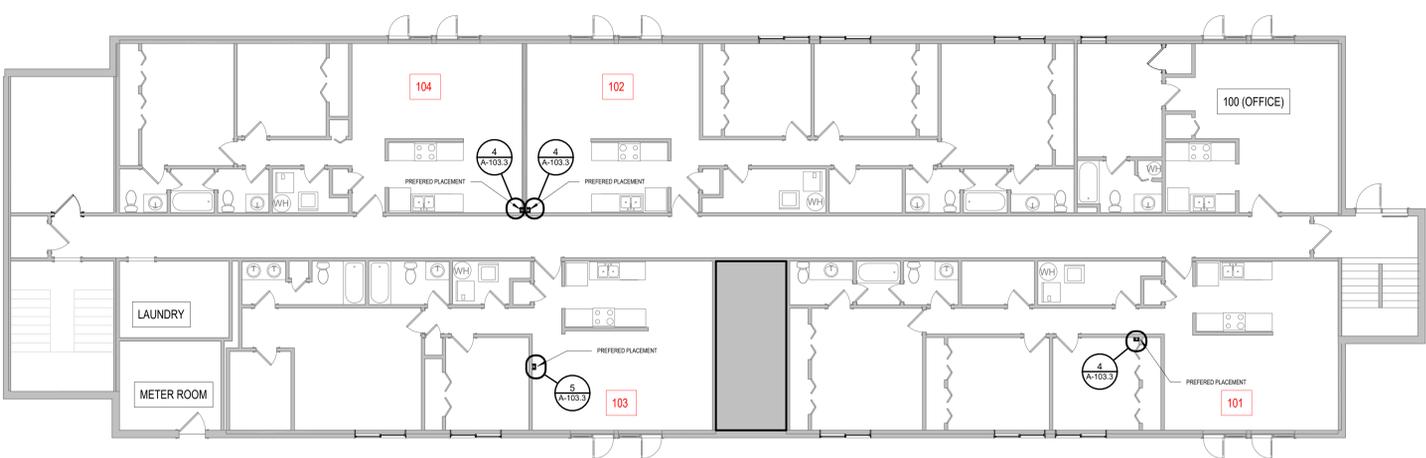
Key Value	Keynote Text
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A2	NEW 2X6 WOOD STUDS. STUDS TO BE RIPPED DOWN TO 4.25" WHERE SPACE IS LIMITED.
A3	NEW 1/2" GYP BD OVER NEW WOOD STUDS.
A4	APPROXIMATE EXTENT OF EXISTING SLAB SAWCUTTING.

LEGEND	
	UNIT NUMBER WITH RADON LEVELS ABOVE 4.0 pCi/L
	UNIT NUMBER WITH RADON LEVELS BELOW 4.0 pCi/L

NOTE: NEW CHASES MAY PASS THROUGH UNITS WITH LEVELS BELOW 4.0 pCi/L



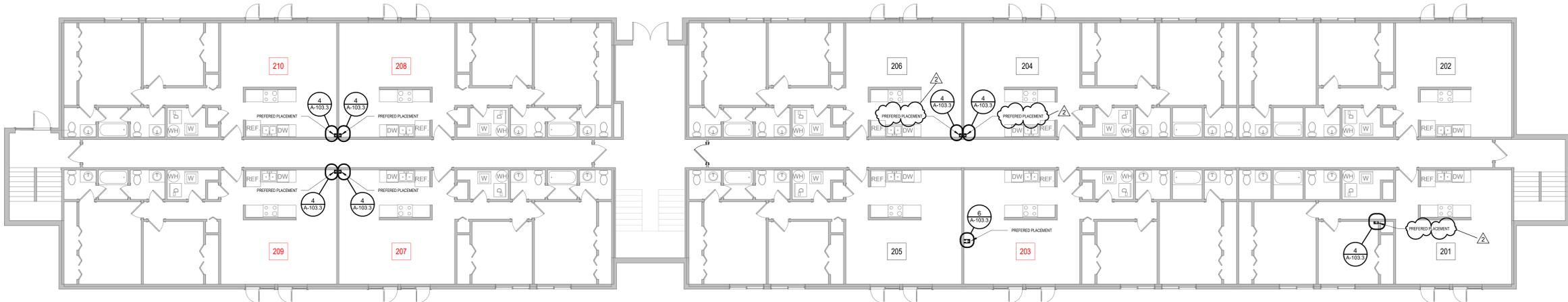
1 FLOOR PLAN  
STONE MANOR 7722 - BASEMENT FLOOR  
1/8" = 1'-0"



PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 103, 203, 303. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 101, 201, 301. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

