

**CITY OF BALTIMORE
DEPARTMENT OF GENERAL SERVICES
CAPITAL PROJECTS DIVISION**

Addendum No. 2

Date: August 19th, 2026

For: Drawings and Specifications

**For: CONTRACT NO. PRJ000889
HARFORD SENIOR RENOVATIONS & ENVELOPE UPGRADES**

FOR THE MAYOR AND CITY COUNCIL OF BALTIMORE

TO THE BIDDERS:

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS ON WHICH THE CONTRACT WILL BE BASED, AND IS ISSUED TO MODIFY, EXPLAIN AND/OR CORRECT THE ORIGINAL DRAWINGS AND SPECIFICATIONS.

PLEASE ACKNOWLEDGE THIS ADDENDUM ON THE BID OR PROPOSAL PAGE WHERE INDICATED.

APPROVED:

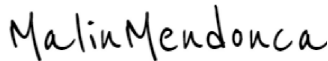


DESIGN PROJECT MANAGER



Marc Berrong

CONSTRUCTION PROJECT SUPERVISOR



ENGINEER SUPERVISOR

Marwan Karajat

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Location:
Date: 2025.08.18 11:50:04-00

DIVISION CHIEF



8/18/2026

DIRECTOR OF GENERAL SERVICES

WRITTEN QUESTIONS SUBMITTED

1. (Q): There are no BAS controls drawings or specs included in the bid documents, however spec section 230900 "Instrumentation and Controls for HVAC" is referenced in other specifications throughout division 23. Could you please provide the drawings and specs for this work?
(A): **Per the project mechanical engineer, BAS controls are not required on this project. Contractor shall provide local controls per the drawings and delete references to Specification Section 23 09 00 "Instrumentation and Controls for HVAC".**
2. (Q): Is this project "Tax Exempt"?
(A): **No.**
3. (Q): Confirm that Baltimore City will file for and carry the cost of the Building Permit for this project.
(A): **Per Specification Section 01 35 00 "Special Procedures", the Owner will pay for the initial building permit application. The Contractor shall obtain and pay for the building permit, except for the filing fee. Please refer to Specification Section 01 21 00 "Allowances", incorporated through this addendum, for additional information related to the building permit fee.**
4. (Q): Confirm if Alternate #1 is to include (1) the Pre- Engineered Canopy and (2) SF-4 Replacement of the front storefront elevation.
(A): **Alternate #1 is to include demolition of the existing storefront system and canopy at the east elevation, construction of a new storefront system and sun shade devices at the east elevation, and the installation of prefabricated canopy structures at the east and west entrances. Please refer to Specification Section 01 23 00 "Alternates" and Drawings A104 and A105 for additional information.**
5. (Q): If Alternate #1 SF-4 Elevation is not accepted, are columns C1 and detail 3/A104 to be included in the Base scope of work?
(A): **C1 columns and all associated details are only applicable if Alternate #1 is accepted.**
6. (Q): Confirm that the sun shades are to be included in Alternate #1 only.
(A): **The sun shades are only included in Alternate #1 if accepted.**
7. (Q): Please provide a location for interior storefront Frame type SF-3
(A): **Per Alternate #1, replacement of the interior vestibule door is designated as SF-3 on Drawing A104.**

8. (Q): What is the anticipated start date and period of performance?
(A): **This is dependent on Award and execution of Bonds. NTP is anticipated approximately 60-90 days after bids are due barring any unforeseen circumstances.**
9. (Q): Since the existing front steps and landing are to be replaced, is the existing front sidewalk leading to the front steps to be replaced as well? Not indicated.
(A): **Intent is to replace the sidewalk as indicated on Drawing A402. See revised civil sheet C-01, which includes a new hatch pattern to delineate the extents of new concrete sidewalk, ramp, and stairs.**
10. (Q): Provide an asphalt patch detail where the downspouts are to be connected to existing drains
(A): **Baltimore City's standard flexible pavement detail has been added to Drawing C-01. The cost for patching shall be considered incidental to the related plumbing work as cutting/patching.**
11. (Q): Asbestos Abatement: 1.1, A.1. mentions a survey by EA Engineering dated June 2025. This is not included in the specifications. Provide a copy of this survey for the contractors.
(A): **The Hazardous Materials Survey completed by EA Engineering was distributed to pre-bid meeting attendees via email on 7/1/26.**
12. (Q): Provide an asbestos abatement drawing indicating the location and material type to be removed.
(A): **Please refer to the Hazardous Materials Survey completed by EA Engineering for approximate quantities, locations, and material types.**
13. (Q): Drawings A101, door opening 117B shows a door opening with a primary leaf and secondary leaf swinging open, but elevation 2/A201 depicts a single opening with a fixed side lite. Please clarify.
(A): **The door type and schedule are correct. See revised Drawing A201 for updated elevation.**
14. (Q): Who is the current fire alarm vendor? Or is a new FA system being installed?
(A): **None. The scope of work includes installation of a new fire alarm system.**
15. (Q): Please clarify which breaker is supposed to be Shunt Trip for Distribution Panel DP.
(A): **Per the project electrical engineer, a shunt trip breaker is not required in Panel DP.**
16. (Q): From Lighting vendors, Fixture type C-The Wdge2 LED fixture has 2 mounting options listed SRM and PBBW. Please confirm which one is required.
(A): **Contractor shall provide and install the specified mounting accessory PBBW.**

All wiring shall be concealed within the building. Surface mounted conduit is not acceptable.

17. (Q): Note that wall type F1 refers to detail 1/A502 which is a storefront section, but detail 7/A502 is probably correct. Confirm.
(A): **Masonry infill at existing walls is to be completed in accordance with detail 7/A502. Please see revised Drawing A101 with updated reference.**
18. (Q): MEP drawings specify extra-heavy cast iron service weight piping for sanitary and storm piping systems, both below grade and above grade. Request approval to substitute PVC DWV piping for (1) All below-grade sanitary and storm piping (2) Above-grade sanitary and storm piping installed in non-plenum ceiling spaces. For piping installed above grade within plenum ceiling spaces, if applicable, cast iron no-hub piping will be provided.
(A): **The use of PVC DWV is acceptable for above grade and below grade sanitary and storm piping.**
19. (Q): The finish schedule doesn't have materials specified. What grade should I price?
(A): **Please refer to the project specifications for material selections and price accordingly.**
20. (Q): Please provide a pattern for the quartz countertop, it is not on the finish schedule.
(A): **Please refer to Specification Section 06 61 19 "Quartz Surfacing Fabrications" for quartz material specifications.**
21. (Q): Who is paying for the building permit? If the contractor is paying for it, please provide the amount we should carry in our bid.
(A): **Per Specification Section 01 35 00 "Special Procedures", the Owner will pay for the initial building permit application. The Contractor shall obtain and pay for the building permit, except for the filing fee. Please refer to Specification Section 01 21 00 "Allowances", incorporated through this addendum, for additional information related to the building permit fee.**
22. (Q): Is an office trailer required for the inspector on the project?
(A): **No, an Inspector's office trailer is not required on-site. However, the General Contractor shall provide a suitable space for bi-weekly on-site project meetings and access to restroom facilities for the Inspector.**
23. (Q): Please clarify if there is landscaping in this project. Is the front of the building to be seeded or sodded after the concrete sidewalk and ramp work.
(A): **No landscaping is anticipated beyond permanent seeding at the front of the building as required to patch the lawn disturbed by construction activities.**
24. (Q): Note C-4: Is the flag pole to be reinstalled at the end of the project?
(A): **No, the existing flag pole and concrete base are to be removed in their entirety.**

25. (Q): The present building is unsprinklered. Is there a plan to install a new fire sprinkler system?
(A): **A sprinkler system is not included in the scope of work for this project.**
26. (Q): Who will be responsible to provide and pay for the necessary building permit for the project, the Dept. of General Services or the Contractor? In Spec. section 01 35 00, para. 1.3 A states that the Owner will pay for the initial application, but the Contractor shall pay for the building permit except for the filing fee. This language is confusing. Often building permits such as this can cost tens of thousands of dollars. Please clarify who is responsible for this substantial part of the permit costs. If the Contractor is responsible, do you know how much the permit costs will be or is there an approved plans number or reference number that we could refer to when we contact the permit office?
(A): **Per Specification Section 01 35 00 "Special Procedures", the Owner will pay for the initial building permit application. The Contractor shall obtain and pay for the building permit, except for the filing fee. Please refer to Specification Section 01 21 00 "Allowances", incorporated through this addendum, for additional information related to the building permit fee.**
27. (Q): The pre-bid meeting/site visit revealed that the senior center is currently full of "personal property" belonging to the City of Baltimore such as office furniture, tables and chairs, exercise equipment, closets full of stored goods, etc. that are not attached to or a permanent part of the building. Will all of this "personal property" that is not attached to or a permanent part of the building be removed from the building by Baltimore City and stored elsewhere prior to the renovation beginning, or will the Contractor have to assume that they need to work around, move around, store and protect City owned "personal property" that is not a permanent part of the building?
(A): **The Owner will be responsible for storing and disposing of equipment and furniture as necessary. Any items remaining on site will be removed and legally disposed of by the Contractor.**
28. (Q): In Volume 1 (the Bid Documents) page 89 it states that the basis of award for this project shall be the bid most advantageous to the City. This project has a Base Bid plus it has two Add Alternates. Is it intended that the basis of award shall be on the Base Bid alone or including the Add Alternates? If the basis of award includes the Add Alternates, is there a sequence that the Add Alternates will be considered in determining the basis of award.
(A): **For the basis of Award: The City reserves the right to award the contract based on the Base Bid alone or the lowest responsive and responsible bid resulting from the Base Bid combined with any selected Alternate or combination of Alternates. Please refer to attached Bid or Proposal sheets (Attachment No. 1)**
29. (Q): This project has a Base Bid plus it has two Add Alternates. The MBE/WBE subcontracting goals that have been established for this project are 24% MBE and 10%

WBE. In calculating the dollars we commit to spend for the MBE and WBE goals for the project, are we required to make dollar commitments for MBE and WBE subcontracting based on the two add alternates also? It's entirely possible that the add alternate work will never be awarded. The fairest thing would be to have the Contractor be required to make their dollar commitments at bid time based on the value of the Base Bid only. If it's later determined that one or both of the Add Alternates will be awarded, the Contractor could be later required to meet the same percentage goals on the dollar value of the Add Alternates that are awarded. Please clarify.

(A): 24% MBE and 10% WBE will apply to the contract as a whole, no matter if only awarded base bid or base bid plus any or all alternates. The Minority package doesn't require contractors to add amounts but rather percentages without decimals.

30. **(Q):** On Dwg. E102 on the lower right, there is a list of ten work items "Low Voltage Scope of Work – By General Contractor". This list of work items should probably be re-named "Low Voltage Scope of Work – By Electrical Subcontractor" since almost all of this work will be performed by the electrical subcontractor and not the general contractor.
(A): General contractor is responsible for coordinating the specified low voltage work.
31. **(Q):** There is a Specification Section for HVAC Casings (23 31 19), but nothing is shown or mentioned on the drawings. Is this section applicable to this project?
(A): HVAC casings will be per the equipment manufacturer. Specification Section 23 31 19 "HVAC Casings" may be deleted.
32. **(Q):** Please confirm if drywall ceiling above ACT system within the bathrooms is to remain. If yes, please specify which portion or portions shall remain. Is it found anywhere else in the current building?
(A): Per general demolition notes, the Contractor shall demolish all ceiling finishes and suspended grid systems in their entirety, unless otherwise noted.
33. **(Q):** Are the fiberglass panels on Alternate #1 for the Storefront and Glazing going to be "glaze-in" or "face-fastened"?
(A): Insulated fiberglass panels are to be glazed in.
34. **(Q):** Is there going to be a need for door access/security fobs for building security?
(A): The Owner has elected to proceed with mechanical locks as specified.
35. **(Q):** Please clarify existing construction for contractor to match per 1/A103.
(A): To the extents known, existing wall construction is illustrated in the roofing details. Contractor to infill existing penetrations to match adjacent construction.
36. **(Q):** Please clarify exterior CMU openings to be filled and matched to existing finish per General Note A201. What is the existing finish?

- (A): Exterior finish is painted CMU. Filled openings should be painted to match existing color and finish.**
37. **(Q):** Please clarify Owner-provided, Contractor-installed TV location, height, and mounting instructions per A101.
(A): Contractor to provide and install solid, fire-retardant wood blocking for installation of Owner provided TVs and mounting brackets. Contractor to coordinate final locations with Owner.
38. **(Q):** Confirm add/alts per A104 (current storefront demolition and new installation/canopy) are included in the base bid.
(A): Alternates are not included in the base bid. Please refer to Specification Section 01 23 00 "Alternates" and Drawings A104 and A105 for additional information pertaining to scope of work for each alternate.
39. **(Q):** Will additional drawings be issued for interior elevations?
(A): A need for additional interior elevation drawings is not anticipated.
40. **(Q):** The plumbing fixture schedule (dwg P001) and domestic water floor plan (dwg P200) show 1/2" water serving the Water Closets. The water closet specified on the fixture schedule is a flush valve type. Should these be changed to tank type?
(A): Please see revised drawings P001 and P200 with updated cold water supply sizing to serve the specified flush valve water closet.
41. **(Q):** The domestic water riser diagram (dwg P300) shows the domestic water starting at 1-1/2" (at backflow preventor) but it also shows 2" tapping off to serve the bathrooms. Please confirm pipe sizes.
(A): Please see revised drawing P300 with updated domestic water sizing. Drawing has been revised to show a 2" line feeding the facility with a 1-1/2" line for bathroom distribution.
42. **(Q):** Spec Section 09 91 00/1.1.A calls for "Painting and finishing exterior and interior exposed surfaces". Judging by existing conditions, Exterior CMU Walls on West, North & South elevations are in desperate need of repainting. However, I do not see any call-outs on the drawings, and Specifications provide material call-out for interior only. Please advise if painting of Existing Exterior CMU to be excluded.
(A): Painting of the existing exterior CMU walls (beyond infill areas scheduled to be finished to match adjacent surfaces) is currently excluded from the scope of work. Should the Owner elect to re-evaluate during the construction phase of the project, an RFP will be issued to request pricing for their consideration.
43. **(Q):** There are 7 Security Window Grates at North Elevation, noted as Existing to Remain on Det. 4/A202. Please advise if they are to be excluded.
(A): Painting of the existing window security grates is currently excluded from the scope of work. Should the Owner elect to re-evaluate during the construction

phase of the project, an RFP will be issued to request pricing for their consideration.

44. (Q): Concrete Foundation Wall shown on Ramp Sections "C", "D" and "E" noted as "painted". No material call-out provided in Specifications 09 91 00. Please advise.
 (A): **Please see revised Specification Section 09 91 00 "Painting" with product information for painting of the concrete foundation walls.**

45. (Q): Sheet P101 showing 3 new RTU units on the roof, and new gas piping feeding these units. I believe Maryland code requires exposed roof gas piping to be painted Safety Yellow. Please advise.
 (A): **Please see revised drawing P101 with notes added to address painting of the exposed gas piping for proper identification.**

46. (Q): There is no specification section for kitchen food service equipment and no new kitchen equipment is shown on the drawings. Is this work going to be performed after the renovation's completion by another contractor or has this work been overlooked?
 (A): **Furnishings for the kitchenette are excluded from the scope of work. Owner to provide equipment as part of the FFE package.**

47. (Q): Are the exterior block walls on the two sides and the rear of the building to be repainted? There are no notations on the exterior elevation drawings A201 or A202 and no exterior painting is shown on the Finish Schedule on Dwg. A601. The painting specifications section doesn't specify a paint coating for exterior masonry.
 (A): **Painting of the existing exterior CMU walls (beyond infill areas scheduled to be finished to match adjacent surfaces) is currently excluded from the scope of work. Should the Owner elect to re-evaluate during the construction phase of the project, an RFP will be issued to request pricing for their consideration.**

48. (Q): On Dwg. A102 there is a general note below the Reflected Ceiling Plan that says "Exposed structure to be painted. Underside of roof deck, steel roof framing, ductwork and wall surfaces 10' 0" AFF to underside of roof deck". Please clarify the limits of the painting required on the underside of the roof deck and the roof structure. Does this general note only apply to the four rooms no suspended ceiling and simply have the exposed structure, or is it intended to be performed across the entire roof deck and roof structure of the building?
 (A): **This note only applies to rooms scheduled to receive exposed structure ceilings.**

49. (Q): Addendum 1 references modifying, explaining and correcting original drawings & specs. Where can I find the new drawings & specs?
 (A): **Revised drawings and specifications are included in this addendum.**

50. (Q): On drawing C-01, note C-6 says contractor to flush out existing lines (storm) when connection is made. Is the flushing performed by the G.C?
 (A): **Yes, Contractor to flush out existing storm lines as indicated.**

51. (Q): Specs lists CPVC as an option for aboveground domestic water pipe, drawing P001 does not. Which is correct? I know specs usually supersede drawings I'm just confirming
(A): **Please see revised drawing P001 which lists CPVC piping as an acceptable material for above ground domestic water piping, except for plenum areas.**
52. (Q): Specs lists PVC pipe as an option for aboveground sanitary / vent pipe, drawing P001 does not. Which is correct? I know specs usually supersede drawings I'm just confirming
(A): **Please see revised drawing P001 which lists PVC piping as an acceptable material for above ground drainage piping, except for plenum areas.**
53. (Q): Where is the condensate drain line going for the indoor unit SSAC-1 unit? (None shown on drawings)
(A): **Please see revised drawing P200 with additional notes related to condensate drainage for unit SSAC-1.**
54. (Q): Drawing CA-101 lists two drinking fountains provided, only see 1 on other drawings. Which is correct?
(A): **The specified water cooler is a bi-level unit.**
55. (Q): Is the existing grease interceptor that is getting demoed underground or aboveground?
(A): **Please see revised drawing PD-100 which notes the existing grease interceptor is above ground.**
56. (Q): Where are the condensate lines from the RTU's being piped to? Are they being piped completely to the gutters? (None shown on drawings)
(A): **Please see revised drawing P101 with condensate drain piping added to the roof plan.**
57. (Q): Is the G.C going to locate the existing storm pipe and perform the excavation work required for tie ins?
(A): **GC is responsible for locating and tying into the existing storm drain lines.**
58. (Q): On drawing P-000, note 13 says "clean" existing floor drains. Does that mean they want the plumbing contractor to snake the existing floor drains?
(A): **Please see revised drawing P000 with additional detail added to note 13 to clarify the scope of work at the existing floor drains.**
59. (Q): Drawing A103 shows a maximum 1" thick, minimum R-33 Panasonic Advanc-R vacuum insulated panel system with tapered insulation sloped at 1/8" per foot. Section 07 53 23 specifies 5" flat polyiso, R-30, with tapered polyiso sloped at 1/4" per foot. Please confirm the required insulation assembly and slope.

**(A): Roof assembly to be installed in accordance with the drawing details. Please see revised Specification Section 07 53 23 "Flexible Sheet Roofing TPO Membrane" for clarification. **

60. **(Q):** Please confirm whether there is additional cold formed metal framing needed for Alternate #1.
(A): The existing structural conditions and connection details supporting the storefront are currently concealed. Contractor to field verify the existing structure after demo and coordinate with the Architect for appropriate detailing as noted on the drawings.
61. **(Q):** Please confirm requested color and spec for insulated fiber glass panels in Alternate #1.
(A): Please refer to Specification Section 08 16 13 "Fiberglass Doors" for information on the fiberglass reinforced architectural panels. Color to be selected by Owner/Architect from manufacturer's full range of standard colors.
62. **(Q):** Please provide 12 20 00 Window Treatment Specifications in order to understand drawing requirements.
(A): Window treatments are excluded from the scope of work. Owner to provide window treatments as part of the FFE package.
63. **(Q):** Clarification: Whiting-Turner will provide a competitive proposal from a qualified asbestos abatement contractor for the Owner's consideration; however, the asbestos abatement work is to be Owner-contracted. The Owner will enter into a direct agreement with the abatement contractor, and the asbestos abatement scope is excluded from Whiting-Turner's contract value and responsibility.
(A): To qualify as a responsive bidder, Contractors must submit pricing to furnish all necessary labor and materials to construct and complete the full scope of work in strict accordance with the contract documents, including all abatement services. The general contractor is responsible for engaging and coordinating all trades required to complete the work.
64. **(Q):** Please clarify locations + estimated sq. ft of required gypsum deck patching on roof.
(A): Contractor is responsible for patching areas of the existing roof deck as indicated on the architectural and structural plans. Contractor to provide unit pricing for gypsum deck repairs to be completed above and beyond those areas indicated on the drawings, in accordance with Specification Section 01 22 00 "Unit Prices".
65. **(Q):** Subcontractor wants to provide a VE option for the overhead roller door. Please clarify if this is acceptable.
(A): Contractor may submit a formal substitution request for Owner/Architect consideration.