2 FLOOR PLAN  
STONE MANOR 7722 - SECOND FLOOR PLAN  
1/8" = 1'-0"



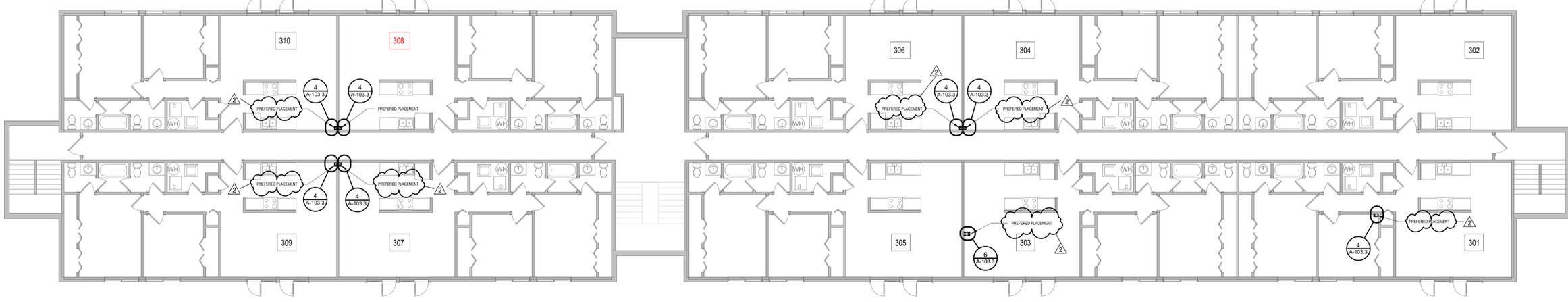
PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 103, 203, 303. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 101, 201, 301. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

FOR EACH SLAB DE-PRESSURIZATION INSTALLATION, A 3/8" TEST HOLE WILL NEED TO BE DRILLED FOR A COMMUNICATION TEST. TEST HOLE TO PATCHED USING A VINYL REPAIR KIT. COLOR OF PATCH TO MATCH EXISTING

NOTE: WHERE PVC VERTICAL PIPES DON'T ALIGN BETWEEN FLOORS, RUN PIPE HORIZONTALLY ALONG FLOOR JOISTS. DO NOT INSTALL NEW PVC PIPES THROUGH EXISTING JOIST

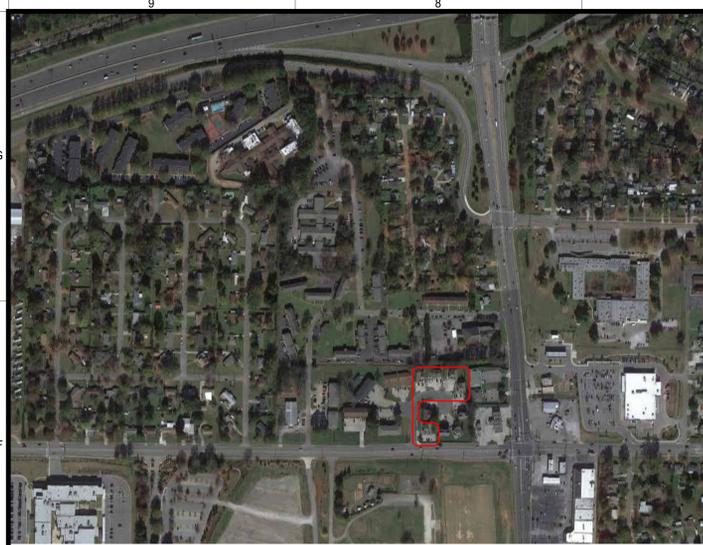
3 FLOOR PLAN  
STONE MANOR - THIRD FLOOR PLAN  
1/8" = 1'-0"



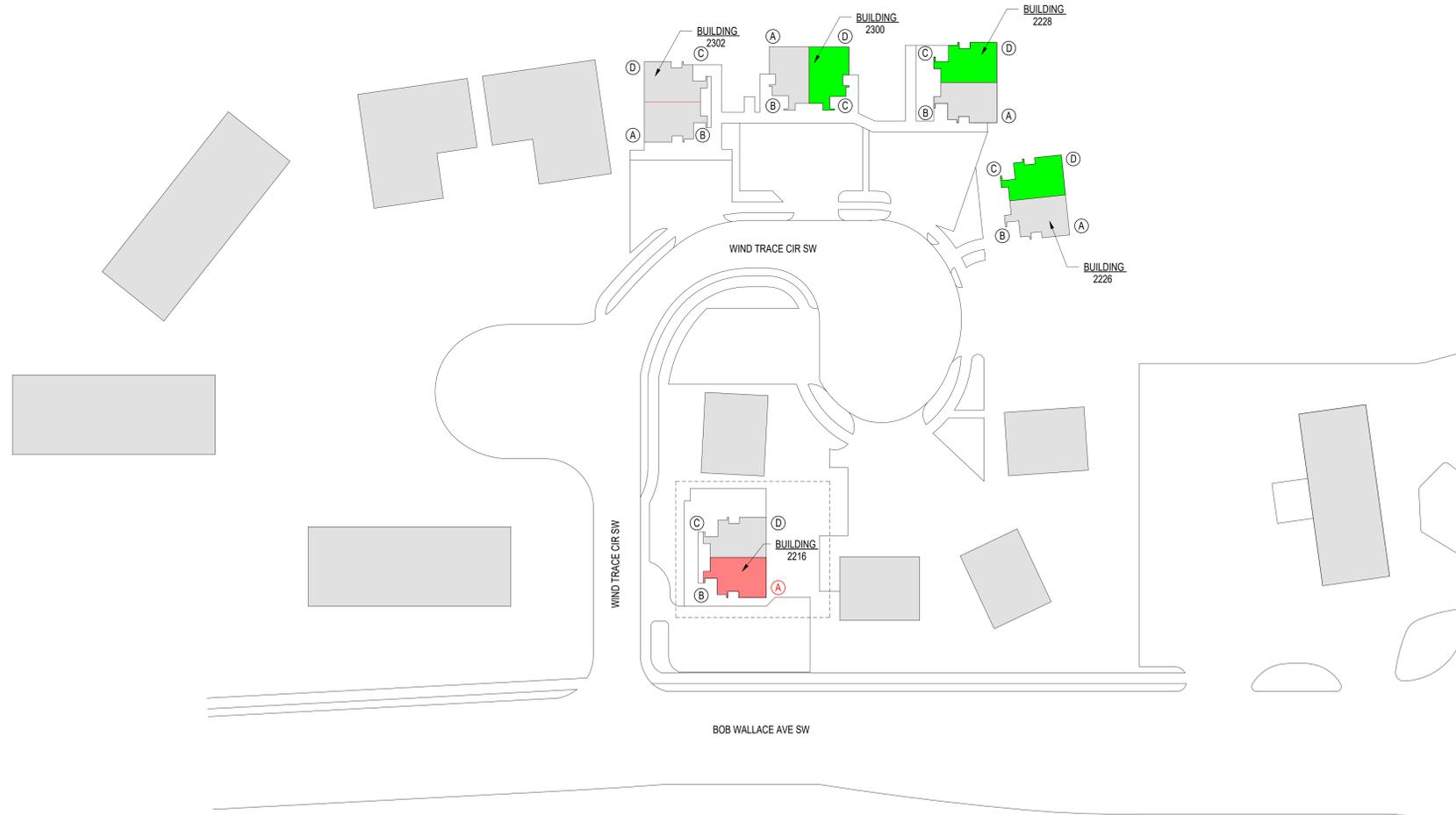
PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 103, 203, 303. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

PRIOR TO FULL DEMOLITION OF NEW CHASE, FIELD VERIFY WALL OF PREFERRED CHASE LOCATION FOR UNITS 101, 201, 301. CONTACT ARCHITECT IF WALLS DO NOT ALIGN

SHEET ADDED IN ADDENDUM #2



**WIND TRACE**  
**2300 WIND TRACE CIRCLE**  
**HUNTSVILLE, AL 35805**



**LEGEND:**

- BUILDING - A**  
200 - BUILDING TYPE  
BUILDING NUMBER
- (A)** - UNIT TYPE WITH RADON LEVELS BELOW 4.0 pCi/L
- (A)** - UNIT TYPE WITH RADON LEVELS ABOVE 4.0 pCi/L
- (A)** - UNITS WITH RADON LEVELS ABOVE 4.0 pCi/L
- (A)** - UNITS WITH RADON LEVELS BELOW 4.0 pCi/L
- CONTRACT LIMITS
- UNTESTED/INVALID TESTING (NOT IN CONTRACT)