66. (Q): Please clarify whether GC will be responsible for the installation or/coordination of the wifi antenna removal and reinstallation.
(A): **Public WiFi antenna is to be removed and reinstalled by the Owner. Contractor to coordinate with roofing replacement.**
67. (Q): Please clarify whether GC will be responsible for any landscaping/repair of greenery around front entrance.
(A): **No landscaping is anticipated beyond permanent seeding at the front of the building as required to patch the lawn disturbed by construction activities.**

MODIFICATIONS TO BID DOCUMENTS

1. **DELETE:** Pages 87-89 of the BID BOOK (C. Bid or Proposal)
REPLACE: Pages 87-89 (C. Bid or Proposal) Attachment No. 1

MODIFICATIONS TO THE DRAWINGS

1. Drawing C-01 "Site Plan"
REMOVE: Drawing C-01 in its entirety
INSERT: Revised Drawing C-01 in its entirety
NOTE: Updated hatch to identify extents of new sidewalk, Added asphalt patch detail
2. Drawing A101 "Floor Plan"
REMOVE: Drawing A101 in its entirety
INSERT: Revised Drawing A101 in its entirety
NOTE: Updated reference to masonry infill detail
3. Drawing A201 "Elevations"
REMOVE: Drawing A201 in its entirety
INSERT: Revised Drawing A201 in its entirety
NOTE: Updated Door 117B elevation
4. Drawing M100 "Mechanical New Work Plan"
REMOVE: Drawing M100 in its entirety
INSERT: Revised Drawing M100 in its entirety
NOTE: Supply cfm has been adjusted for RTU-1 and RTU-2 diffusers
5. Drawing P000 "Plumbing General Notes Legend"
REMOVE: Drawing P000 in its entirety
INSERT: Revised Drawing P000 in its entirety
NOTE: Revised general plumbing note #13.

6. Drawing P001 "Plumbing Schedules"
REMOVE: Drawing P001 in its entirety
INSERT: Revised Drawing P001 in its entirety
NOTE: Updated water supply pipe sizing for water closets and added additional information regarding acceptable materials for above ground water and drainage piping.
7. Drawing PD100 "Plumbing Floor Plan Demolition"
REMOVE: Drawing PD100 in its entirety
INSERT: Revised Drawing PD100 in its entirety
NOTE: Updated demolition note #4.
8. Drawing P101 "Plumbing Roof Plan New Work"
REMOVE: Drawing P101 in its entirety
INSERT: Revised Drawing P101 in its entirety
NOTE: Notes added to address painting of the exposed gas piping. Notes added to address condensate drainage.
9. Drawing P200 "First Floor- New Work Plumbing Part Plans"
REMOVE: Drawing P200 in its entirety
INSERT: Revised Drawing P200 in its entirety
NOTE: Notes added to address condensate drainage.
10. Drawing P300 "Plumbing Riser Diagrams"
REMOVE: Drawing P300 in its entirety
INSERT: Revised Drawing P300 in its entirety
NOTE: The gas riser diagram has been updated to match the heating capacity gas input noted on the packaged rooftop unit schedule on M200. Code reference has been updated to reference 2021 IFGC. Pipe sizes have been updated on the domestic water diagram.

MODIFICATIONS TO THE SPECIFICATIONS

1. Specification Section 01 21 00 "Allowances"
ADD: Specification Section 01 21 00 "Allowance" in its entirety
2. Specification Section 06 20 00 "Finish Carpentry"
REMOVE: Specification Section 06 20 00 "Finish Carpentry"
INSERT: Revised Specification Section 06 20 00 "Finish Carpentry" in its entirety
NOTE: References to painted interior finish carpentry have been deleted.
3. Specification Section 07 53 23 "Flexible Sheet Roofing TPO Membrane"
REMOVE: Specification Section 07 53 23 "Flexible Sheet Roofing TPO Membrane"
INSERT: Revised Specification Section 07 53 23 "Flexible Sheet Roofing TPO Membrane" in its entirety

NOTE: Insulation requirements updated to coordinate with drawing detail.

4. Specification Section 09 30 00 "Tiling"
REMOVE: Specification Section 09 30 00 "Tiling"
INSERT: Revised Specification Section 09 30 00 "Tiling" in its entirety
NOTE: Inapplicable product references have been deleted, and product information has been updated
5. Specification Section 09 91 00 "Painting"
REMOVE: Specification Section 09 91 00 "Painting"
INSERT: Revised Specification Section 09 91 00 "Painting" in its entirety
NOTE: Product information has been added to the product and surface schedule
6. Specification Section 10 21 15 "Composite Toilet Compartments"
REMOVE: Specification Section 10 21 15 "Composite Toilet Compartments"
INSERT: Revised Specification Section 10 21 15 "Composite Toilet Compartments" in its entirety.
NOTE: Product information has been updated
7. Specification Section 23 31 19 "HVAC Casings"
DELETE: Specification Section 23 31 19 "HVAC Casings" in its entirety

ADDITIONAL DOCUMENTS

1. **ADD:** Exhibit A - EA Harford Senior Center Hazmat Survey

END OF ADDENDUM NO. 2

NOTE: NO INFORMATION OTHER THAN THAT INCLUDED IN OR ATTACHED TO THIS ORIGINAL BID DOCUMENT (WHERE SUCH ATTACHMENT IS PERMITTED) WILL BE USED IN DETERMINING AWARD.

ORIGINAL (NOT TO BE DETACHED)
NOTICE TO BIDDERS

CITY OF BALTIMORE
DEPARTMENT OF GENERAL SERVICES

THE COMPLETE (ORIGINAL) CONTRACT BOOK AND DUPLICATE OF BID OR PROPOSAL MUST BE INCLUDED IN THE BID ENVELOPE

CONTRACT NUMBER PRJ000889
HARFORD SENIOR RENOVATION & ENVELOPE UPGRADES

A. BID PRICES

C. BID OR PROPOSAL

Proposal of _____

Address _____

Made this _____ day of _____ 20____

Bid Due **WEDNESDAY, AUGUST 5, 2026**

Certified Check or Bank Cashier's Check or Bank Treasurer's Check or Bid Bond: Equal to two percent (2%) of the Total Bid Submitted.

Project Completion Time: **365** consecutive calendar days

Liquidated Damages: **\$ 1,500.00** per consecutive calendar day

To the Board of Estimates of Baltimore City:

_____ propose to furnish all necessary labor and materials, tools, implements, tackle, equipment and machinery, and to construct and complete the **PRJ000889 – Harford Senior Renovation & Envelope Upgrades** at **4920 Harford Road, Baltimore, MD 21214**, all in strict accordance with the attached contract documents, at and for the lump sum base bid price of:

A. Harford Senior Renovation & Envelope Upgrades Base Bid:

_____ Written Words	(\$ _____) Numerical
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ALTERNATES**PLEASE REFER TO THE SPECIFICATIONS SECTION 01 23 00 – ALTERNATES****A. ALTERNATE NO. 1: Storefront Replacement and Awning**

The Contractor shall provide all labor, material, equipment and services necessary and incidental to the demolition of the existing exterior storefront system and existing awning at the east elevation, the construction of the new exterior storefront system and sun shade devices at the east elevation of the building, and the installation of prefabricated canopy structures with integral lighting and drainage at the east and west entrances.

	(\$ _____)
Written Words	Numerical

B. ALTERNATE NO. 2: New Building Identification Sign

The Contractor shall provide all labor, material, equipment and services necessary and incidental to the construction of the new exterior, cast letter building identification signage as indicated on the drawings and in section 10 14 00 – Signage.

	(\$ _____)
Written Words	Numerical

Note: In the case of adding alternates to the contract, Contractors are required to maintain the MBE goal of 24% , and the WBE goal of 10% for the total amount of each awarded alternate.

The foregoing prices are to include and cover the furnishing of all materials and labor requisite and proper, and the providing of all necessary machinery, tools, apparatus and means for performing the work and the doing of all the above-mentioned work as set forth and described in the Contract Documents.

Basis of Award: The City reserves the right to award the contract based on the Base Bid alone or the lowest responsive and responsible bid resulting from the Base Bid combined with any selected Alternate or combination of Alternates.

UNIT PRICES**PLEASE REFER TO THE SPECIFICATIONS SECTION 01 22 00 – UNIT PRICES**

List of Unit Prices: Provide a cost for each unit price item on the Bid Form.

Unit Price #1: Wood Blocking

The unit price shall represent the total cost to furnish and install 2x8 pressure treated, fire retardant rough lumber blocking at locations that are above and beyond the blocking indicated in the contract documents; and at the direction of the Owner or Owner's Representative. Payment will be made for the actual quantity of material installed measured by the linear foot. Estimated quantity of additional blocking to be included: (50) linear feet.

Per linear foot, \$_____

Unit Price #2: Gypsum Deck Repairs

Provide all labor, material, equipment, and services necessary and incidental to replace portions of damaged gypsum decking with new gypsum panels and reinforcing. Payment will be made for the actual quantity of decking repairs measured by the square foot. Estimated quantity of gypsum decking to be included: (50) square feet.

Per square foot, \$_____

Unit Price #3: Patch existing concrete slab

Provide all labor, material, equipment, and services necessary and incidental to repair portions of the existing concrete slab with new cast in place concrete and reinforcing. Payment will be made for the actual quantity of slab repair measured by the square foot. Estimated quantity of concrete slab repair to be included: (50) square feet.

Per square foot, \$_____

Note: Each and every person Bidding and Named above must sign here.

In case of Firms, give the first and last name of each member, in full, with Title.

In case a Bid shall be submitted by or in behalf of any Corporation, it must be signed in the name of such Corporation by some authorized Officer or Agent, thereof, who shall also subscribe his Name and Title. If practicable, the Seal of the Corporation shall be affixed.

In case a Bid shall be submitted by joint venture ("JV"), the document that established the JV must be submitted with the bid for verification purposes, and Officers or Agents of all of the firms that are part of the Joint Venture must sign below as acknowledgement of their participation in this bid.

WITNESS _____ (SIGNED) _____

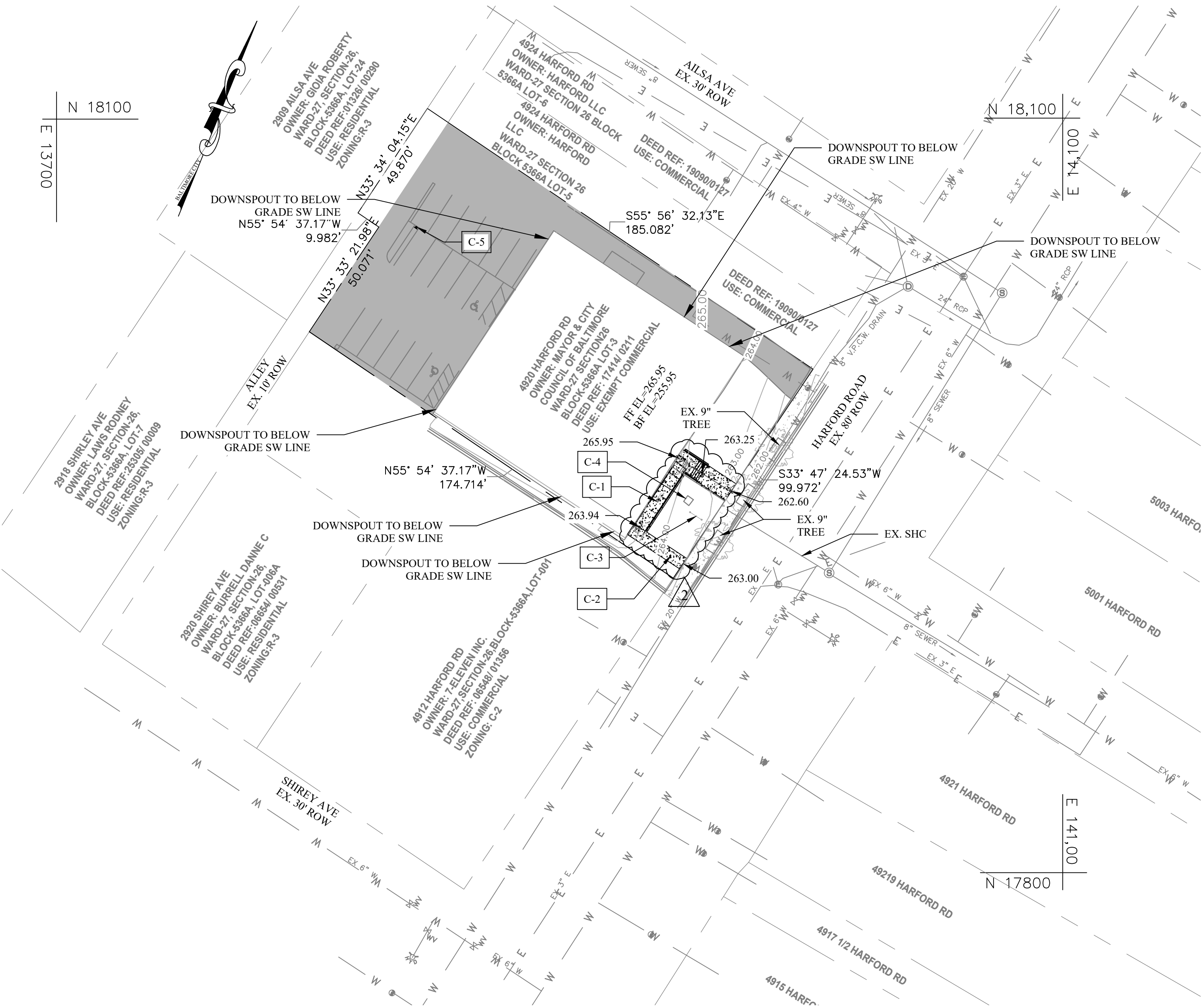
(TITLE) _____

WITNESS _____ (SIGNED) _____

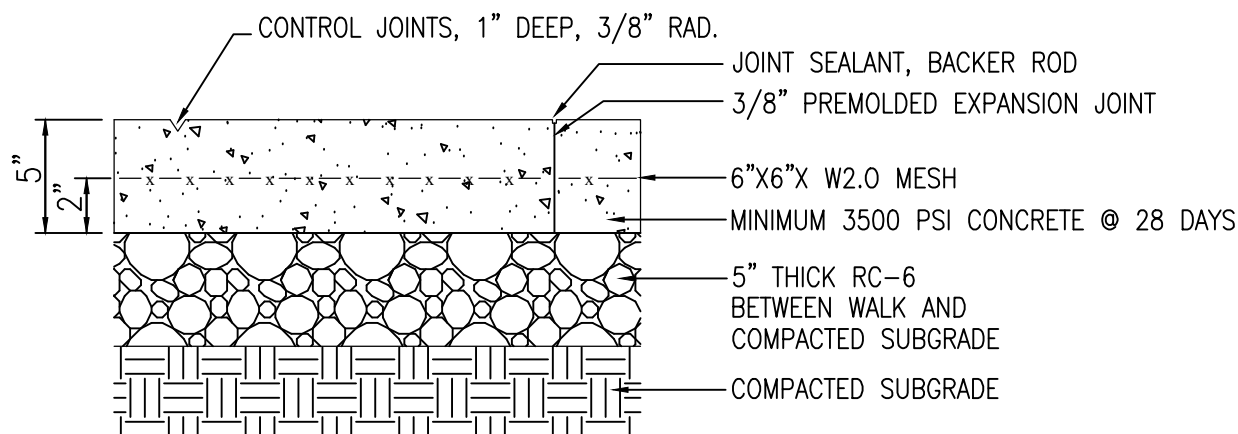
(TITLE) _____

WITNESS _____ (SIGNED) _____

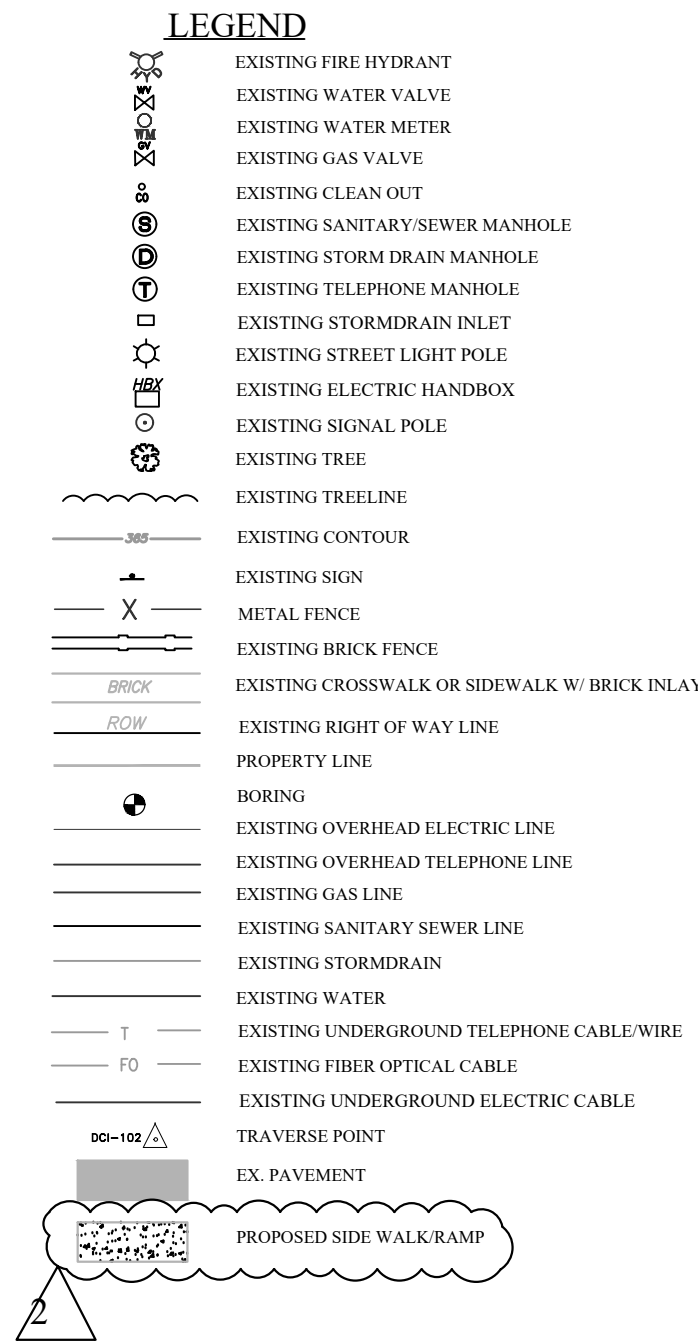
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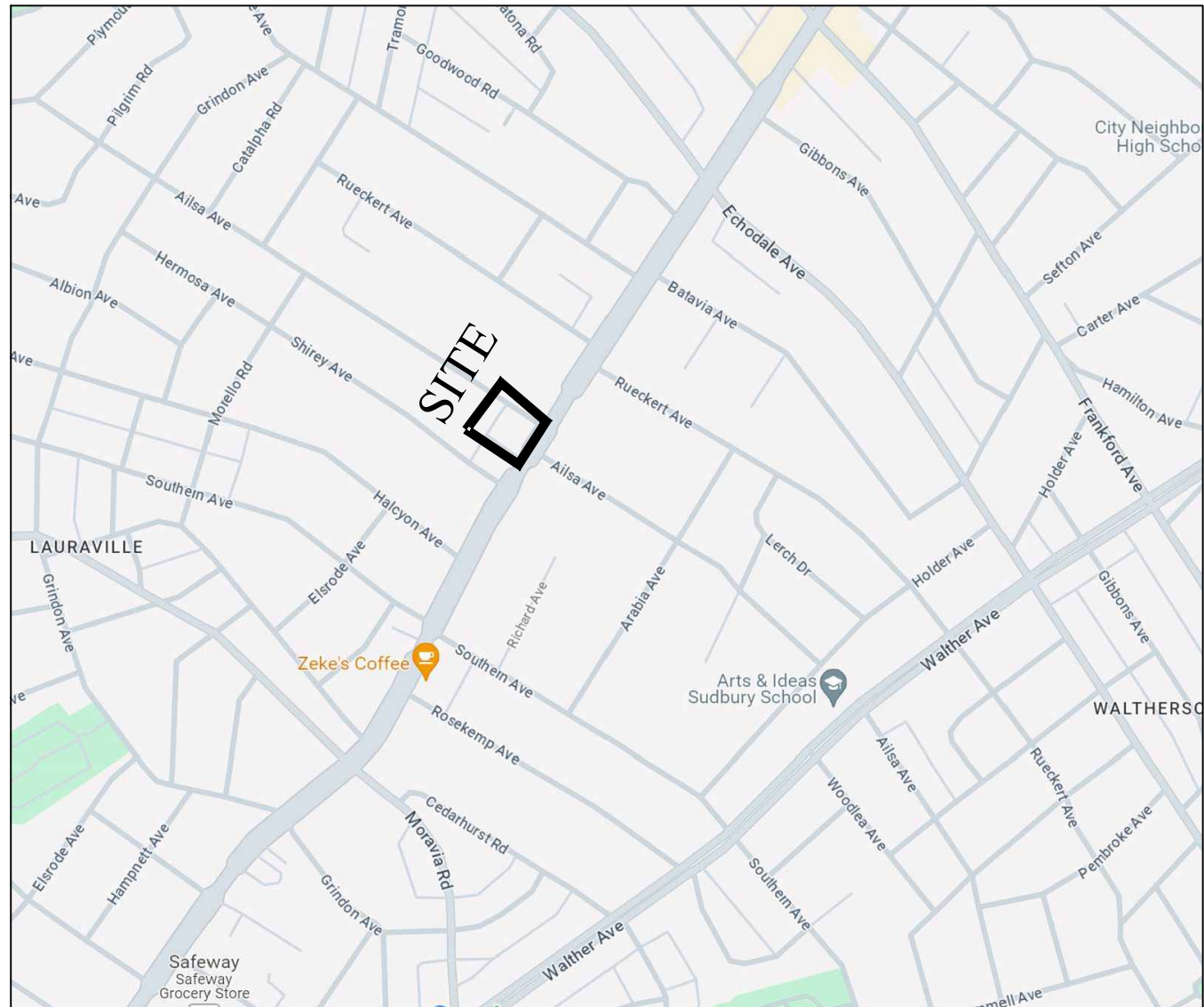
SITE PLAN
SCALE: 1" = 30'