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**HHA RADON VARIOUS SITES**

OWNER:  
 HUNTSVILLE HOUSING AUTHORITY

PROJECT ADDRESS:  
 2300 WIND TRACE STREET  
 P.O. BOX 488  
 HUNTSVILLE, AL 35804

ISSUE DATE:  
 02/04/2026

ISSUED:  
 BID DOCUMENTS

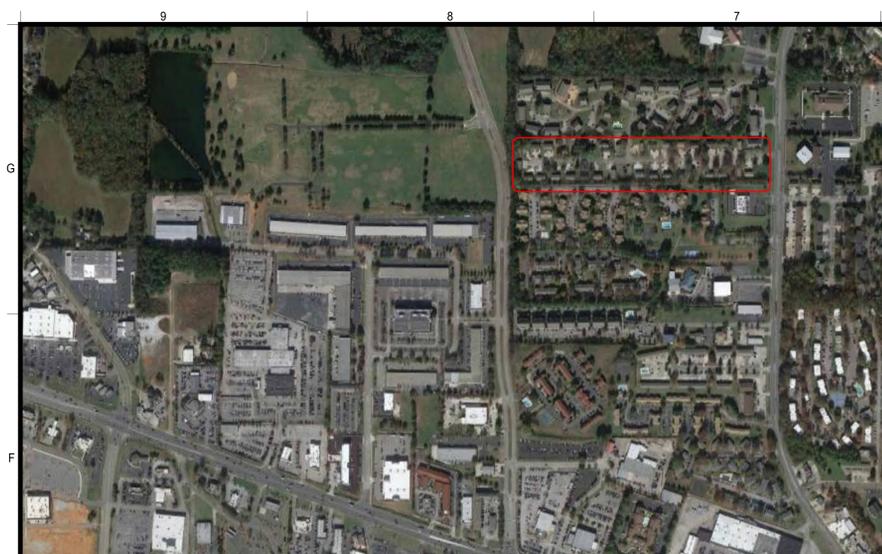
ADPH NUMBER:

PROJECT NUMBER:  
 26T-00100 & 26T-00200

REVISIONS		
No.	Description	Date
1	ADDENDUM #2	1/29/26
2	ADDENDUM #3	2/4/2026

DRAWING TITLE:  
**WIND TRACE**  
**ARCHITECTURAL**  
**SITE PLAN**

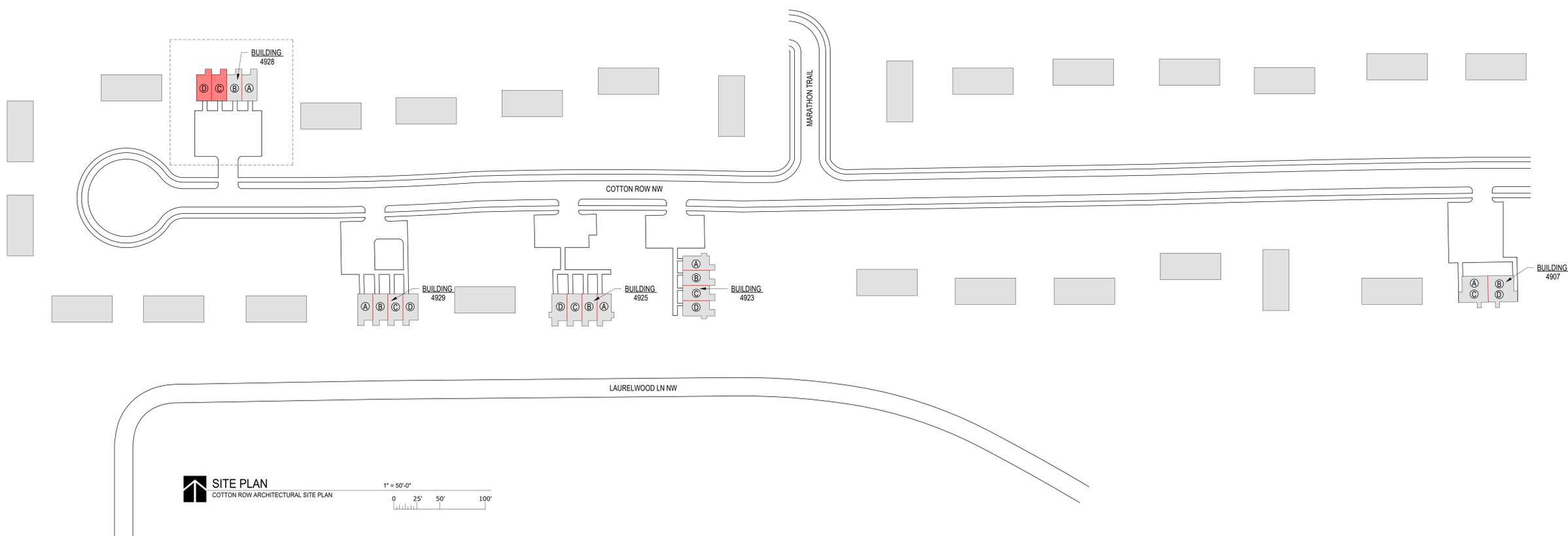
DRAWING NO.  
**A-104.1**



**COTTON ROW**  
**4925 COTTON ROW**  
**HUNTSVILLE, AL 35816**

**LEGEND:**

- BUILDING - A  
200
- (A)
- [Red Box]
- [Grey Box]
- - - - -
- BUILDING TYPE  
BUILDING NUMBER
- UNIT TYPE
- UNITS WITH RADON  
LEVELS ABOVE 4.0 pCi/L
- UNITS WITH RADON  
LEVELS BELOW 4.0 pCi/L
- CONTRACT LIMITS



**SITE PLAN**  
 COTTON ROW ARCHITECTURAL SITE PLAN  
 1" = 50'-0"  
 0 25' 50' 100'

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8514 Whitesburg Drive  
 Huntsville, AL 35802  
 office 256.883.8496  
 www.edthta.com



**HHA RADON VARIOUS SITES**

OWNER  
 HUNTSVILLE HOUSING AUTHORITY  
 PROJECT ADDRESS  
 4925 COTTON ROW STREET  
 P.O. BOX 48  
 HUNTSVILLE, AL 35804

ISSUE DATE  
 02/04/2026

ISSUED  
 BID DOCUMENTS

ADPH NUMBER

PROJECT NUMBER  
 26T-00100 & 26T-00200

REVISIONS	No.	Description	Date
	1		
	2	ADDENDUM #3	2/4/2026

DRAWING TITLE  
**COTTON ROW**  
**ARCHITECTURAL**  
**SITE PLAN**

DRAWING NO.  
**A-105.1**



**LINCOLN PARK**  
**402 WEBSTER DRIVE**  
**HUNTSVILLE, ALABAMA**



**LEGEND:**

- BUILDING - A  
200
- BUILDING TYPE
- BUILDING NUMBER
- UNIT TYPE WITH RADON LEVELS BELOW 4.0 pCi/L
- UNIT TYPE WITH RADON LEVELS ABOVE 4.0 pCi/L
- UNITS WITH RADON LEVELS ABOVE 4.0 pCi/L
- UNITS WITH RADON LEVELS BELOW 4.0 pCi/L
- CONTRACT LIMITS

NOTE: AT 2 STORY BUILDINGS, NEW CHASES MAY PASS THROUGH UNITS WITH LEVELS BELOW 4.0 pCi/L

**SITE PLAN**  
 LINCOLN PARK ARCHITECTURAL SITE PLAN  
 1" = 60'-0"  
 0 30' 60' 120'

402 PROJECT OFFICE  
 (NOT IN CONTRACT)

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**EDITHA ARCHITECTURE**  
 8514 Whitesburg Drive  
 Huntsville, AL 35802  
 office 256.883.8496  
 www.edthta.com

STATE OF ALABAMA  
 JENNIFER THORINGTON-HINES  
 REG. NO. 7099  
 REGISTERED ARCHITECT

**HHA RADON VARIOUS SITES**  
 OWNER: HUNTSVILLE HOUSING AUTHORITY  
 PROJECT ADDRESS: 402 WEBSTER STREET  
 P.O. BOX 488  
 HUNTSVILLE, AL 35804

ISSUE DATE: 02/04/2026  
 ISSUED: BID DOCUMENTS  
 ADPH NUMBER:  
 PROJECT NUMBER: 26T-00100 & 26T-00200

REVISIONS	No.	Description	Date
	1	ADDENDUM #2	1/29/26
	2	ADDENDUM #3	2/4/2026

DRAWING TITLE:  
**LINCOLN PARK**  
**ARCHITECTURAL**  
**SITE PLAN**

DRAWING NO.  
**A-106.1**

SECTION 312113 – RADON MITIGATION

PART 1 GENERAL

1.1 SUMMARY

Provide all work necessary to reduce and maintain radon concentration levels below 4.0 picoCuries per liter (pCi/L) in various buildings specified herein. Perform mitigation system installation, and perform post-mitigation testing and monitoring for radon.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC. (AMCA)

AMCA 210 (2016) Laboratory Methods of Testing Fans for Aerodynamic Performance Rating

AMERICAN ASSOCIATION OF RADON SCIENTISTS AND TECHNOLOGISTS (AARST)

ANSI/AARST MA-MFLB Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Mixed-Use Buildings

ANSI/AARST SGM-MFLB (2023) Soil Gas Mitigation Standards for Existing Multifamily, School, Commercial and Mixed-Use Buildings