1 CONCRETE WALKWAY
NOT TO SCALE



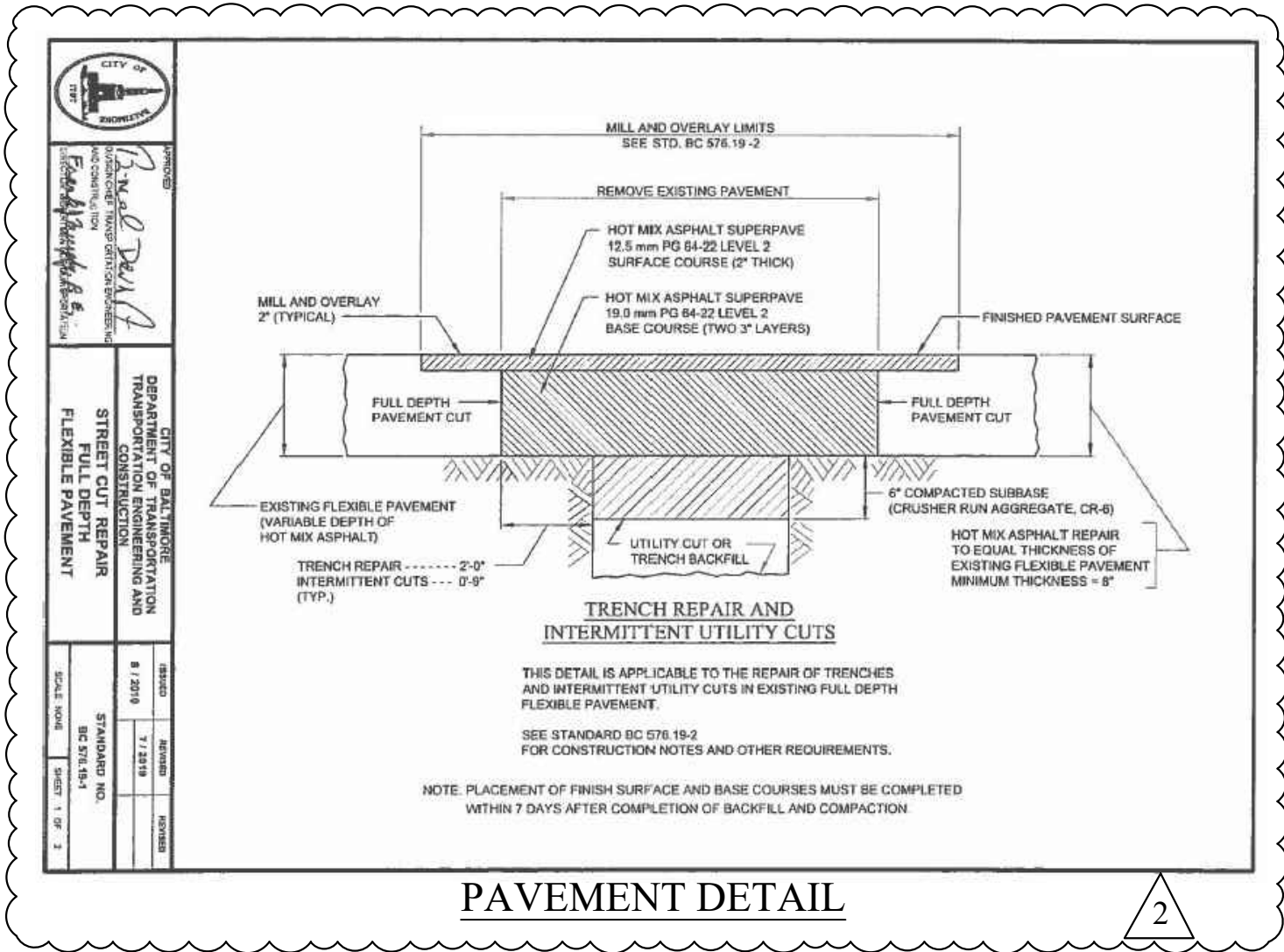
CONSTRUCTION NOTES
C-1: NEW ADA RAMP (MAX 12:1), SEE ARCHITECTURAL PLANS.
C-2: CONCRETE SIDEWALK (MAX 20:1), SEE DETAIL THIS SHEET.
C-3: EXISTING SIGN TO REMAIN.
C-4: EXISTING FLAGPOLE AND CONCRETE BASE TO BE REMOVED.
C-5: BICYCLE PARKING ONLY SIGN TO BE INSTALLED.



VICINITY MAP
SCALE: 1" = 500'

GENERAL NOTES

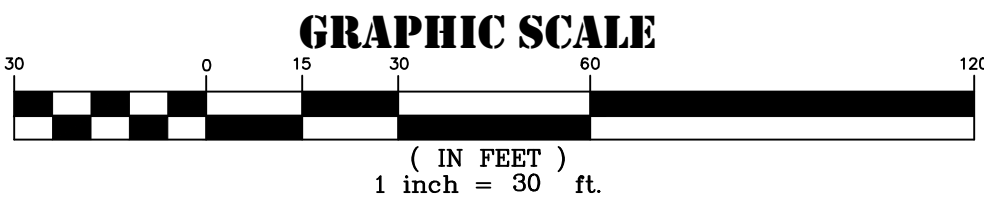
- SITE ADDRESS: 4920 HARFORD ROAD, BALTIMORE, MD 21214
- OWNER: MAYOR & CITY COUNCIL OF BALTIMORE, 1001 E FAYETTE ST, BALTIMORE, MD, 21202
- DEVELOPER: 4920 HARFORD ROAD, INC.
- PRESENT ZONING: C-2
- NO PROPOSED ZONING CHANGE.
- SITE AREA: 17993 SQFT OR 0.41 AC+/-
- DEED REF: 17414/ 0211
- USE: SENIOR CENTER
- EXISTING/EXEMPT COMMERCIAL
- PURPOSE OF PLAN: NEW ADA ENTRANCE TO BUILDING.
- PROPOSED IMPERVIOUS AREA: WALKWAY: 480 SQFT
- BUILDING LOT COVERAGE: EXISTING: 7923 SQFT
- BUILDING FLOOR AREA: 7845 SQFT OR 0.18 AC
- VEHICLE PARKING CALCULATIONS: REQUIRED: N/A
- PROVIDED: 16 SPACES INCLUDING 2 HANDICAP SPACE
- BICYCLE PARKING CALCULATIONS: REQUIRED: 1 PER 10000 GFA (1 SPACE)
- PROVIDED: 1 SPACE
- EXISTING PUBLIC UTILITIES FOR THE SITE ARE TO BE UTILIZED.
- SITE DOES NOT LIE WITHIN THE CHESAPEAKE BAY CRITICAL AREA.
- NO FLOODPLAIN ON SITE.
- CONTRACTOR TO FLUSH OUT THE EXISTING STORM DRAIN LINES.
- CONTACT PERSON: MAYOR AND CITY COUNCIL OF BALTIMORE, 1001 E FAYETTE ST, BALTIMORE MD 21202



PAVEMENT DETAIL

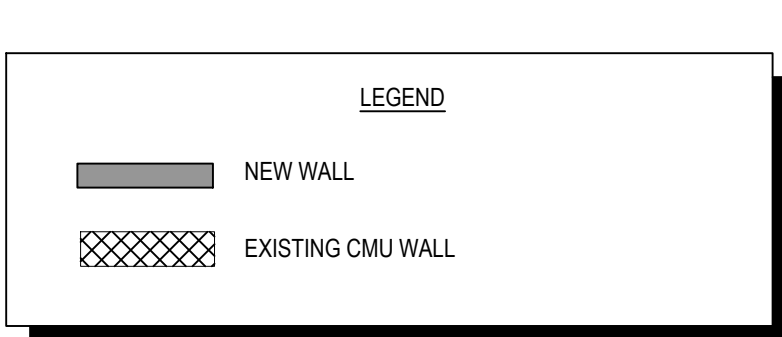
BENCH MARKS

THE BEARINGS SHOWN ON THIS SURVEY ARE IN BALTIMORE CITY CO-ORDINATES SYSTEM				
STATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
DCI-101	18007.7818	13988.07	263.2200	IRON NAIL
DCI-102	18043.8292	13931.19	265.8500	IRON NAIL



CONSULTANTS:

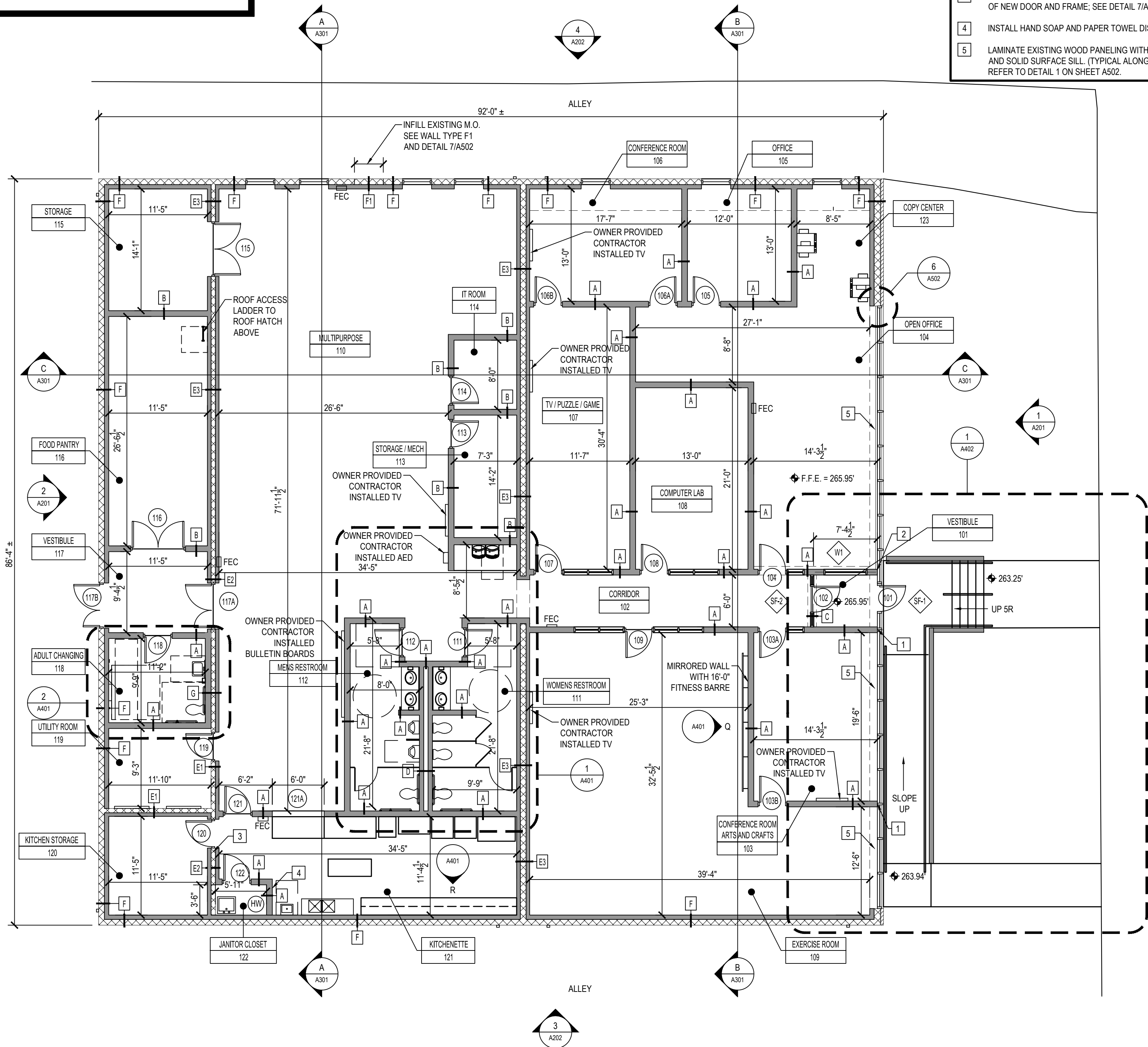
NO	DATE	DESCRIPTION
2	8/07/2026	ADDENDUM NO.2



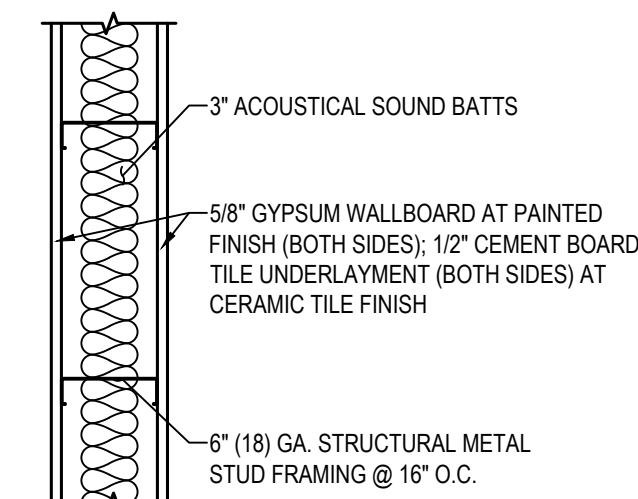
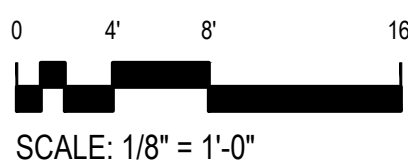
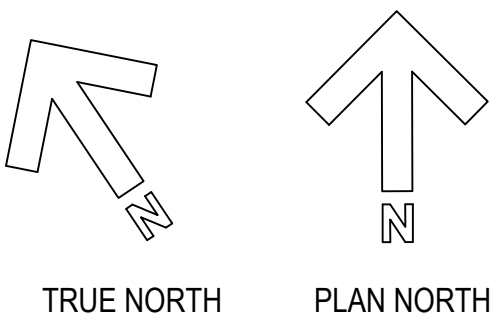
GENERAL NOTE:
CONTRACTOR TO SCRAPE ENTIRE EXISTING CONCRETE SUB FLOOR AND APPLY CEMENTITIOUS SELF-LEVELING COMPOUND TO ACHIEVE SUITABLE SUBSTRATE FOR INSTALLATION OF NEW FLOORING FINISHES.

KEYED NOTES:

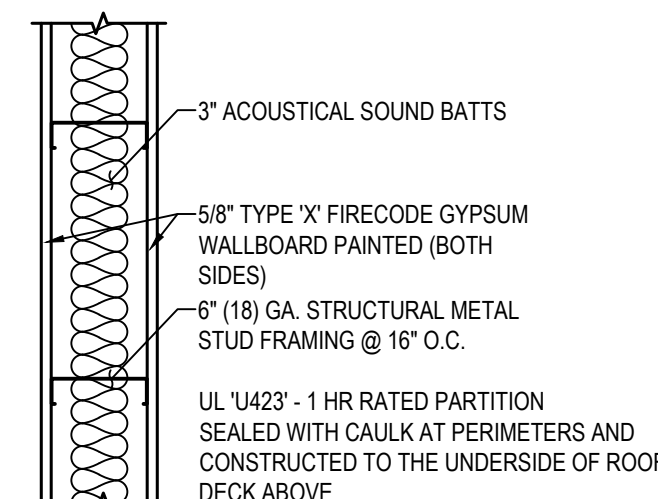
- 1 CENTER WALL ON MULLION. PROVIDE ALUMINUM PARTITION CLOSURE AT EXISTING STOREFRONT MULLION. SEE DETAIL 2 ON SHEET A502.
- 2 PROVIDE ALUMINUM PARTITION CLOSURE AT EXISTING STOREFRONT GLAZING. SEE DETAIL J14 ON SHEET A602.
- 3 TOOTH-IN PARTIAL EXISTING MASONRY OPENING IN PREPARATION FOR THE INSTALLATION OF NEW DOOR AND FRAME; SEE DETAIL 7/A502
- 4 INSTALL HAND SOAP AND PAPER TOWEL DISPENSER FOR KITCHENETTE HAND SINK
- 5 LAMINATE EXISTING WOOD PANELING WITH 1/4" GWB. INSTALL NEW RESILIENT WALL BASE AND SOLID SURFACE SILL. (TYPICAL ALONG ENTIRE LENGTH OF EXISTING STOREFRONT)- REFER TO DETAIL 1 ON SHEET A502.



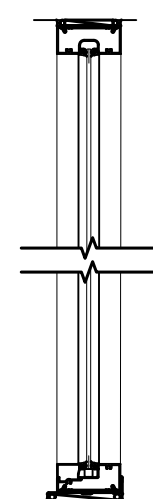
FLOOR PLAN
SCALE: 1/8"=1'-0"



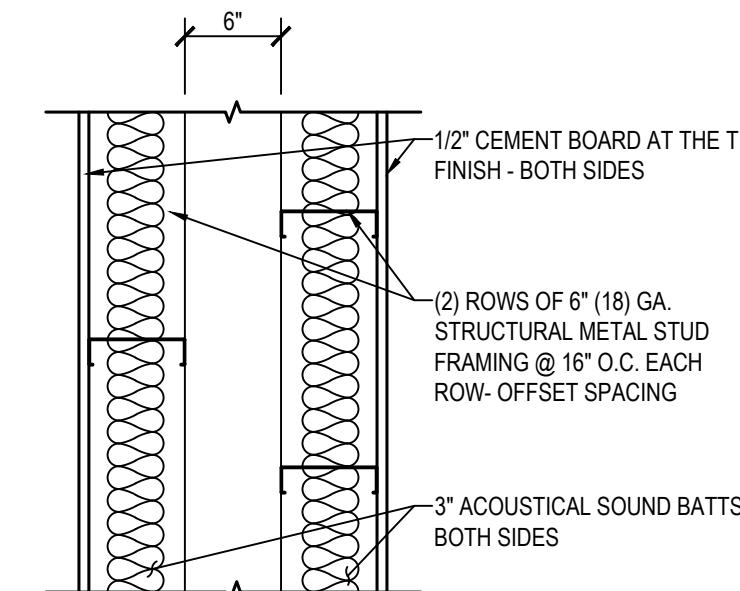
STC 45
A WALL CONSTRUCTED TO UNDERSIDE OF ROOF DECK



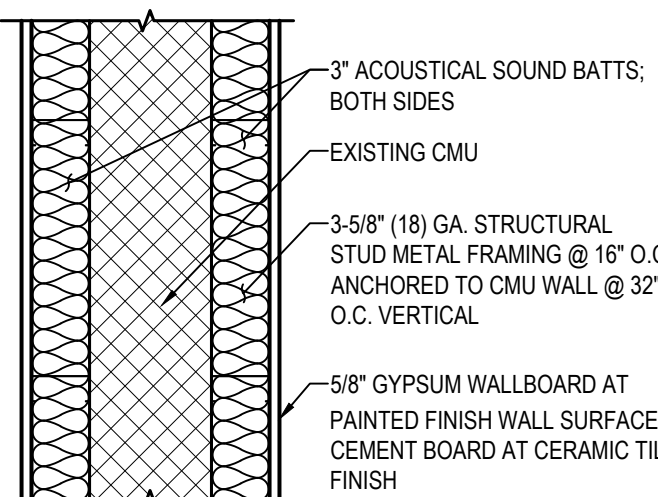
STC 45
B WALL CONSTRUCTED TO UNDERSIDE OF ROOF DECK



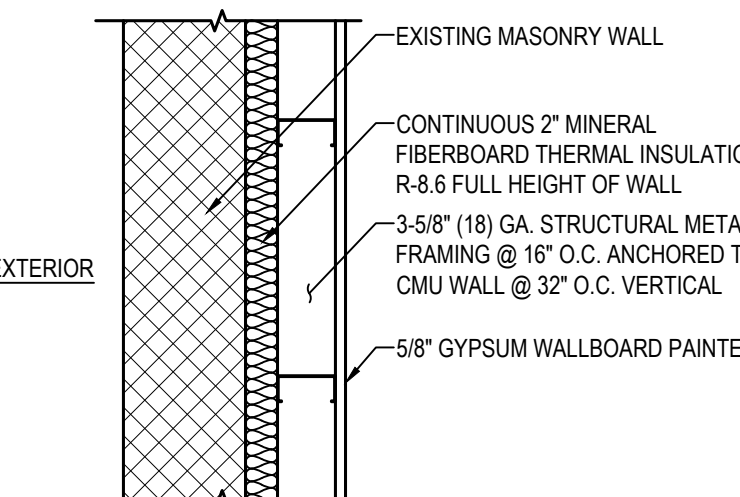
STC 33
C INTERIOR STOREFRONT FRAMING SYSTEM



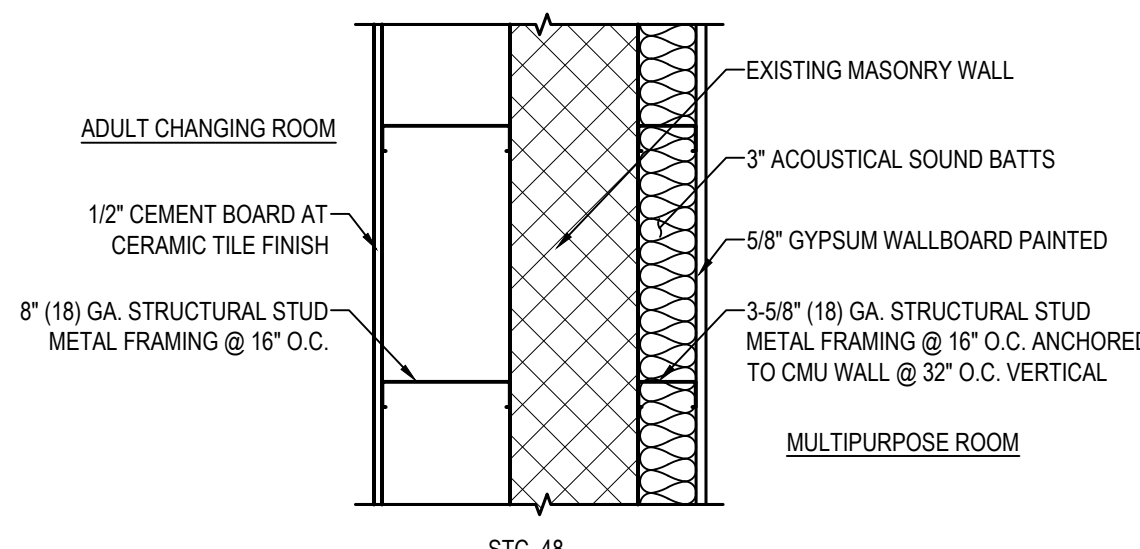
STC 56
D CHASE WALL CONSTRUCTED TO UNDERSIDE OF ROOF DECK



STC 53
E1 FURRED OUT WALL ONE SIDE FROM FINISH FLOOR TO 4' ABOVE CEILING
E2 FURRED OUT WALLS BOTH SIDES FROM FINISH FLOOR TO 4' ABOVE CEILING
E3 FURRED OUT WALLS BOTH SIDES AND FLOOR TO UNDERSIDE OF ROOF DECK



STC 48
F CONSTRUCT WALL FROM FINISH FLOOR TO UNDERSIDE OF ROOF DECK
F1 INFILL EXISTING MASONRY WALL OPENING WITH 8" CMU SEE DETAIL 7 ON SHEET A502



STC 48
G CONSTRUCT WALL FROM FINISH FLOOR TO 4' ABOVE CEILING UNLESS OTHERWISE NOTED

WALL TYPES
SCALE: 1"=1'-0"

NOTE: ALL GWB TO BE INSTALLED WITHIN RESTROOM/WET AREAS IS TO BE WATER AND MOLD RESISTANT GWB

"PROFESSIONAL CERTIFICATION:
I CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM
A DULY LICENSED ARCHITECT UNDER THE LAWS
OF THE STATE OF MARYLAND, LICENSE NUMBER
21386, EXPIRATION DATE 01/11/2027."

ALL REPRODUCTION IS PROHIBITED

CITY OF BALTIMORE
DEPARTMENT OF
GENERAL SERVICES
CAPITAL PROJECTS
DIVISION

NO	DATE	DESCRIPTION
2	8/7/26	ADDENDUM #2

HARFORD SENIOR CENTER
RENOVATIONS
4920 HARFORD RD., BALTIMORE, MD 21214
PROJECT NO. PRJ000889

FLOOR PLAN

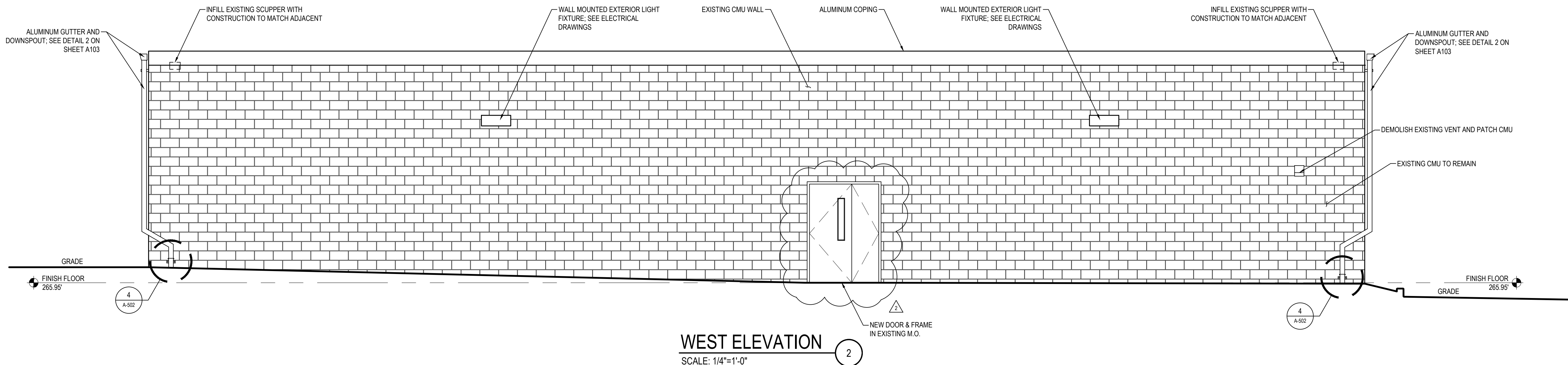
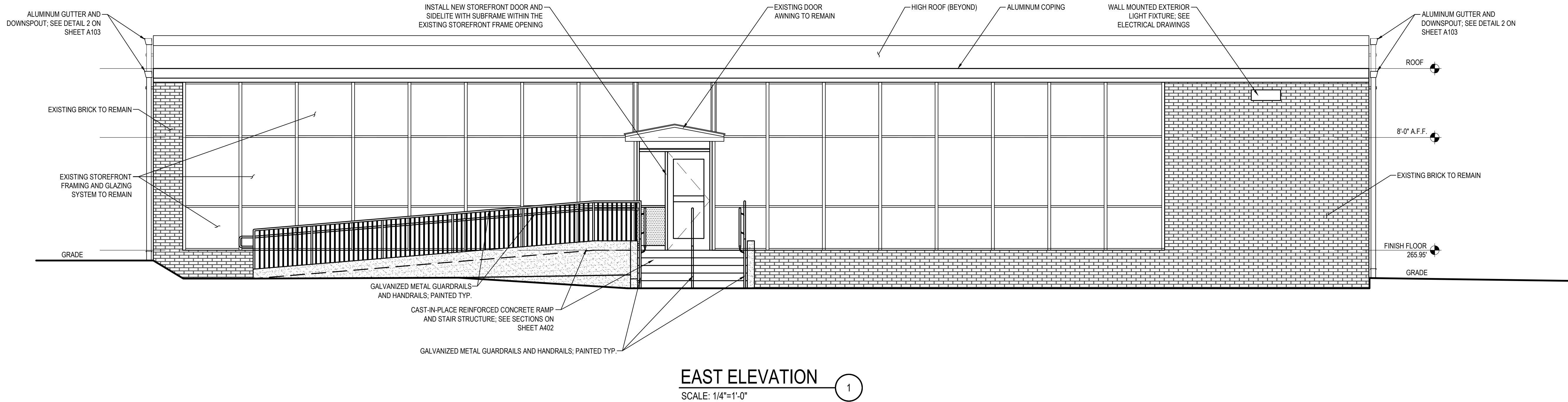
3/12/26

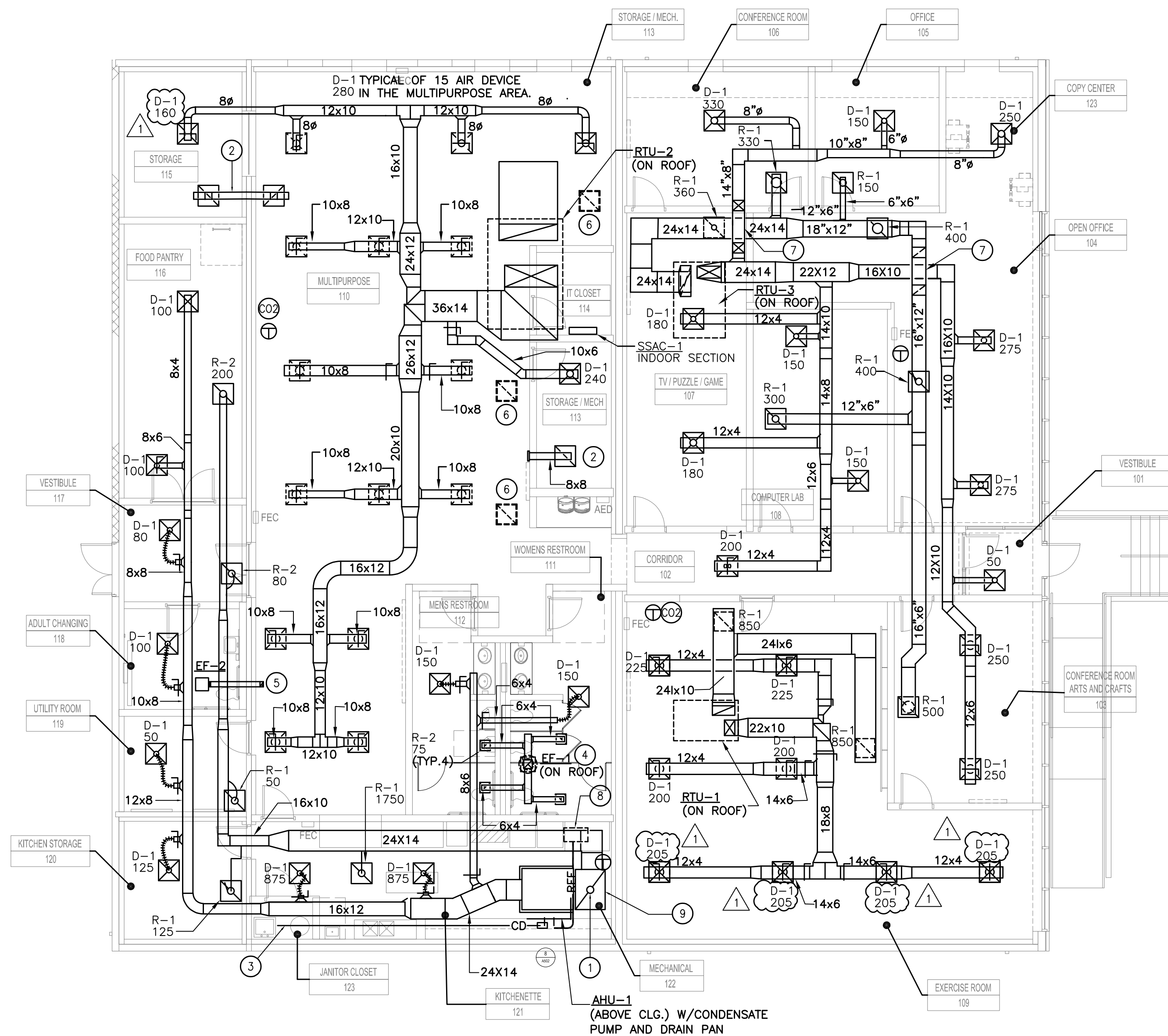
SHEET
A101

7 OF 51

NO	DATE	DESCRIPTION
2	8/7/26	ADDENDUM #2

GENERAL NOTE:
CONTRACTOR TO REMOVE ALL EXISTING WALL PENETRATIONS AS INDICATED ON
THE ELEVATIONS AND PATCH THE EXISTING CMU WALL PER SPECIFICATIONS WITH
CONSTRUCTION TO MATCH ADJACENT.





MECHANICAL FLOOR PLAN -NEW WORK
SCALE: 1/8"=1'-0"

GENERAL NOTES

THE MULTIPURPOSE ROOM HAS A RETURN AIR PLENUM CEILING. ALL DISCIPLINES SHALL BE ENSURED TO USE MATERIALS RATED FOR A PLENUM CEILING.

DRAWING NOTES

- 6" Ø OA DUCT UP TO ROOF. BALANCE OA TO 75 CFM. PROVIDE BACKDRAFT DAMPER AND GOOSENECK ABOVE ROOF. SEE DETAIL DWG M-300
- TRANSFER AIR DUCT. SEE DETAIL DWG. M-400.
- ROUTE 3/4" CONDENSATE PIPING TO MOP SINK AS INDICATED.
- 10x10 EXHAUST DUCT UP THRU ROOF TO CONNECT TO EF-1.
- 6x4 EXHAUST DUCT UP THRU ROOF TO GOOSENECK.SEE DETAIL DWG M-300
- RETURN AIR PLENUM USE FOR THE MULTI PURPOSE ROOM
- CROSSING OF DUCTWORK IS LOCATED BETWEEN THE JOIST STRUCTURE
- HP-1 ON THE ROOF
- RETURN AIR PLENUM

Professional Certification:
I certify that these documents were prepared or approved by me, and that I am a duly licensed engineer under the laws of the State of Maryland, license number 05-16001, expiration date 4-26-26.

NO	DATE	DESCRIPTION
1	4/29/2026	REVISION 1

GENERAL PLUMBING NOTES

1. ALL MATERIALS AND THEIR INSTALLATION WILL CONFORM TO THE MOST CURRENT JURISDICTION-APPROVED VERSION OF THE INTERNATIONAL PLUMBING CODE (IPC), NATIONAL STANDARD PLUMBING CODE (NSPC), OR WASHINGTON SUBURBAN SANITARY COMMISSION (WSSC) PLUMBING AND FUEL GAS CODE, ANY CITY/STATE VARIATIONS, PROVISIONS AND/OR AMENDMENTS, ALL RELEVANT ICC, NFPA, AWWA, UL, ASME, AND ASSE REQUIREMENTS, AND ANY LOCAL AUTHORITIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND INSPECTIONS AS REQUIRED BY THESE DESIGN DOCUMENTS.
3. EXCEPT WHERE EXPLICITLY INDICATED ON THE DRAWINGS. ALL PIPING SHOWN IS AS IT ACTUALLY OCCURS WITHIN THE BUILDING. PROPOSED PLUMBING WORK SHALL BE COORDINATED WITH EXISTING CONDITIONS IN ORDER TO INSURE PROPER INSTALLATION.
4. ALL PIPING SHALL HAVE ITS SLOPE AND INVERTS ESTABLISHED PRIOR TO INSTALLATION OF ANY PIPING; SLOPES AS REQUIRED SHALL BE MAINTAINED. COORDINATE ALL PIPING WITH ALL OTHER TRADES PRIOR TO THE COMMENCEMENT OF WORK. REFER TO ARCHITECTURAL PLANS BEFORE BEGINNING ANY WORK.
5. THE WORK AREA WILL BE LEFT BROOM CLEAN AT THE END OF EACH WORK DAY AND ALL TRASH AND DEBRIS SHALL BE DISPOSED OF IN AN APPROPRIATE MANNER; CONTRACTOR WILL CHECK WITH THE BUILDING OWNER AND/OR MANAGER TO DETERMINE IF THERE ARE ANY SPECIFIC DISPOSAL REQUIREMENTS FOR TRASH. DURING CONSTRUCTION.
6. ALL EQUIPMENT AND MATERIALS PROVIDED BY THE CONTRACTOR SHALL BE NEW; THERE WILL BE NO ALLOWANCE FOR REUSED MATERIAL UNLESS EXPLICITLY INDICATED OTHERWISE BY THE ENGINEER OR OWNER. SHOULD IT BE DETERMINED THAT THE CONTRACTOR IS INSTALLING USED EQUIPMENT WITHOUT PERMISSION, THEN THEY WILL BE REMOVED FROM THE PROJECT. IN ADDITION, SUBMITTALS FOR ALL NEW EQUIPMENT AND MATERIALS WILL BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO PURCHASE AND INSTALLATION.
7. THE CONTRACTOR IS RESPONSIBLE FOR RESEARCHING THE DRAWINGS TO DETERMINE THE QUANTITY OF ALL PLUMBING ITEMS REQUIRED. NOTE THAT THE SYMBOLS SHOWN ON THE SCHEDULES DEFINE THE TYPE OF EQUIPMENT PRESENT, NOT THE QUANTITY.
8. THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIAL IN ORDER TO PROVIDE FOR THE PROPER INSTALLATION OF ALL PLUMBING EQUIPMENT. DISCREPANCIES AS TO WHAT IS REQUIRED AS TO WHAT IS INDICATED ON THE PLANS WILL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK IN ORDER THAT THE ENGINEER MAY CLARIFY THE INTENTION OF THE DESIGN. THIS MUST BE DONE PRIOR TO THE SUBMISSION OF FINAL BIDS. IF THE CONTRACTOR DOES NOT BRING TO THE ENGINEER'S ATTENTION IMMEDIATELY ANY POTENTIAL DISCREPANCIES PRIOR TO THE SUBMISSION OF FINAL BIDS, THEN THE CONTRACTOR HAS ACCEPTED THE DRAWINGS AS SUFFICIENT AND ANY CHANGE ORDERS DURING THE CONSTRUCTION PHASE WILL NOT BE ACCEPTED.
9. ALL EQUIPMENT/MATERIAL INSTALLED WITHIN A RETURN AIR PLENUM WILL BE RATED FOR THIS TYPE OF INSTALLATION.
10. THE CONTRACTOR SHALL PROVIDE AND INSTALL ACCESS PANELS FOR PLUMBING ITEMS AND ALL SHUT-OFF VALVES IN WALLS OR ABOVE CEILING WITHIN THE SCOPE OF THE CONTRACTOR'S WORK; ACCESS PANEL DIMENSIONS WILL ACCOMMODATE UNIT REMOVAL/REPAIR.
11. THE CONTRACTOR WILL PROVIDE ALL PUMP CONTROLLERS, DISCONNECTS, AND ANY OTHER ELECTRICAL DEVICES NEEDED FOR THE PROPER INSTALLATION OF ANY EQUIPMENT WITHIN THE SCOPE OF THESE DESIGN DOCUMENTS. ELECTRICAL CONTRACTOR WILL INSTALL DEVICES AND PROVIDE FINAL CONNECTIONS.
12. THE CONTRACTOR WILL INSTALL ALL PLUMBING EQUIPMENT IN A MANNER AS TO MAINTAIN THE FACTORY RECOMMENDED CLEARANCES ABOUT THE UNIT TO ALLOW FOR SERVICEABILITY. CONTACT THE ENGINEER IF IT IS DETERMINED THAT A UNIT INSTALLATION IS IMPEDING (OR BEING IMPEDED) FUTURE SERVICEABILITY SUCH THAT THE ITEM CAN BE RESOLVED.