ASTM INTERNATIONAL (ASTM)

ASTM D2665 (2014) Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings

ASTM E2121 (2013) Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings

INTERNATIONAL CODE COUNCIL (ICC)

ICC IMC (2024) International Mechanical Code MASTER

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

SMACNA 1378 (1995) Thermoplastic Duct (PVC) Construction Manual, 2nd Edition

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 402-R-92-003	(1993) Protocols for Radon and Radon Decay Product Measurements in Homes
EPA 402-R-92-004	(1992) Indoor Radon and Radon Decay Product Measurement Device Protocols
EPA 402-R-93-078	(1993; R 1994) Radon Mitigation Standards
EPA 625-R-92-016	(1993; Am 1994) Radon Prevention in Design and Construction of Schools and Other Large Buildings
EPA 625-R-93-011	(1993) Radon Reduction Technique for Existing Detached Houses: Technical Guidance for Active Soil Depressurization Systems
WCLIB 17	(2015; R 2018) Standard Grading Rules for West Coast Lumber

1.3 DEFINITIONS

1.3.1 Active Soil Depressurization (ASD)

A family of radon mitigation systems involving mechanically-driven soil depressurization, including sub-slab depressurization (SSD), sub-membrane depressurization (SMD), block wall depressurization (BWD) and crawlspace depressurization (CSD).

1.3.2 Contract Documents

Documents furnished to prospective bidders/proposers containing information and specifying criteria and project requirements for diagnostic testing, design, construction and monitoring of multipleradon mitigation systems. The documents include this specification and the drawings listed in and accompanying this specification.

1.3.3 Pressure Differential Gauge

A tool used to measure the PFE created by an ASD system. Calibrate the gauge in accordance with national standards and the manufacturer's recommendations. The gauge must be capable of readings to 0.25 Pa/1000 in water column

1.3.4 Pressure Field Extension (PFE)

The distance that a pressure change, created by drawing soil-gas through a suction point, extends outward in a sub-slab gas permeable layer, under a membrane, behind a solid wall or in a hollow wall.

1.3.5 Qualified Mitigation Professional

Regardless of team composition, a "Qualified Mitigation Professional" for the purposes of this document is defined as: "An individual that has demonstrated a minimum degree of appropriate technical knowledge and skills specific to radon mitigation of schools and large buildings: a) as established in certification requirements of the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB); and

b) as required by statute, state licensure or certification program, where applicable."

#### 1.3.6 Short Term Radon Detectors

Charcoal, electret ion chamber, or approved equivalent. Devices capable of sensing and recording the presence of radon during a time period of 48-hours to 90 days which when analyzed provide a numeric value, measured in pCi/L, for radon concentrations during the time exposed.

#### 1.3.7 Suction Hole

Location at which vacuum is created for sub-slab communication testing.

#### 1.3.8 Suction Point

Vertical standpipe penetrating into the soil gas environment containing radon and serving as the conduit to exhaust radon gas to the atmosphere.

#### 1.3.9 Test Hole

Location at which pressure readings are taken during sub-slab communication testing. Readings are used to evaluate potential effectiveness of a sub-slab depressurization system.

### 1.4 SYSTEM DESCRIPTION AND REQUIREMENTS

#### 1.4.1 Performance Requirements

Radon mitigation systems must reduce and maintain radon concentration levels below 4.0 pCi/L in various buildings specified herein. Test and construct radon mitigation systems in accordance with ANSI/AARST SGM-MFLB, ANSI/AARST MA-MFLB, ASTM E2121, EPA 402-R-93-078, EPA 402-R-92-003, EPA 402-R-92-004 and as specified herein. Additional guidance for testing and constructing radon mitigation systems is contained in EPA 625-R-92-016 and EPA 625-R-93-011.

### 1.5 QUALITY ASSURANCE

#### 1.5.1 Contractor Qualifications and Experience

Within 15 days after award, submit written evidence or data demonstrating that the Contractor and one or more subcontractors employed by the Contractor possess the qualifications and experience specified below.

##### 1.5.1.1 Contractor Qualifications

The person responsible for diagnostic testing, construction and on-site supervision, as required by the specifications, must have successfully completed the requirements of and maintaining a current certification issued by either the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB) as a qualified mitigation professional. Alternatively, in a State with legislation requiring mandatory credentialing for this work, compliance with the State legislation is acceptable. Evidence showing successful completion of the requirements of the NRPP or the NRSB must include copy of current certification document and documentation issued by the State. Listing in the State of Alabama is required.