- 2
13. CONTRACTOR TO CLEAN ALL EXISTING FLOOR DRAINS AND REPAIR OR REPLACE ANY DRAINS THAT ARE DAMAGED. SNAKE ALL FLOOR DRAINS
14. CONTRACTOR SHALL IDENTIFY ANY ISSUES WITH THE SLOPING OF THE PLUMBING PIPING PRIOR TO FINAL BID.

PLUMBING SYMBOLS AND ABBREVIATIONS

	DOMESTIC COLD WATER	AFF	ABOVE FINISHED FLOOR
	DOMESTIC HOT WATER	ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
	DOMESTIC HOT WATER RETURN	ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
	GAS PIPING	ATC	AUTOMATIC TEMPERATURE CONTROLS
	SANITARY VENT PIPING	ATM	ATMOSPHERE
	SANITARY PIPING	AUX	AUXILIARY
	COMPRESSED AIR	BHP	BRAKE HORSEPOWER
	FORCED MAIN	BM	BELL MOUTH
	PUMP DISCHARGE	BTUH	BRITISH THERMAL UNIT/HOUR
	GREASE WASTE	C	CONDUIT
	FOUNDATION DRAINAGE PIPE	CMXL	COMBINATION MAGNETIC ACROSS THE LINE STARTER
	SPRINKLER PIPE	COND	CONDENSATE
	CONNECT TO EXISTING	CTR	CENTER
	DEMOLITION	CU FT	CUBIC FEET
	GATE VALVE	CU IN.	CUBIC INCH
	CHECK VALVE	CW	COLD WATER
	PRESSURE REDUCING VALVE	CX	CONNECT TO EXISTING
	GAS COCK	DB	DRY BULB TEMPERATURE
	BALANCING VALVE	DDC	DIRECT DIGITAL CONTROL
	BACKFLOW PREVENTER	DEG	DEGREE(S)
	PIPE UP	DN	DOWN
	PIPE DOWN	DX	DIRECT EXPANSION
	PIPE TEE DOWN	EX	EXISTING
	SHOCK ABSORBER	EA	EACH
	BALANCE VALVE	EAT	ENTERING AIR TEMPERATURE
	BALANCE VALVE ASSEMBLY	EFF	EFFICIENCY
	DRAIN TRAP PRIMER	EQUIP	EQUIPMENT
	INVERT ELEVATION	ESP	EXTERNAL STATIC PRESSURE
	INDICATES TYPE, REFER TO SCHEDULE	FLEX	FLEXIBLE
	FLOOR DRAIN	FO	FLAT OVAL
	FLOOR SINK	FOB	FLAT ON BOTTOM
	CLEANOUT	FOT	FLAT ON TOP
	SANITARY RISER	FP	FIRE PROTECTION
	FIRE STANDPIPE RISER	FPM	FEET PER MINUTE
	DOMESTIC WATER RISER	FPS	FEET PER SECOND
	STORMWATER RISER	FT	FEET
	SPRINKLER PIPE RISER	GPH	GALLONS PER HOUR
	GAS PIPE RISER	GPM	GALLONS PER MINUTE
	CAPPED PIPE	HB	HOSE BIBB
	PIPE UNION	HP	HORSEPOWER
	THERMOMETER	HVAC	HEATING, VENTILATING, AND AIR-CONDITIONING
	PRESSURE GAUGE	HW	HOT WATER
	BALL VALVE	HWR	RECALCULATING HOT WATER
	GAS COCK	LAT	LEAVING AIR TEMPERATURE
	RELIEF VALVE	LB	POUND(S)
	MIXING VALVE	LF	LINEAR FEET
	OS&Y VALVE	LG	LENGTH
	OS&Y VALVE W/TAMPER SWITCH	MH	MOUNTING HEIGHT
	SIAMESE CONNECTION VALVE	NTS	NOT TO SCALE
	THERMOMETER	OA	OUTDOOR AIR
	UTILITY METER	PSI	POUNDS PER SQUARE INCH
	STRAINER	PSIA	POUNDS PER SQUARE INCH, ABSOLUTE
		PSIG	POUNDS PER SQUARE INCH, GAUGE
		QTY	QUANTITY
		R	RISE
		RA	RETURN AIR
		RX	REMOVE EXISTING
		RPM	REVOLUTIONS PER MINUTE
		SA	SUPPLY AIR
		SMACNA	SHEET METAL AND AIR-CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
		SQ. FT	SQUARE FOOT
		UF	SQUARE FOOT
		TEMP	TEMPERATURE
		TONS	TONS OF REFRIGERATION
		TYP	TYPICAL
		UON	UNLESS OTHERWISE NOTED
		VAV	VARIABLE AIR VOLUME
		VTR	VENT THROUGH ROOF
		W	WATT(S)
		W/	WITH
		W/O	WITHOUT
		WBT	WET BULB TEMPERATURE
		WPD	WATER PRESSURE DROP
		WH	WATER HEATER



CITY OF BALTIMORE
DEPARTMENT OF
GENERAL SERVICES
DESIGN AND
CONSTRUCTION
DIVISION



Professional Certification:
I certify that these documents were prepared or approved by me, and that I am a duly licensed engineer under the laws of the State of Maryland, license number 05-16001, expiration date 4-26-26.

NO	DATE	DESCRIPTION
2	8/7/2025	ADDENDUM #2

HARFORD SENIOR CENTER
RENOVATIONS
4920 HARFORD RD, BALTIMORE, MD 21214
PROJECT NO. PRJ000889

PLUMBING
GENERAL
NOTES
LEGEND

3/12/26

SHEET
P-000

32 OF 51

COLD WATER PIPING INSULATION			
PIPE SIZE	PIPING LOCATION	FLUID OPERATING TEMPERATURE	INSULATION MATERIAL
1" OR SMALLER	INDOOR	40-60	1" THICK CELLULAR GLASS; 1/2" THICK FLEXIBLE ELASTOMETRIC; 1/2" MINERAL-FIBER, PREFORMED PIPE INSULATION;1" THICK PHENOLIC.
1-1/4" OR LARGER	INDOOR	40-60	1" THICK CELLULAR GLASS; 1" THICK FLEXIBLE ELASTOMETRIC; 1" MINERAL-FIBER, PREFORMED PIPE INSULATION;1" THICK PHENOLIC.
1" OR SMALLER	OUTDOOR	40-60	2" THICK CELLULAR GLASS; 2" THICK FLEXIBLE ELASTOMETRIC; 2" MINERAL-FIBER, PREFORMED PIPE INSULATION; 2" THICK PHENOLIC.
1-1/4" OR LARGER	OUTDOOR	40-60	2" THICK CELLULAR GLASS; 2" THICK FLEXIBLE ELASTOMETRIC; 2" MINERAL-FIBER, PREFORMED PIPE INSULATION; 2" THICK PHENOLIC.

PUMP SCHEDULE							
DESIGNATION	DESCRIPTION	LOCATION	MAKE/MODEL	GPM	FRICTION LOSS FT. OF HD	HP	RPM
RCP-1	CIRCULATION PUMP	-	TACO/OO3-BC4	0.75	2	0.025	3250
NOTES 1. PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE INSTALLATION.							

FLOOR DRAIN / SINK SCHEDULE			
DESIGNATION	PIPE SIZE CONNECTION	DESCRIPTION	COMMENTS
FD-1	3"	CAST IRON FLOOR DRAIN TRAP PRIMER	FLOOR DRAIN SHALL BE ZURN MODEL Z507-VP.
FD-2	4"	CAST IRON FLOOR DRAIN TRAP PRIMER	FLOOR DRAIN SHALL BE ZURN MODEL Z453B
FS-1 (P-6)	4"	CAST IRON FLOOR SINK WITH ACID RESISTANT INTERIOR	FLOOR DRAIN SHALL BE ZURN MODEL Z1900
SEE SPECIFICATIONS FOR MANUFACTURER AND MODEL NUMBER * FLOOR DRAIN (3") IS PROVIDED FOR FLOOR DRAINS FOR TOILET ROOMS * FLOOR DRAIN (4") IS PROVIDED FOR FLOOR DRAINS FOR KITCHEN AREA AND SHALL HAVE DEEP SEAL TRAP			

HOT WATER & RECIRCULATING HOT WATER PIPING INSULATION			
PIPE SIZE	PIPING LOCATION	FLUID OPERATING TEMPERATURE	INSULATION MATERIAL
1-1/4" OR SMALLER	INDOOR	105-120	1" THICK CELLULAR GLASS; 3/4" THICK FLEXIBLE ELASTOMETRIC; 1/2" MINERAL-FIBER, PREFORMED PIPE INSULATION;1" THICK PHENOLIC.
1-1/2" OR LARGER	INDOOR	105-120	1" THICK CELLULAR GLASS; 1" THICK FLEXIBLE ELASTOMETRIC; 1" MINERAL-FIBER, PREFORMED PIPE INSULATION;1" THICK PHENOLIC.
1" OR SMALLER	OUTDOOR	105-120	2" THICK CELLULAR GLASS; 2" THICK FLEXIBLE ELASTOMETRIC; 2" MINERAL-FIBER, PREFORMED PIPE INSULATION; 2" THICK PHENOLIC.
1-1/4" OR LARGER	OUTDOOR	105-120	2" THICK CELLULAR GLASS; 2" THICK FLEXIBLE ELASTOMETRIC; 2" MINERAL-FIBER, PREFORMED PIPE INSULATION; 2" THICK PHENOLIC.

EQUIPMENT SCHEDULE				
DESIGNATION	DESCRIPTION	LOCATION	MAKE/MODEL	COMMENTS
MV-1	MIXING VALVE	LAVATORIES/ HAND SINK	LEONARD/270-LF	1
ET-1	EXPANSION TANK	JANITOR'S CLOSET	A.O. SMITH/PMC-10	1
NOTES 1. PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE INSTALLATION. 2. MV-1 SHALL BE INSTALLED ON ALL LAVATORIES & HAND SINKS. 3. EXPANSION TANK TO BE INSTALLED ON NEW WATER HEATER.				

WATER HEATER SCHEDULE						
DESIG.	DESCRIPTION	GALLONS	FIRST HR RATING (GPH)	ELECTRICAL ELEMENT POWER	MAKE/MODEL	COMMENTS
WH-1	NEW ELECTRIC WATER HEATER	40	50	6 KW	208V-1PH	BRADFORD WHITE RE340R6
NOTES 1. PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE INSTALLATION. 2. INSTALL PER MANUFACTURERS REQUIREMETNS.. 3. EXPANSION TANK TO BE INSTALLED ON NEW WATER HEATER.						

RPZ BACKFLOW PREVENTER						
DESIG.	DESCRIPTION	MODEL SIZE	LENGTH	WEIGHT	MAKE/MODEL	COMMENTS
RPZ-1	BACKFLOW PREVENTER	1-1/2"	23"	16 LBS	ZURN MODEL 975XL3	
NOTES LEAD FREE						

UNDERGROUND SANITARY PIPING			
PIPE SIZE	MATERIAL	STANDARD	NOTES
4" OR SMALLER	SERVICE, CAST IRON PIPE	ASTM A74	GASKETS AND GASKET JOINTS
	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
5" OR LARGER	SERVICE, CAST IRON PIPE	ASTM A74	GASKETS AND GASKET JOINTS
	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
UNDERGROUND SANITARY PIPING DESIGN REQUIREMENTS BASED ON IPC. 2021 TABLES 702.2, 702.3 & 702.4			

ABOVEGROUND DRAINAGE PIPING			
PIPE SIZE	MATERIAL	STANDARD	NOTES
4" OR SMALLER	SERVICE, CAST IRON PIPE	ASTM A74	GASKETS AND GASKET JOINTS
	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
	COPPER DWV TUBE	ASTM A74	COPPER DRAINAGE FITTINGS AND SOLDERED JOINTS.
	PVC PIPING TUBE	ASTM CSA	
5" OR LARGER	SERVICE, CAST IRON PIPE	ASTM A74	GASKETS AND GASKET JOINTS
	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
	PVC PIPING TUBE	ASTM D2665	
ABOVEGROUND SANITARY PIPING DESIGN REQUIREMENTS BASED ON IPC. 2018 TABLES 702.1, 702.3 & 702.4			

CPVC PIPING CAN BE USED WITH THE EXCEPTION OF PLENUM AREAS (ATTIC, CEILING RETURN PLENUM) OF PER CODE COMPLIANCE

ABOVEGROUND VENT PIPING			
PIPE SIZE	MATERIAL	STANDARD	NOTES
4" OR SMALLER	SERVICE, CAST IRON PIPE	ASTM A74	GASKETS AND GASKET JOINTS
	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
	COPPER DWV TUBE	ASTM A74	COPPER DRAINAGE FITTINGS AND SOLDERED JOINTS.
5" OR LARGER	SERVICE, CAST IRON PIPE	ASTM A74	GASKETS AND GASKET JOINTS
	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
ABOVEGROUND VENT PIPING DESIGN REQUIREMENTS BASED ON IPC. 2018 TABLES 702.1, 702.3 & 702.4			

PLUMBING FIXTURE SCHEDULE											
NO.	TYPE	2	CONNECTIONS							FAUCET MANUFACTURER/MODEL	NOTES
			COLD WATER	HOT WATER	WASTE	VENT	FLOW RATE	MANUFACTURER/MODEL			
P-1	WATER CLOSET FLOOR MTD		1"	-	4"	2"	1.28 GPF	AMERICAN STANDARD/MADERA FLOWISE 2854.128	---	1,2,3,6	
P-1A	WATER CLOSET FLOOR MTD. (ADA)		1"	-	4"	2"	1.28 GPF	AMERICAN STANDARD/MADERA FLOWISE 2854.128	---	1,2,3,6	
P-2	LAVATORY (DROP IN SINK)		1/2"	1/2"	2"	1-1/4"	0.35 GPM	AMERICAN STANDARD MURRO WITH SHROUD	DELTA LEVER HANDLE MODEL 87T911	1,2,3.	
P-2A	LAVATORY (WALL MOUNTED)		1/2"	1/2"	2"	1-1/4"	1.2 GPM	AMERICAN STANDARD/REGALYN MODEL4869.001	DELTA LEVER HANDLE MODEL 87T911	1,2,3,4.	
P-3	URINAL		3/4"	--	2"	1-1/4"	0.5 GPF	AMERICAN STANDARD/WASHBROOK MODEL 6590.503	AMERICAN STANDARD MODEL: 6045.051	1,2	
P-3A	URINAL ADA		3/4"	--	2"	1-1/4"	0.5 GPF	AMERICAN STANDARD PINTBROOK	AMERICAN STANDARD MODEL: 6045.051.002	1,2	
P-4	WATER COOLER		1/2"	--	2"	1-1/2"	---	ELKAY MODEL: LVRCTL8WS	---	1,2,7	
P-5	MOP SINK		1/2"	1/2"	3"	1/2"	1.5 GPM	FIAT MOLDED STONE MODEL MS82424	FIAT MODEL 830-AA	1,2	
P-6	2-COMPARTMENT SINK		1/2"	1/2"	(2)2" INDIRECT	2"	1.5 GPM	REGENCY MODEL: #600S217172G	MOEN MODEL 5923	1,2,8	
P-7	KITCHEN HAND SINK		1/2"	1/2"	2"	2"	1.5 GPM	REGENCY MODEL: #600HS17SP			
HB-1	HOSE BIBB		3/4"	--	--	--	---	MURDOCK: M-33609QT	---	5	
NOTES: 1. PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE FIXTURE ROUGH-IN, I.E. SUPPLIES, STOPS, TRAPS, CARRIERS, GRID DRAINS, TAILPIECES, ETC. NOT ALL REQUIRED COMPONENTS ARE SPECIFIED ABOVE. 2. SEE PLANS AND RISERS FOR VENT SIZING AND CONNECTIONS. 3. FIXTURES SHALL BE ADA COMPLIANT, PROVIDE WITH ADA COMPLIANT ACCESSORIES, MOUNT ADA COMPLIANT. SEE ARCHITECTURAL PLANS FOR ELEVATIONS. 4. PROVIDE PROFLO GUARD INSULATION DEVICES ON EXPOSED UNDERCOUNTER PLUMBING. 5. PROVIDE FREEZEPROOF HOSEBIBB WITH INTEGRAL VACUUM BREAKER, VANDAL RESISTENT CAP AND "T" HANDLE KEY. 6. TOILETS SHALL BE PROVIDED WITH HEAVY DUTY OPEN FRONT SEATS WITHOUT COVER, AMERICAN STANDARD MODEL 5901.100 7. WATER COOLER SHALL BE VANDAL RESISTANT PUSH BUTTON ACTIVATIONS AND PROVIDED WITH A BOTTLE FILLING STATION. 8. PROVIDE STAINLESS STEEL SPLASH GUARDS ALONG WALL BEHIND FLOOR SINK											

UNDERGROUND WATER PIPING			
PIPE SIZE	MATERIAL	STANDARD	NOTES
3" OR SMALLER	SOFT COPPER, COPPER TUBE	ASTM B88 TYPE K, WROUGH-COPPER B251	SOLDER-JOINT FITTINGS AND BRAZED JOINTS
4" OR LARGER	DUCTILE IRON	AWWA C151.A21.51; AWWA C115/A21.15	MECHANICAL JOINT, STANDARD PATTERN, AND MECHANICAL JOINT FITTINGS
WATER PIPING DESIGN REQUIREMENTS BASED ON IPC. 2021 TABLE 605.3, 605.4 & 605.5			

ABOVEGROUND WATER PIPING			
PIPE SIZE	MATERIAL	STANDARD	NOTES
2" OR SMALLER FOR RESIDENTIAL UNITS	PEX TUBE	ASTM B88 TYPE L, CAST OR WROUGH-COPPER B251	NPS 1 AND SMALLER, FITTINGS FOR PEX TUBE; AND CRIMPED JOINTS
	PE-AL-PE TUBE		NPS 1 AND SMALLER; FITTINGS FOR PE-AL-PE TUBE AND CRIMPED JOINTS
	PEX-AL-PEX TUBE		NPS 1 AND SMALLER; FITTINGS FOR PEX-AL-PEX TUBE; AND CRIMPED
	HARD COPPER TUBE	ASTM B88 TYPE L	SOLDER-JOINT FITTINGS, SOLDERED JOINTS OR PRESSURE SEALED JOINTS
2	CPVC PIPING	ASTM ASTM F441	NPS 2" AND SMALLER,
4" OR SMALLER	HARD COPPER, COPPER TUBE	ASTM B88 TYPE L, CAST OR WROUGH-COPPER B251	SOLDER-JOINT FITTINGS AND SOLDERED JOINTS
	2-1/2" TO 4"	HARD COPPER TUBE OR TYPE K	SOLDER-JOINT FITTINGS, BRAZED JOINTS
2	CPVC PIPING	ASTM ASTM D2846	NPS 2-1/2" TO 4"
5" TO 8"	HARD COPPER TUBE	ASTM B88 TYPE L OR TYPE K	GROOVED-JOINT, COPPER-TUBE APPURTENANCES; AND GROOVED JOINTS
			GROOVED-JOINT, COPPER-TUBE APPURTENANCES; AND GROOVED JOINTS
WATER PIPING DESIGN REQUIREMENTS BASED ON IPC. 2020 TABLE 605.3, 605.4 & 605.5			

CPVC PIPING CAN BE USED WITH THE EXCEPTION OF PLENUM AREAS (ATTIC, CEILING RETURN PLENUM) OF PER CODE COMPLIANCE

ABOVEGROUND STORM WATER PIPING			
PIPE SIZE	MATERIAL	STANDARD	NOTES
6" OR SMALLER	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
	SOLID WALL PVC	ASTM A74	PVC FITTINGS, AND SOLVENT CEMENTED JOINTS WILL BE ACCEPTABLE ONLY IN LOCATIONS THAT WILL NOT BE USED AS RETURN AIR PLENUMS.
8" OR LARGER	HUBLESS, CAST IRON PIPE	ASTM A888; CISPI 301	CAST IRON FITTINGS. CISPI HEAVY DUTY CAST IRON HUBLESS PIPING COUPLINGS; AND COUPLED JOINTS
STORM WATER PIPING DESIGN REQUIREMENTS BASED ON IPC. 2021 TABLE 1102.4, 1102.5 & 1102.6			

UNDERGROUND STORM WATER PIPING			
PIPE SIZE	MATERIAL	STANDARD	NOTES
4" OR SMALLER	DUCTILE IRON	AWWA C151.A21.51; AWWA C115/A21.15	MECHANICAL JOINT, STANDARD PATTERN, AND MECHANICAL JOINT FITTINGS
6" OR LARGER	SERVICE, CAST IRON PIPE	ASTM A74	GASKETS AND GASKET JOINTS
STORM WATER PIPING DESIGN REQUIREMENTS BASED ON IPC. 2021 TABLE 1102.4, 1102.5 & 1102.6			



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CITY OF BALTIMORE
DEPARTMENT OF GENERAL SERVICES
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NO	DATE	DESCRIPTION
2	8/7/2026	ADDENDUM #2

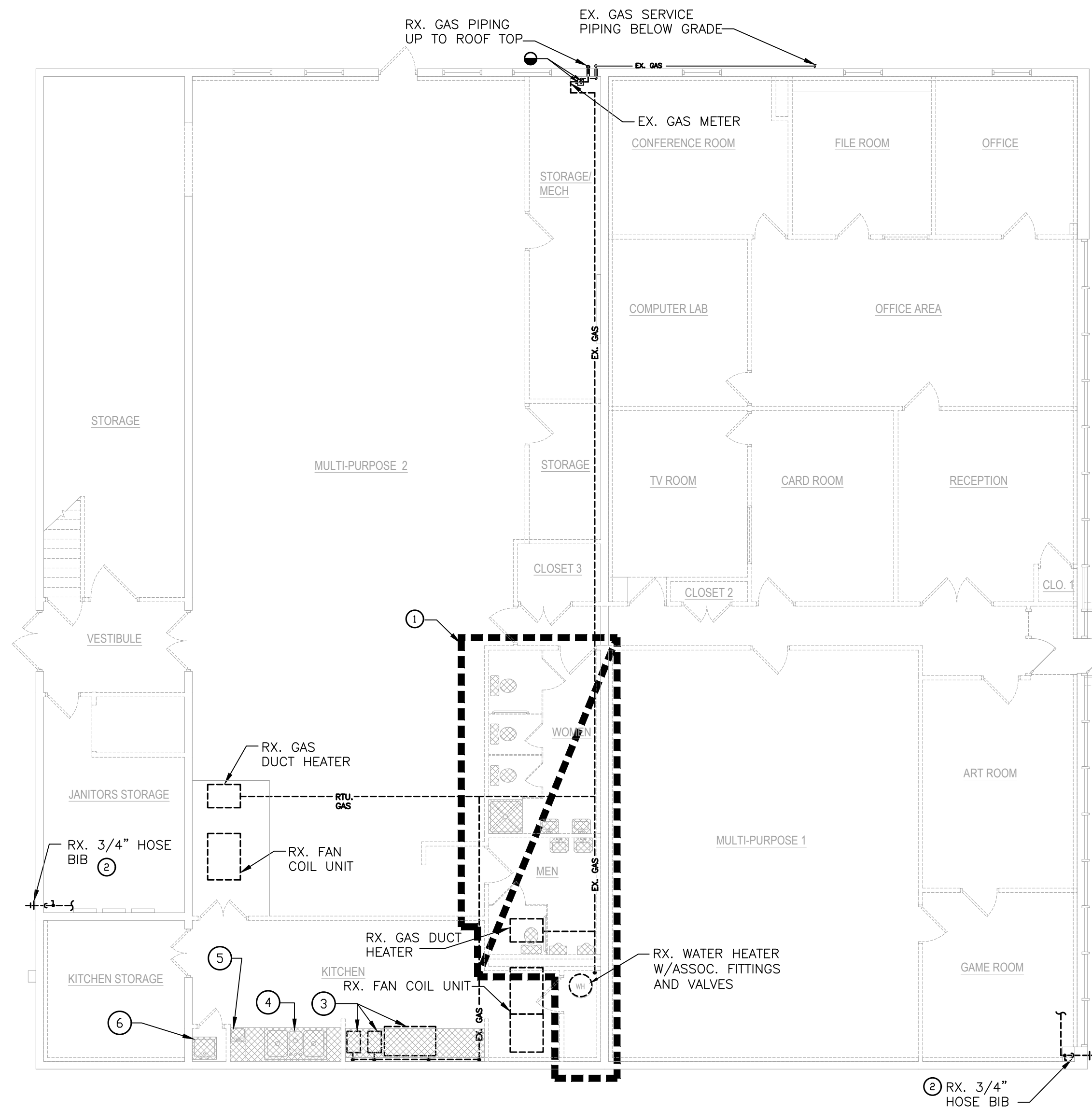
HARFORD SENIOR CENTER
RENOVATIONS
4920 HARFORD RD, BALTIMORE, MD 21214
PROJECT NO. PRJ00889

PLUMBING
SCHEDULES

3/12/26

SHEET
POO1

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FIRST FLOOR PLAN - PLUMBING DEMOLITION
SCALE: 1/8"=1'-0"

GENERAL NOTES:

- A. REFER TO DATA SHEET FOR PLUMBING SYMBOLS AND ABBREVIATIONS.
B. REFER TO PLUMBING RISER DIAGRAMS FOR ADDITIONAL SIZING OF UTILITIES AND PIPING.
C. FOR PLUMBING FIXTURES AND EQUIPMENT, REFER TO PLUMBING SCHEDULE SHEET.
D. DOMESTIC WATER PIPING IS LOCATED AT CEILING, UNLESS NOTED OTHERWISE.
E. SANITARY PIPING IS LOCATED BELOW FINISHED FLOOR LEVEL, UNLESS NOTED OTHERWISE.
F. VENT PIPING IS LOCATED HIGH AND TIGHT TO THE UNDERSIDE OF STRUCTURE, UNLESS NOTED OTHERWISE.
G. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DOMESTIC WATER, GAS, VENTING AND SANITARY PIPING ROUTING BEFORE START OF DEMOLITION. CONTRACTOR SHALL VERIFY THE LOCATION AND FLOW DIRECTION OF THE EXISTING SANITARY PIPING.
H. CIVIL CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND FLOW DIRECTION OF THE EXISTING STORM WATER PIPING.

DEMOLITION DRAWING NOTES:

- 1 REFER TO PARTIAL PLAN ON DRAWING PD-200 FOR DEMOLITION WORK IN THIS AREA.
2 REMOVE EXISTING HOSE BIBB.
3 REMOVE EXISTING GAS COOKING EQUIPMENT AND REMOVE EXISTING GAS PIPING BACK TO TERMINATION POINT.
4 REMOVE EXISTING 3-COMPARTMENT SINK AND ASSOCIATED GREASE INTERCEPTOR (ABOVE GROUND). REMOVE EXISTING HW AND CW CONNECTIONS AND CAP AT THE MAINS. REMOVE VENT PIPING AND SANITARY CONNECTIONS AND CAP AT MAINS.
5 REMOVE EXISTING HAND SINK. PREPARE EXISTING WATER, SANITARY AND VENT CONNECTIONS TO SERVE THE NEW FIXTURE.
6 REMOVE EXISTING MOP SINK. PREPARE EXISTING WATER, SANITARY AND VENT FIXTURE TO SERVE THE NEW FIXTURE.



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NO	DATE	DESCRIPTION
Δ	8/7/2026	ADDENDUM #2

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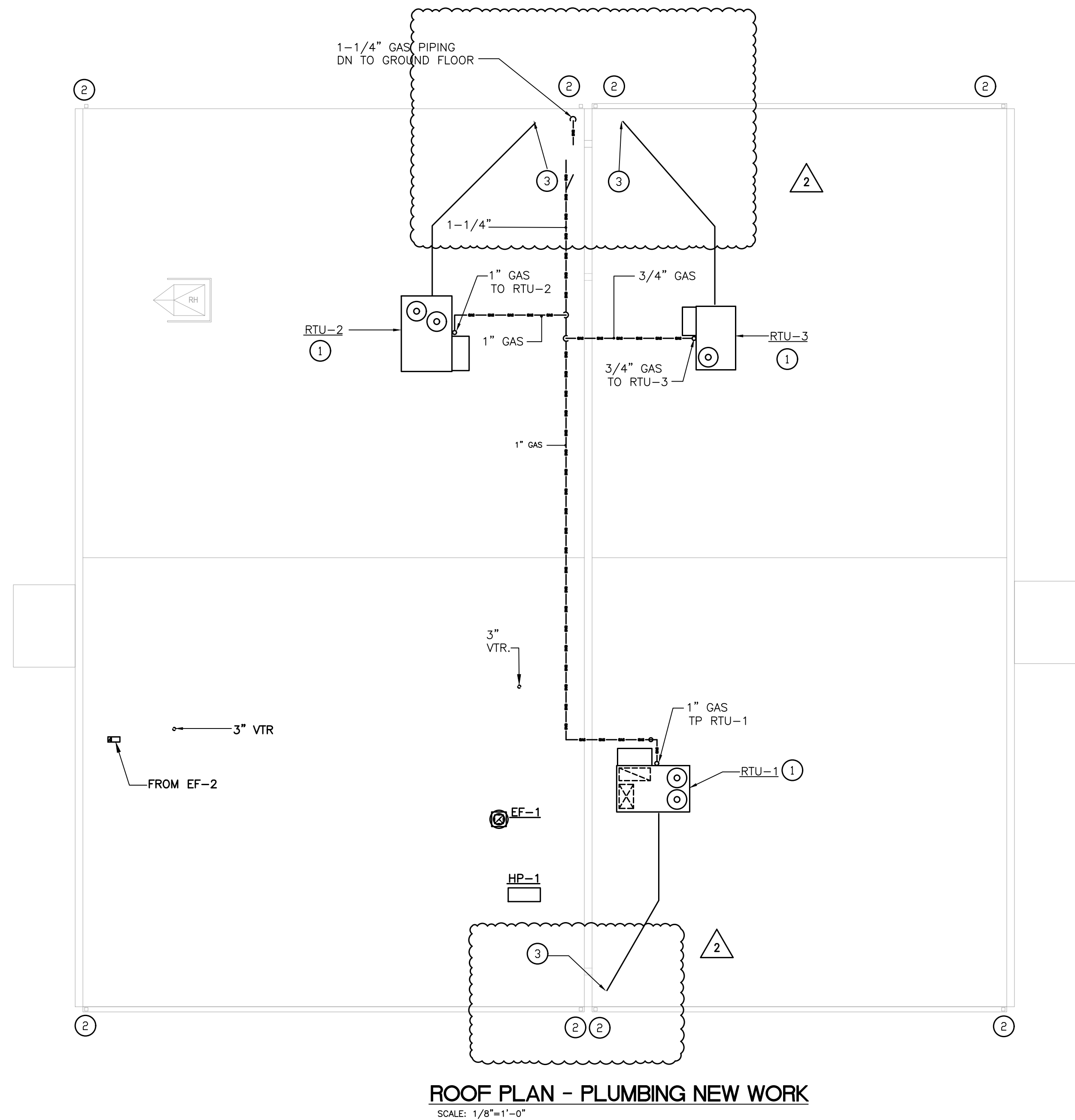
PLUMBING
FLOOR PLAN
DEMOLITION

3/12/26

SHEET
PD 100

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JCE NO. 2017.36 PRINTED:01/24/2025



GENERAL NOTES:

- A. REFER TO DATA SHEET FOR PLUMBING SYMBOLS AND ABBREVIATIONS.
- B. REFER TO PLUMBING RISER DIAGRAMS FOR ADDITIONAL SIZING OF UTILITIES AND PIPING.
- C. FOR PLUMBING FIXTURES AND EQUIPMENT, REFER TO PLUMBING SCHEDULE SHEET.
- D. DOMESTIC WATER PIPING IS LOCATED AT CEILING, UNLESS NOTED OTHERWISE.
- E. SANITARY PIPING IS LOCATED BELOW FINISHED FLOOR LEVEL, UNLESS NOTED OTHERWISE.
- F. VENT PIPING IS LOCATED HIGH AND TIGHT TO THE UNDERSIDE OF STRUCTURE, UNLESS NOTED OTHERWISE.
- G. EXPOSED GAS PIPING ON THE ROOF SHALL BE PAINTED YELLOW FOR CORRECT IDENTIFICATION.

DRAWING NOTE:

- 1 EXTEND CONDENSATE FROM ROOFTOP UNIT TO DISCHARGE OVER CONCRETE SPLASHBLOCK.
- 2 NEW DOWNSPOUT CONNECTED TO EXISTING UNDERGROUND STORM WATER SYSTEM. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION.
- 3 RUN 1" CONDENSATE DRAIN TO NEAREST DOWNSPOUT.



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NO	DATE	DESCRIPTION
2	8/7/2025	ADDENDUM #2

HARFORD SENIOR CENTER
RENOVATIONS
4920 HARFORD RD, BALTIMORE, MD 21214
PROJECT NO. PRJ000889

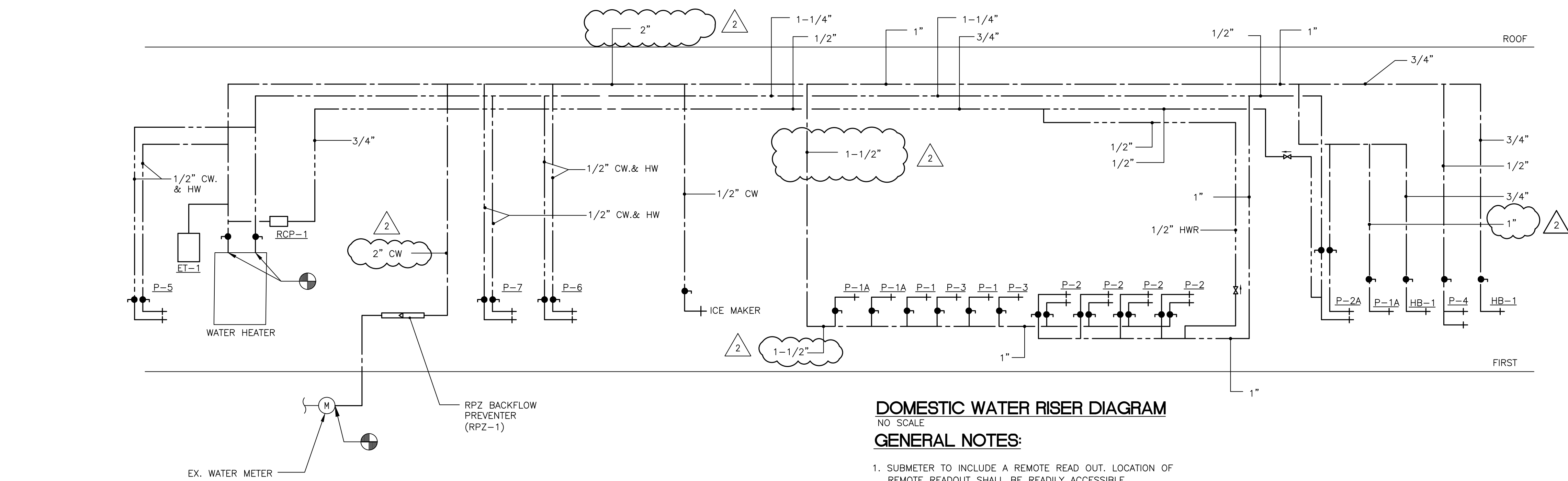
PLUMBING
ROOF PLAN
NEW WORK

3/12/26

SHEET
P101

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JCE NO. 2017.36 PRINTED:01/24/2025

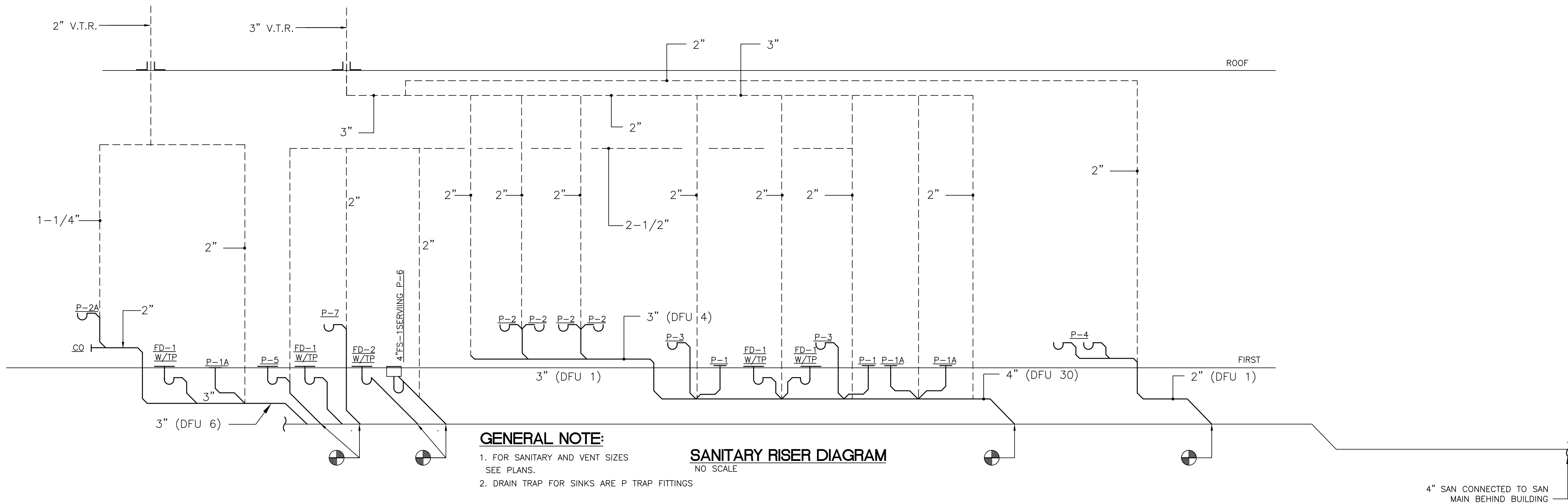


DOMESTIC WATER RISER DIAGRAM

NO SCALE

GENERAL NOTES:

1. SUBMETER TO INCLUDE A REMOTE READ OUT. LOCATION OF REMOTE READOUT SHALL BE READILY ACCESSIBLE.



GENERAL NOTE:

1. FOR SANITARY AND VENT SIZES SEE PLANS.
2. DRAIN TRAP FOR SINKS ARE P TRAP FITTINGS

SANITARY RISER DIAGRAM

NO SCALE

4" SAN CONNECTED TO SAN MAIN BEHIND BUILDING

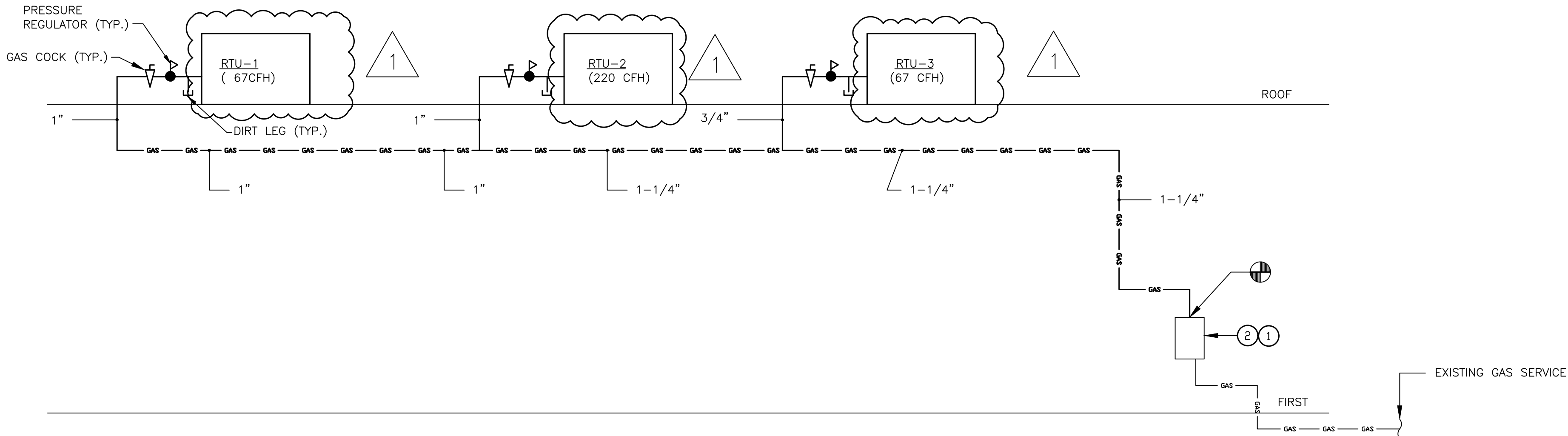
GAS SERVICE

GAS CALCULATIONS BASED ON (2021) INTERNATIONAL FUEL GAS CODE (IFGC) TABLE 402.4

ETR. INLET PRESSURE:	LESS THAN 2 PSI
PRESSURE DROP:	0.5 IN W.C.
SPECIFIC GRAVITY:	0.60
EQUIVALENT LENGTH:	115' PLUS OR MINUS
TOTAL LOAD	410 MBH

NOTES:

1. PRESSURE REGULATORS SHALL BE BASED ON EQUIPMENT MANUFACTURES REQUIREMENTS.



GAS RISER DIAGRAM

NOT TO SCALE:

NEW WORK DRAWING NOTES:

1. OWNER SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS NEEDED TO GAS SERVICE BEFORE TENANT GAS METER.
2. EXISTING GAS METER.