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### 1.5.1.2 Contractor Experience

Submit written evidence demonstrating that the Contractor has successfully designed and installed at least two radon mitigation systems of the same or similar to the type required herein. The Contractor must have 5 years of experience installing radon mitigation systems. Experience proof must include but not be limited to:

- a. The contract name and number, completion dates of the project and the total cost of the project;
- b. The names, telephone numbers and fax number of the facility or installation for whom the radon mitigation system design, construction and testing were performed;
- c. The name, telephone number and fax number of a supervisory level point of contact at each facility or installation who has knowledge of the Contractor's performance.

### 1.5.1.3 Qualified Mitigation Professional

A Qualified Mitigation Professional must be physically present or ensure a responsible person is present during onsite activities and immediately available to direct, instruct and oversee activities of other individuals, mitigation installers and other professionals engaged in installation activities for the mitigation system(s). The qualified mitigation professional must have 5 years of experience installing radon mitigation systems.

### 1.9.2 Testing Laboratory

Submit testing laboratory certification as proof that the testing laboratory performing radon detector analysis has successfully completed the requirements of the National Radon Safety Board (NRSB) or the National Radon Proficiency Program, (NRPP) and is qualified and authorized to perform such analysis. Alternatively, in a State with legislation requiring mandatory credentialing for this work, compliance with the State legislation is acceptable. Listing in the State of Alabama is required.

### 1.9.3 Diagnostic Testing Equipment

Submit proof of current calibration for testing devices used in performing diagnostic testing.

### 1.9.4 On-Site Supervision

No work at the site will be permitted without the presence of a person possessing the qualifications specified elsewhere in this section, namely certification issued by either the National Radon Proficiency Program, (NRPP) or the National Radon Safety Board (NRSB) as a qualified mitigation professional, or the State equivalent, where applicable.

## 1.10 DELIVERY, STORAGE AND HANDLING

### 1.10.1 Delivery of Products

Deliver materials to the site in an undamaged condition. Deliver proprietary items in manufacturer's original unopened and undamaged containers of packages with manufacturer's name and brand and other pertinent data such as specification number, type, and class, date of manufacture. Schedule deliveries of materials to coincide with scheduled installation.

1.10.2 Storage and Handling

Carefully store materials off the ground to provide proper ventilation, drainage and protection against weather and dampness. Protect materials from marring, staining, rust, damage and overload and from contaminants such as grease, oil and dirt. Store materials at temperatures recommended by the manufacturer. Handle material to avoid damage such as chipping and breaking. Replace damaged material.

PART 2 PRODUCTS

2.1 RADON MITIGATION SYSTEMS

2.1.1 System Performance

Radon mitigation systems must reduce and maintain radon concentration levels below 4.0 pCi/L after activation of the mitigation systems.

2.1.1.1 System Piping

Route radon mitigation systems piping so as not to interfere with the daily operations and functions of the building occupants. Keep visibility of the systems to a minimum. Enclose each radon mitigation system in occupied spaces, however, all operating components must be accessible for maintenance and repair. All spaces must be considered to be occupied spaces except for mechanical and electrical rooms, warehouses, storerooms, janitor closets, crawl spaces, and attic spaces. Enclosures are not required for portions of systems installed above suspended acoustical ceilings.

2.1.1.2 System Outlet Location

Mitigation system discharge points must be as specified in ANSI/AARST SGM-MFLB and EPA 402-R-93-078. Prevent foreign objects from entering the outlet. Maintain water tight seal through all penetrations to the building exterior.

2.1.1.3 System Failure Warning Monitor

Provide a means to detect and announce each radon mitigation system failure. System failure is defined as:

- a. System blockage: foreign debris.
- b. Mechanical failure: fan or other mechanical failure.
- c. System leakage: pipe breakage or crack.

Provide an audio or visual annunciator device to indicate system failure and locate the annunciator device in an occupied space. Conform to the requirements of ANSI/AARST SGM-MFLB and EPA 402-R-93-078.

2.1.1.4 Air Cleaners

Do not use air cleaners as a radon reduction method.

2.1.1.5 Ventilation Devices

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Do not use devices that solely increase ventilation as a radon reduction method.

### 2.1.1.6 Back Drafting

Do not allow radon mitigation systems to cause back drafting of building chimneys.

### 2.1.2 Radon Mitigation Systems Components

Mechanical and electrical materials, fabrication, construction and installation must conform to the following industry standards:

- a. Poly(vinyl chloride) (PVC) Piping: ASTM D2665, Schedule 40.
- b. In-line Tubular Centrifugal Fans: AMCA 210 and UL listed.
- c. Mechanical Work: ICC IMC, SMACNA 1378, ANSI/AARST SGM-MFLB and EPA 402-R-93-078.
- d. Sealants: ASTM C920, polyurethane, Type S, Grade P for horizontal application, Grade NS for vertical application, Class 25, Use T.
- e. Crawl space soil-gas retarder membrane must be minimum 40mils thick.