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NO	DATE	DESCRIPTION
1	4/29/2026	REVISION 1
2	8/7/2026	ADDENDUM #2

SECTION 01 21 00**ALLOWANCES****PART 1 – GENERAL****1.1 SUMMARY**

- A. Section includes: To provide adequate budget to cover items not precisely determined by the Owner prior to bidding, allow within the proposed Contract Sum the amounts and quantities described below.

1.2 ALLOWANCES

- A. General: A "Schedule of Allowances", showing amounts included in Contract sum, is included at end of this section. Coordinate allowance work with related work, to ensure that each selection is completely integrated and interfaced with related work. Requirements for work allowances are shown and specified. At earliest possible date, advise Architect/Engineer of date each final allowance selection must be completed. Submit proposals for allowance work as directed, and in the manner specified for change orders. Indicate quantities, unit cost, total purchase amounts, taxes, delivery charges, and trade discounts. Contractor shall furnish detailed breakdown of quantity survey.
- B. Unit-Cost Allowances: Change order amount will be the difference between unit purchase amount and unit-cost allowance, multiplied by final measure or count of work-in-place. Owner reserves right to establish final measure or count of work-in-place by independent quantity surveyor. The cost of waste material shall be incorporated in the unit cost allowance and the payment to the Contractor will be calculated solely upon the quantity of installed materials.
- C. Contingency Allowance: Use only as directed by Owner, by way of change order. Include related costs and reasonable Contractor margins in change order proposals. At time of project closeout, submit final contingency allowance change order proposal, crediting Owner with unused amount (if any) of contingency allowance.

1.3 SPECIFIC CASH ALLOWANCES

- A. Contractor shall include an allowance for obtaining and paying for the Building permit (except for the filing fee) as follows: \$5,510.00

END OF SECTION

SECTION 06 20 00**FINISH CARPENTRY****PART 1 - GENERAL****1.1 DESCRIPTION OF WORK**

Finish carpentry includes carpentry work which is exposed to view, is non-structural, and which is not specified as part of other sections.

A. Types of finish carpentry work in this section include: Interior running and standing trim.

1.2 SUBMITTALS**A. Product Data:**

Submit manufacturer's specifications and installation instructions for each item of factory fabricated siding and paneling.

B. Samples:

Submit the following samples for each species and cut or pattern of finish carpentry.

1. Interior standing and running trim: 2'-0" x full board or molding width, unfinished.

C. Wood Treatment Data:

Submit chemical treatment manufacturer's instructions for handling, storage, installation and finishing treated materials.

1.3 JOB CONDITIONS**A. Conditioning:**

1. Installer shall advise Contractor of temperature and humidity requirements for finish carpentry installation areas. Do not install finish carpentry until required temperature and relative humidity conditions have stabilized and will be maintained in installation areas.
2. Maintain temperature and humidity in installation area as required to maintain moisture content of installed finish carpentry within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period. The fabricator of woodwork shall determine optimum moisture content and required temperature and humidity conditions.

PART 2 – PRODUCT**2.1 WOOD PRODUCT QUALITY STANDARDS****A. Hardwood Lumber Standard:**

Comply with National Hardwood Lumber Association rules.

B. Woodworking Standard:

Where indicated for a specific product comply with specified provision of the following: Architectural Woodwork Institute "Quality Standards".

2.2 MATERIALS**A. General:**

Nominal sizes are indicated on the drawings, except as shown by detailed dimensions. Provide dressed or worked and dressed lumber, as applicable, manufactured to the actual sizes as required by PS 20 or to actual sizes and patterns as shown, unless otherwise indicated.

B. Moisture Content of Hardwood Lumber:

Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation within the ranges required in the referenced woodworking standard.

- C. Lumber for Transparent Finish (Stained or Clear):
Use pieces made of solid lumber stock.

2.3 INTERIOR FINISH CARPENTRY

- A. Standing and Running Trim for Transparent Finish:
Plain Sawn Red Oak manufactured to sizes and patterns (profile) shown from selected First Grade Lumber (NHLA); complying with following grade requirements of referenced woodworking standard, for quality of materials and manufacture:
 - 1. Grade: Premium
- B. WM/Series Wood Molding Patterns:
For stock molding patterns graded under Wood Molding and Millwork Producers Industry WM 4, provide the following grade based on finish indicated and fabricated from any Western softwood species graded and inspected by WWPA.
 - 1. Moldings for Transparent Finish: N-grade

2.4 INTERIOR MILLWORK

- A. Interior Rail and Miscellaneous Millwork:
 - 1. FSC-certified, solid dimensional lumber

2.5 MISCELLANEOUS MATERIALS

- A. Fasteners and Anchorages:
 - 1. Provide nails, screws and other anchoring devices of the type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
- B. Adhesives:
 - 1. Interior Woodwork and Millwork: Low-VOC, FS MMM-A-125C, Type II, water- and mold-resistant. Use ASTM D3110, dry-use type for laminated and finger-jointed members, certified in accordance with ASTM C557 and complying with required VOC regulations.
 - a. Water-based contact cement
 - b. Water-based construction adhesive

PART 3 – EXECUTION

3.1 PREPARATION

- A. Condition wood materials to average prevailing humidity conditions in installation areas prior to installing.

3.2 FINISH CARPENTRY INSTALLATION

- A. General:
 - 1. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacturer with respect to surfaces, sizes or patterns.
 - 2. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level countertops; and with 1/16" maximum offset in flush adjoining 1/8" maximum offsets in revealed adjoining surfaces.
 - 3. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

- B. Standing and Running Trim:
 - 1. Install with minimum number of joints possible, using full-length pieces (from maximum lengths of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, to produce tight fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints.
 - C. Anchorage and Fasteners.
 - 1. Anchor finish carpentry work to anchorage devices or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nails for exposed nailings, countersunk and filled flush with finished surface, and matching final finish where transparent is indicated.
- 3.3 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION
- A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork. Adjust joinery for uniform.
 - B. Clean finish carpentry work on exposed and semi-exposed surfaces. Touch-up shop applied finishes to restore damaged or soiled areas.
 - C. Contractor shall maintain conditions necessary to ensure that work will be without damage or deterioration at the time of acceptance.

END OF SECTION

SECTION 07 53 23**FLEXIBLE SHEET ROOFING
TPO MEMBRANE****PART 1 - GENERAL****1.1 DESCRIPTION OF WORK**

- A. Extent of flexible sheet roofing (FSR) is indicated on the drawings and is hereby defined to include non-traffic bearing sheet membrane system intended for weather exposure as primary roofing.
- B. Roof insulation related to flexible sheet roofing is specified in this section.

1.2 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 for definition of terms related to roofing work not otherwise defined in this Section.

1.3 QUALITY ASSURANCE

- A. Manufacturer:
 - 1. Obtain primary flexible sheet roofing from a single manufacturer. Provide secondary materials as recommended by the manufacturer of primary materials.
 - 2. Roofing manufacturer shall be an established manufacturer of roofing materials specified, maintaining technically qualified personnel, in the project area, to review proposed construction, consult at the project site, make detailed recommendations concerning installation procedures, etc.
- B. Installer:
 - 1. A firm with not less than 5 years of successful experience in the installation of roofing systems identical to those required for this project and which is licensed by the manufacturer of primary roofing materials.
 - 2. Provide written certification from manufacturer of roofing system that Installer is approved by manufacturer for installation of specified roofing system. Submit copy of certification to Architect.
 - 3. Installer shall maintain a full-time supervisor at the site of the work at all times when roofing work is in progress. Supervisor shall have a minimum of 3 years experience as a supervisor of roofing work.
- C. Pre-Roofing Conference:
Prior to installation of roofing and associated work, meet at project site with Installer, roofing manufacturer, installers of related work, and other entities concerned with roofing performance, including test agencies, Architect, and Owner.
- D. UL Listing:
 - 1. Provide labeled materials which have been tested and listed by UL for application indicated, with the following rating for roof slopes shown:
 - a. Class A rated materials/system
- E. Inspection:
 - 1. Upon completion of the installation, a certified technical representative, unrelated to the sales department of the manufacturer or the contractor shall inspect the roofing system to determine that it has been installed according to the Manufacturer's published specifications and details. Upon approval of the project by Manufacturer, a warranty shall be written.

- F. Changes or deviations from this Specification shall be approved in writing by Manufacturer, and be acceptable to the Architect.

1.4 SUBMITTALS

- A. Product Data: Submit specifications, installation instructions and general recommendations from manufacturers of flexible sheet roofing system materials, for types of roofing required. Include data substantiating that materials comply with requirements.
- B. Samples: Submit 12" squares of roof insulation.
- C. Shop Drawings: Provide roof plan indicating slope, slope direction, and insulation layout. Provide details for all penetrations, transitions and terminations of the membrane.
- D. Warranty:
 - 1. Provide manufacturer's warranty stating obligations, remedies, limitations, and exclusions.
 - 2. Provide Roofing Contractor's written warranty.
- E. Adhesion Test (Gypsum Deck): Submit a complete listing of adhesion tests conducted and the corresponding adhesion values, signed by the representative conducting the test and the roofing applicator verifying the accuracy of the test.
- F. Certifications:
 - 1. Provide certification of installer by manufacturer.
 - 2. Submit certification that installer is a Manufacturer Approved Applicator.
 - 3. Submit U.L. Class A and FM I-90 references/ approvals for the assembly to be installed.
 - 4. Submit testing or proof of resistance to chemicals or materials that may deteriorate the membrane.
 - 5. Submit certification of ten years experience in the manufacturing of the membrane.
 - 6. Submit proof of a minimum of 4,000,000 Langleys of Emmaqua testing per ASTM G-90.
 - 7. Submit proof of ISO 9002 certification of membrane manufacturing facilities.
- G. Manufacturer Certificates: Signed by roofing manufacturer certifying that the roofing system complies with requirements of warranty.
- H. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.5 PRODUCT HANDLING, STORAGE AND DELIVERY

- A. Deliver material in manufacturer's original containers with labels intact and legible.
- B. Deliver bulk shipments with certification of compliance with specifications including melting point, flash point, application temperature, etc.
- C. Select and operate material handling equipment and store materials to keep from damaging existing construction or applied roofing.
- D. Store rolls of membrane, cartons and drums of adhesives, all cans and drums of cement, primers, and coatings on end.
- E. Store materials on clean, raised platforms.
- F. Store and handle materials to protect them from:

1. Moisture, whether due to rain, snow or condensation
2. Damage by construction traffic
3. Temperatures over 110 degrees Fahrenheit
4. Temperatures below 40 degrees Fahrenheit
5. Direct sunlight
6. Mud, dust, sand, oil, grease and dirt.

Note: Polyethylene is not acceptable as a cover, use opaque tarpaulins.

- G. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- H. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- I. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.
- J. Damaged materials shall be replaced at the Contractor's expense.
- K. Immediately remove and dispose of wet materials.
- L. Comply with fire, safety, and environmental protection regulations.
- M. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.
- 1.6 WEATHER CONDITIONS
- A. Proceed with roofing work when existing and forecasted weather conditions permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.
 - B. Do not apply roofing when ambient temperature is below 40 degrees F and substrate, or when wind speed is over 20 miles per hour.
- 1.7 PROTECTION
- A. Avoid heavy traffic on the work during all phases of installation.
 - B. Replace or restore to original condition any materials or work damaged during construction.
 - C. Protect exterior building and paving surface with tarpaulins in the area of the work during roofing work, including tear-off areas, hoists, dumpster, dump trucks, etc.
 - D. Lap protective materials at least 6 inches and secure protective coverings against wind.
 - E. Leave protective covering in place until roofing work is completed.
 - F. Protect the building interior from water infiltration at all times. Do not tear off more roofing than can be replaced by the end of the work day.
- 1.8 MISCELLANEOUS

- A. Do not use bitumen base roof cement on FSR system.
- B. Do not install FSR membrane directly onto low melting point asphalt.
- C. Do not allow waste products, petroleum, grease, oil solvents, vegetable or mineral oil, animal fat, etc. or direct steam venting to come in contact with the membrane.
- D. Roof surface shall be free of ponded water, ice or snow.

1.9 WARRANTY

- A. General Warranty: The warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Manufacturer's Warranty:
 - 1. The manufacturer of the roofing system shall issue the warranty for a thirty (30) year period with No Dollar Limit on replacement costs. This warranty shall insure that the roofing system installed remains watertight for thirty years after Substantial Completion and that the manufacturer guarantees to correct/repair all leaking roof systems during the warranty period free of charge.
 - 2. The cost of the manufacturer's warranty shall be included in the Base Bid of the Contract and shall be the sole responsibility of the Contractor to obtain.
 - 3. The work of the Contract will not be considered Substantially Complete until the manufacturer's warranty is issued, and the work is found to be acceptable to the Owner.
 - 4. The warranty shall contain no exclusion or limitation for improper installation; or damage from environmental contaminants; or damage from water that ponds, or does not drain freely.
- C. Installer's Warranty:
 - 1. Provide Roofing Contractor's written warranty to repair or replace any component of the roofing system, including but not limited to, roof membrane, insulation, flashing, metal coping and metal flashing, for a period of 2 years.
 - 2. Repairs during the warranty shall be made at no cost to the Owner within (48) hours of notification.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Performance:

Provide roofing materials recognized to be of generic type indicated and tested to show compliance with indicated performances, or provide other similar materials certified in writing by manufacturer to be equal or better than specified in every significant respect, and acceptable to the Architect.
- B. Compatibility:

Provide products which are recommended by manufacturers to be fully compatible with indicated substrates or provide separation materials as required to eliminate contact between incompatible materials.

2.2 ADHERED FSR SYSTEM

- A. Thermoplastic Polyolefin
 - 1. TPO Membrane: TPO (thermoplastic Polyolefin) w/ a 1000 denier polyester weft inserted reinforcement flexible sheet fully adhered roofing system.

2. Manufacturer's standard thickness but not less than .080 inches, 30% minimum elongation (ASTM D751), ultraviolet and ozone resistant, low temperature brittleness of -40 degrees F (ASTM D2137), in standard tan color, all in compliance with ASTM D 4637 Type I.
3. Radiative Properties

	Test Method	Tan TPO
Energy Star – Initial solar reflectance	Solar Spectrum Reflectometer	0.71
Energy Star – Initial solar reflectance after 3 years	Solar Spectrum Reflectometer (uncleaned)	0.64
CRRC – Initial solar reflectance	ASTM C1549	0.71
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.64
CRRC – Initial thermal emittance	ASTM C1371	0.86
CRRC – Thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.87
LEED – Thermal emittance	PASS	0.86
SRI – Initial (Solar Reflectance Index)		86
SRI – 3 year aged (Solar Reflectance Index)		77

4. Products: Subject to compliance with the specified requirements, provide flexible sheet roofing system; "UltraPly Platinum TPO" from Elevate Building Products (Basis of Design), "Sure-Weld Adhered TPO" from Carlisle Syntec", or approved equal.

2.3 MISCELLANEOUS MATERIALS FOR FSR

- A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with FSR membrane roofing.
- B. Flashing: 60 mil thick TPO, cured or un-cured according to application. For field fabricated vent stacks, pipes and corners provide unreinforced 55 mil thick white Ethylene propylene.
- C. Sheet Seaming System:
Manufacturer's standard materials for sealing lapped joints, including edge sealer to cover exposed spliced edges as recommended by manufacturer of FSR system.
- D. Bonding Adhesive: Type recommended by manufacturer for FSR membrane for particular substrate and project conditions and formulated to withstand minimum 60 psf uplift force.
- E. All caps are to be heat welded.
- F. Cut Edge Sealant: Manufacturer's standard single component sealant.
- G. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- H. Metal Termination Bars: Manufacturer's standard aluminum bars, approximately 1 inch wide, roll formed and pre-punched.
- I. Fasteners: Polymer anchors designed for fastening roofing insulation to te deck substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer. Provide coated steel fasteners and plates for metal deck areas of the roof.
- J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam

sealants, termination reglets, and other accessories recommended by roofing system manufacturer for intended use.

- K. Molded Pipe Flashing: Provide factory fabricated molded pipe flashing compatible with FSR membrane and furnished by FSR manufacturer for each pipe penetration of the roofing system.
- L. Walkway Pads: Provide roof material manufacturer's standard walkway pad, 34" x 10' x 80 mil, thick rolls, for installation with splice adhesive to the roof membrane.

2.4 INSULATION

- A. General: Provide preformed, roofing insulation boards that comply with requirements, selected from manufacturer's standard sizes and of thicknesses indicated. Insulation system shall include preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated and as required by Code.
- B. Polyisocyanurate insulation shall be manufactured utilizing "Zero ODP" pentane blowing agents complying with ASTM C 1289-02, and classified by facer type as follows:
 - 1. Facer Type: Type II, felt or glass-fiber mat on both major surfaces.
 - 2. Tapered Polyiso Board Insulation: 1/8" slope, rigid, polyiso thermal insulation with an overall average LTTR R-Value of 33 and a minimum thickness required to meet specified R value.
 - 3. Tapered crickets as indicated on drawings or where needed for positive drainage shall be sloped 1/2" per foot with a minimum thickness of 1/2".
- C. Overlay Board: Where indicated as "Overlayment" on the drawings, provide glass fiber faced gypsum sheathing, non-structural, glass mat faced, silicone treated gypsum core, Georgia Pacific Building Products "DensDeck" boards, USG Securock, 1/2" thick, Carlisle Syntec SecurShield HD, or approved equal.
- D. Insulation and Overlay Board Adhesive: An elongating impact resistant two component insulating urethane adhesive.
- E. Vacuum Insulated High R-Value Insulation Panels: Provide Advanc-R vacuum insulated panels and coordinating rigid thermoset polyisocyanurate infill panels by Panasonic, or approved equal. Coordinate with manufacturer regarding panel layout to maximize efficiency. Install in accordance with manufacturer's recommendations regarding proper bonding adhesive.