## PART 3 EXECUTION

### 3.1 RADON MITIGATION SYSTEMS INSTALLATION

#### 3.1.2 Installation

- a. Provide radon mitigation systems as indicated in the approved design drawings, as specified in ANSI/AARST SGM-MFLB, EPA 402-R-93-078 and as required by the specifications and standards referenced herein for the respective materials using workmen skilled in the trades involved. Install piping plumb and parallel to existing walls, partitions and ceilings as appropriate, slope horizontal runs to drain, and secure in place in a rigid and substantial manner.
- b. Seal new and existing floor slab penetrations in accordance with EPA 402-R-93-078 and as specified herein. Prevent entry of soil gas into the building and exhausting of conditioned air via the radon mitigation system. Seal cracks and openings around floor slab penetrations with polyurethane sealant. Provide backer rod or comparable filler material as required. Insure that all penetrations to the building exterior are weathertight.
- c. Lay work out in advance. Exercise care where cutting, channeling, chasing or drilling floors, walls, partitions, ceilings or other surfaces as necessary for proper installation, support or anchorage. Patch and repair damage to buildings, piping and equipment using workmen skilled in the trades involved.
- d. Coordinate all work with the Contracting Officer.

#### 3.1.3 Supervision

Installation of the radon mitigation systems must be supervised by a qualified mitigation professional.

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### 3.1.4 Mechanical Work

ICC IMC, SMACNA 1378, ANSI/AARST SGM-MFLB, and EPA 402-R-93-078.

### 3.1.5 System Identification

Label all components of the radon mitigation systems including, but not limited to, piping (every 3 meters 10 feet), enclosures, fans, electrical conduit (every 3 meters 10 feet) and circuit breakers. Labels must read:

Radon Reduction System. Do Not Turn Off.

Public Works Office Phone #

## 3.3 POST MITIGATION FUNCTIONAL EVALUATION/INSPECTION

### 3.3.1 ASD Systems

In conjunction with activating an ASD system, the suction in system piping must be measured and recorded along with at least one PFE measurement that is conducted under closed-building or normal operating conditions. It is recommended that both measurements be made under conditions that reflect normal building operation when significantly occupied and include consideration for worst-case conditions.

#### 3.3.1.1 PFE Measurement

Obtain PFE measurements at more than one point distant from each suction point(s) to verify intended design using a differential pressure gauge capable of reading to 0.25 Pa 1/1000 in water column. Record PFE test location and close in a nonpermanent fashion to facilitate any future needs (e.g. diagnosing a system when radon tests do not indicate success in achieving mitigation goals).

## 3.4 FIELD QUALITY CONTROL

### 3.4.1 Post Mitigation Testing and Monitoring

Perform post mitigation radon testing in the buildings as specified in ANSI/AARST SGM-MFLB, EPA 402-R-93-078 and herein.

#### 3.4.1.1 Short Term

Test each radon mitigation system as described below.

- a. Test each radon mitigation system for effectiveness no sooner than 24-hours nor later than 15 days after activation of the radon mitigation system. Perform all testing in accordance with ANSI/AARST MA-MFLB, ANSI/AARST SGM-MFLB and all local, state and Federal requirements. Provide short term radon detectors (charcoal, electret ion chamber or approved equivalent) at the rate of one detector per 186 square meters 2,000 square feet but not less than one detector per enclosed space, except for closets. On copies of the building floor plans, locate and identify each short term detector and provide short term detector data on copies of the "Device Placement Log" contained in EPA 402-R-92-014.
- b. At the end of the testing period, collect the detectors and send the detectors to the testing

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laboratory for analysis. Provide radon test results of the effectiveness of the mitigation systems not later than 30 days after collecting the detectors. Radon test results must be sent from the testing laboratory directly to the owner with one copy to the Contractor. Complete the line item information on the "Device Placement Log."

- c. Radon test results above 4.0 pCi/L require system redesign and installation modifications as necessary to achieve radon test results below 4.0 pCi/L. Submit design modifications to the engineer for review and approval. After approval of the design modifications, provide installation modifications to the radon mitigation system and retest for effectiveness. Repeat this short term test procedure until test results below 4.0 pCi/L are achieved.
- d. System modifications (as-built systems installations) must be reflected in the Contractor's design documents (drawings and design narrative).

-- End of Section --