2.5 INSULATION ACCESSORIES

- A. General: Furnish roofing insulation accessories recommended by insulation manufacturer for intended use and compatible with sheet roofing material.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions of FM 4470, designed for fastening roofing insulation to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer. Provide fasteners with factory applied white finish.

2.6 VAPOR BARRIER

- A. Composite Aluminum foil with a tenacious shelf adhesive SBS backing and removable poly release film.
 - 1. Basis of Design: Elevate V-Guard
 - 2. Manufacturer: Subject to compliance with requirements, provide products by one of the following:

- a. GAF
 - b. Versico Roofing Systems
 - c. Johns Manville
 - d. Carlisle
3. Tape: Pressure-sensitive tape of type recommended by vapor barrier manufacturer for sealing joints and penetrations in vapor barrier.
4. Adhesive: Manufacturer's standard lap adhesive, listed by FM Approvals for vapor barrier application.

PART 3 - EXECUTION

3.1 PRECAUTIONS AND PROTECTION OF STRUCTURE

- A. Limitations of Roof Load:
The Contractor shall be responsible for limiting the imposed loads on the building structure. This includes dead loads and live loads resulting from, but not limited to:
 1. the storage of materials, supplies, and equipment
 2. personnel on the roof
 3. impact loads from transport equipment
- B. Engineer's Certification:
The Contractor shall engage, and pay for, the services of a registered professional structural engineer to certify that the structural capacity of the building structural support system is adequate to support the loads that are imposed by the Contractor's operations.
- C. Restrictions on Equipment:
The Contractor shall not use motorized vehicles or equipment on the roof that incorporate a cab for the operator; such as a Bobcat front end loader.

3.2 DEMOLITION OF EXISTING ROOFING

- A. General:
 1. Cut existing roofing for demolition, do not use axes or impact tools.
 2. Remove existing roofing and insulation material completely. Where indicated on the drawings remove existing metal flashing.
 3. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.
 4. Protect existing roof drains from being clogged with debris.
 5. Proceed with demolition in systematic manner. Do not remove more roofing than can be replaced before the end of daily operations.
 6. Make the roof system weatherproof and waterproof at the end of each day's operations.
 7. Conveyances: Contractor shall transport demolition debris across roof in vehicles that will not damage or overload the roof deck.
 8. Clean all debris.
 9. Protect existing gypsum roof deck scheduled to remain.
- B. Demolition Plan:
The Contractor shall submit a detailed roofing demolition plan that describes the equipment and methods to be used, refuse storage and removal processes, and the proposed disposal methods. The plan shall also include methods for protecting the building interior and exterior, traffic control, occupant protection, and security of the construction site.
- C. Demolition Equipment and Methods:
 1. Scrape off existing roofing, do not use axes or impact tools.

2. Roof cutting power tools shall be equipped with operable blade depth setting mechanisms which shall control the cutting depth of the blade. The Contractor shall take every precaution to avoid cutting the decking. The Contractor shall repair all decking that is damaged by the demolition operation at the Contractor's expense.
 3. The use of "bobcat" type removal equipment is prohibited.
 4. The Contractor shall provide chutes for debris to be transferred to containers at grade. Protect the wall behind and adjacent to chute locations with tarpaulins.
 5. Removed materials shall not be thrown freely from the roof but shall be lowered to the ground by mechanical devices or in an enclosed chute. Contractor shall minimize the spread of dust and debris.
- D. Disposal of Demolished Materials:
1. Remove from site all debris, rubbish, and other materials resulting from demolition operations.
 2. Transport materials removed from demolished structures and dispose of off-site in accordance with regulations and authorities having jurisdiction.
 3. Contractor shall submit to the Owner for approval, all crane and refuse container locations. The Contractor shall repair any lawns or paving damaged during the Contract to original, or better, condition.
- 3.3 PREPARATION OF SUBSTRATE
- A. Comply with manufacturer's instructions for preparation of substrate to receive system, except where more stringent requirements are indicated.
- B. Clean substrate of dust, debris, and other substances detrimental to new work. Remove sharp projections.
- C. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- D. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of the roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- E. Install flashings, and accessory items as shown, and as recommended by the manufacturer even though not specifically shown.
- F. Verify that work requiring penetration of the deck, or that requires men and equipment to travel over the roof deck has been completed.
- G. Verify that roof openings and penetrations are in place and set and braced and that roof drains are properly clamped into position.
- H. Confirm that all surfaces are adequately anchored, even and free of any foreign material, moisture, or un-evenness.
- I. Immediately notify the Architect of any defects. Do not apply the roofing system until these defects have been corrected.
- J. Verify that curbs and nailers are in place and properly installed.
- 3.4 ADHESION TESTS (Gypsum Deck)

- A. Conduct (6) adhesion tests in accordance with manufacturer's instructions for every 10,000 square feet of roofing, but not less than (6) tests on each building.

3.5 INSULATION INSTALLATION- POLYISO INSULATION

A. General:

1. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
2. Comply with roofing system manufacturer's written instructions for installing roofing insulation.
3. Extend insulation full thickness over the entire surface to be insulated, cutting and fitting tightly around obstructions. Form crickets, saddles, and tapered areas with additional material as shown and as required for proper drainage of membrane.
4. Do not use any damaged or wet insulation boards.
5. Install insulation boards with not more than 1/4" gap between boards.
6. Poorly adhered boards and boards with more than 1/4" gap shall be removed and replaced.
7. Do not install more insulation each day than can be covered with membrane before end of day and before start of inclement weather.
8. Install tapered insulation under area of roofing to conform to slopes indicated and to Shop Drawings.
9. Install tapered crickets wherever required to provide positive drainage around roof top equipment and accessories, whether shown on the drawings or not.
10. Install two layers of insulation under area of roofing to achieve required thickness. Joints are to be staggered between rows and layers.
11. Trim surface of insulation where necessary at roof drains so completed surface is flush with ring of drain.
12. Install insulation with long joints of insulation in continuous straight lines with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - a. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

B. Gypsum Deck Installations

1. Attached Insulation: Install all layers of insulation using the two-component urethane adhesive in accordance with the manufacturer's specifications.
2. Install the overlay board to the top surface of the polyiso insulation using the two-component urethane adhesive in accordance with the manufacturer's specifications.

3.6 INSULATION INSTALLATION- VACUUM INSULATED HIGH R-VALUE INSULATION PANELS

A. General:

1. Stagger seams of each layer to maximize R-Value
2. Only use manufacturer's approved adhesives to attach vacuum insulated panels to other layers of the roofing system. Do not use fasteners, screws, nails, staples, etc.
3. Install vacuum insulated panels at least 4-6" away from parapet walls, mechanical roof penetrations, or any other obstructions on the roof
4. Ensure no foreign or sharp objects touch the vacuum insulated panels, and that the panels are level. Do not step on vacuum insulated panels as this may compromise the outer-bad and thermal performance.
5. Ensure the vacuum insulated panels are kept dry at all times
6. Install with highly reflective side face up

3.7 FSR INSTALLATION

A. General:

1. Comply with manufacturers' published instructions, except where more stringent requirements are indicated.

2. Prevent compounds from entering and clogging drains and conductors, and from spilling or migrating onto surfaces of other work.
- B. Adhesive Adhered FSR:
1. Install membrane by unrolling over prepared substrate, lapping adjoining sheets as recommended by manufacturer. Apply adhesive to surfaces to be bonded and roll FSR into place when adhesive has properly cured. Cut edges are to be sealed after seams have been welded.
 2. Install mechanical fasteners, flashings and counterflashings, and accessories at locations and as recommended by manufacturer.
 3. Install FSR sheet over area to receive roofing according to roofing system manufacturer's written instruction. Unroll sheet and allow to relax for minimum of 30 minutes.
 4. Start installation of sheet in presence of roofing system manufacturer's technical personnel.
 5. Accurately align sheets and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
 6. Apply bonding adhesive to substrate and underside of sheet at rate required by manufacturer and allow to partially dry. Do not apply bonding adhesive to splice area of sheet.
 7. Mechanically or adhesively fasten sheet securely at terminations and perimeter of roofing.
 8. Apply roofing sheet with side laps shingled with slope of roof deck where possible.
 9. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing sheet in place with clamping ring.
- C. Walkpads:
Install walkpads in accordance with manufacturer's written instructions, placing pads with 4" space between each and anchoring pads with splice adhesive to the roof membrane.
- 3.8 SEAM INSTALLATION
- A. Clean both faces of splice areas, heat weld laps of overlapping sheets according to manufacturer's written instructions to ensure a watertight seam installation.
 - B. Repair tears, voids, and lapped seams in roofing that does not meet requirements.
- 3.9 FLASHING INSTALLATION
- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to roofing system manufacturer's written instructions.
 - B. Apply bonding adhesive to substrate and underside of flashing sheet at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
 - C. Flash penetrations and field-formed inside and outside corners with FSR flashing as recommended by manufacturer.
 - D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
 - E. Terminate and seal top sheet flashings.
 - F. Terminate and seal top of sheet flashing and mechanically anchor to substrate through termination bars.

3.10 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
 - 1. Notify Architect or Owner 48 hours in advance of the date and time of inspection.

3.11 PROTECTION AND CLEANING

- A. Protect sheet membrane roofing from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair sheet flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.
 - 1. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 09 30 00**TILING****PART 1 - GENERAL****1.1 DESCRIPTION OF WORK**

- A. The extent of tile work is indicated on the drawings and schedules.
- B. Section includes:
 - 1. Porcelain wall tiles
 - 2. Tiling trim, setting materials, and accessories

1.2 QUALITY ASSURANCE

- A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.
- B. Reference Standards:
The work of this section shall be executed and tested in accordance with current editions of the following standards:
 - 1. Tile Council of North America Handbook
 - 2. ANSI A 108

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials.
- B. Samples: Submit samples of each type of tile for each color and texture required, not less than 12" square.
- C. Certifications: Furnish Master Grade Certificates for each shipment and type of tile, signed by manufacturer and installer.

1.4 PRODUCT HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.

1.5 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- B. Maintain temperatures at not less than 50 degrees F in tiled areas during installation and or 7 days after completion, unless higher temperatures required by referenced installation standard or manufacturer's instructions.

PART 2 - PRODUCT**2.1 PRODUCTS, GENERAL**

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 for types and grades of tile indicated.
- B. Colors, Textures and Patterns:

1. For tile and other products requiring selection of colors, surface textures or other appearance characteristics, provide products to match characteristics indicated or, if not otherwise indicated, as selected by the Architect from manufacturer's standards.
2. Provide tile trim and accessories which match color and finish of adjoining flat tile unless otherwise indicated.

2.2 TILE PRODUCTS

A. Porcelain Floor Tile:

Provide flat tile complying with the following requirements:

Type: Porcelain

Nominal Facial Dimensions: 12" x 12"

Nominal Thickness: 8 mm

Edge: Pressed

Face: Glazed

Product: Pamarva 'Bakersfield'

Color: Pumice

Pattern: Running Bond

B. Porcelain Wall Tile:

Provide flat tile complying with the following requirements:

Type: Porcelain

Nominal Facial Dimensions: 12" x 12"

Nominal Thickness: 8 mm

Edge: Pressed

Face: Glazed

Product: Pamarva 'Bakersfield'

Color: Pumice

Pattern: Running Bond

2.3 SETTING MATERIALS

A. Thin Set Portland Cement Mortar Bond Coats:

Where thin set Portland cement mortar applications are indicated, use the following unless otherwise required.

1. Latex Portland cement mortar, ANSI A118.4
 - a. Manufacturer: Laticrete
 - b. Product: Laticrete 254 Platinum

2.4 GROUTING MATERIALS

A. Epoxy Grout

1. Manufacturer: Laticrete
2. Product: Spectralock Pro Grout
3. Color: As selected by Architect from full range of manufacturer's standard colors

2.5 CEMENTITIOUS TILE BACKER BOARD

Fiberglass mesh reinforced cement boards specifically manufactured for use as tile backer conforming to ASTM 1325, 1/2" nominal thickness, unless otherwise noted on the drawings.

2.6 MISCELLANEOUS MATERIALS

A. Metal Trim:

1. Floor tile edge trim at transition to different floor material:
 - a. Flush transition: Schluter "Schiene"
 - b. Reducing transition: Schluter "Reno-TK"
2. Wall tile outside corner trim: Schluter "Quadec" prefabricated metal tile trim, or approved equal.
3. Wall tile cap trim: Schluter "Quadec" prefabricated metal tile trim, or approved equal.

4. Metal Trim Material and Finish: Anodized aluminum

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard: Comply with applicable parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile".
- B. TCNA Installation Guidelines: Comply with TCNA "Handbook for Ceramic, Glass, and Stone Tile Installation" (latest edition) installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.
- C. General:
 - 1. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.
 - 2. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.
- D. Jointing Pattern:

Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.

 - 1. Joint Schedule: minimum joint width as recommended by the product manufacturer
- E. Grouting: Grout tile to comply with referenced installation standards, using grout materials indicated.
- F. Metal Trim Installation:

Coordinate trim installation with tile setting and substrate. Set trim in accordance with manufacturer's installation instructions.

3.3 WALL INSTALLATIONS

- A. Install tile to comply with requirements indicated below for setting method, TCA installation method related to types of wall construction, and grout types.

Wall Tile:

TCNA Handbook method number W244C

Substrate: Reinforced cement board units, joints taped with glass fiber mesh

Bond Coat: Thin set portland cement mortar

Grout: Epoxy grout

Floor Tile:

TCNA Handbook method number F112

Substrate: Concrete slab

Bond Coat: Thin set portland cement mortar

Grout: Epoxy grout

3.4 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
- B. Protection:
 - 1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage and wear.
 - 2. Prohibit foot and wheel traffic from using tiles floors for at least 7 days after grouting is completed.
 - 3. Protect grout from dirt, construction debris, and contamination for 7 days at 70°F (21°C). Protect from exposure to acids and strong cleaners during this period
 - 4. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION

SECTION 09 91 00**PAINTING****PART 1 - GENERAL****1.1 DESCRIPTION**

- A. Work Included: Painting and finishing exterior and interior exposed surfaces of items provided under other Sections that are not factory-finish coated.
- B. Related Work in other Sections:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections of Division 1 of these Specifications.
 - 2. Priming or priming and finishing of certain surfaces may be specified to be factory performed or installer performed under other Sections.
- C. Work not included:
 - 1. Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas such as furred spaces, foundation spaces, utility tunnels, pipe spaces, and duct shafts.
 - 2. Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require painting under this Section except if specified.
 - 3. Do not paint moving parts or operating units, mechanical or electrical parts such as valve operators, linkages, sensing devices, and motor shafts, unless otherwise indicated.
 - 4. Do not paint over required labels or equipment identification, performance rating, name, or nomenclature plates.
 - 5. Do not paint concrete that has been sandblasted.
- D. Definitions:
 - 1. "Paint," as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.2 QUALITY ASSURANCE

- A. Paint coordination:
 - 1. Provide finish coats compatible with prime coats actually used.
 - 2. Review other Sections of these Specifications as required, verifying prime coats to be used and assuring compatibility of total coating system for various substrata.
 - 3. Upon request, furnish information on characteristics of specific finish materials to assure that compatible prime coats are used.
 - 4. Provide barrier coats over non-compatible primers or remove primer and reprime as required.
 - 5. Notify Architect in writing of anticipated problems in using specified coating systems over prime coatings supplied under other Sections.

1.3 SUBMITTALS

- A. Product data:
 - 1. Submit materials list of items to be provided under this Section if substitutions are proposed. If specified products are used, submittal is not required. Key material list to

- Articles of this Section.
- 2. Manufacturer's specifications and other data needed to prove compliance with specified requirements.
- 3. Color and finish selection kits.

1.4 JOB CONDITIONS

- A. Do not apply solvent-thinned paints when temperature of surfaces to be painted and surrounding air temperatures are below 45 degrees F, unless manufacturer's printed instructions permit otherwise as approved by Architect.
- B. Weather conditions:
 - 1. Do not apply paint in snow, rain, fog, or mist; when relative humidity exceeds 85%; to damp or wet surfaces, unless manufacturers' printed instructions permit otherwise as approved by Architect.
 - 2. Applications may be continued during inclement weather only within temperature limits paint manufacturer specifies as suitable for use during application and drying periods.

PART 2 - PRODUCTS

2.1 COLORS AND FINISHES

- A. General:
 - 1. Paint colors, surface treatments, and finishes, are indicated in schedules of the contract documents.
 - 2. Use representative colors when preparing samples for review.
 - 3. Final acceptance of colors will be from samples applied on the job.
- B. Color Pigments:
 - 1. Pure, non-fading, applicable types to suit substrates and service indicated.
 - 2. Paint shall contain no lead.
- C. Paint Coordination:

Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime as required. Notify the Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.2 MATERIAL QUALITY

- A. Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.
- B. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.
- C. Federal Specifications establish minimum acceptable quality for paint materials. Provide written certification from paint manufacturer that materials provided meet or exceed these minimums.
- D. Manufacturer's products which comply with coating qualitative requirements of applicable

Federal Specifications, yet differ in quantitative requirements, may be considered for use when acceptable to the Architect. Furnish material data and manufacturer's certificate of performance to the Architect for any proposed substitutions.

- E. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only within recommended limits.
- F. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of unified system of paint finish.

2.3 COLOR SCHEDULES

- A. Architect will prepare color schedule for guidance in painting. Contractor to assume field color with up to (3) accent colors.

2.4 APPLICATION EQUIPMENT

- A. For application of approved paint, use only such equipment recommended for application of particular paint by manufacturer and as approved by Architect.
- B. Prior to use of application equipment, verify that proposed equipment is actually compatible with material to be applied and that integrity of finish will not be jeopardized by use of proposed equipment.

2.5 OTHER MATERIALS

- A. Contractor selects other materials, not specifically described but required for complete and proper installation, subject to Architect's approval.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 MATERIALS PREPARATION

- A. General:
 - 1. Mix and prepare paint materials in strict accordance with manufacturer's recommendations as approved by Architect.
 - 2. When materials are not in use, store in tightly covered containers.
 - 3. Maintain containers used in storage, mixing, and application of paint in clean condition, free from foreign materials and residue.
- B. Stirring:
 - 1. Stir materials before application, producing mixture of uniform density.
 - 2. Do not stir into material any film that forms on surface, but remove film and, if necessary, strain material before using.

3.3 SURFACE PREPARATION

- A. Manufactured items: Follow printed instructions of manufacturer of item being finished.
- B. General:
 - 1. Prepare and clean in strict accordance with paint manufacturer's recommendations as approved by Architect.
 - 2. Remove removable items that are in place and not scheduled to receive paint finish, or

- provide surface applied protection prior to surface preparation and painting operations.
3. Following completion of painting in each space or area, reinstall removed items by using workmen skilled in necessary trades.
 4. Clean each surface to be painted prior to applying paint or surface treatment.
 5. Remove oil and grease with clean cloths and cleaning solvent of low toxicity and flash point in excess of 200 degrees F, prior to start of mechanical cleaning.
 6. Schedule cleaning and painting so that dust and other containments from cleaning process will not fall onto wet, newly painted surfaces.

C. Preparation of wood surfaces:

1. Clean wood surfaces until free from dirt, oil, and other foreign substance.
2. Smooth finished wood surfaces exposed to view, using proper sandpaper. Where required, use varying degrees of coarseness in sandpaper to produce uniformly smooth and unmarred wood surface.
3. Unless Architect specifically approves, do not proceed with painting of wood surfaces until moisture content of wood is 12% or less as measured by moisture meter approved by Architect.

D. Preparation of metal surfaces:

1. Thoroughly clean surfaces until free from dirt, oil, and grease.
2. On galvanized surfaces, use solvent for initial cleaning and then treat surface thoroughly with phosphoric acid etch. Remove etching solution completely before proceeding.
3. Allow to dry thoroughly before application of paint.
4. Lightly sand shop applied primer on structural steel, miscellaneous exposed steel, hollow metal doors and frames, to remove burrs and un-even conditions.

3.4 PAINT APPLICATION

A. General:

1. Provide masking and protection of existing finishes and improvements from the paint application processes.
2. Touch-up damaged shop-applied prime coats, and touch-up bare area prior to applying finish coats.
3. Slightly vary color of succeeding coats. Do not apply additional coats until completed coat has been inspected and approved coats of paint will be considered in determining number of coats applied.
4. Sand and dust between coats to remove defects visible to unaided eye from distance of five feet.
5. On removable panels and hinged panels, paint back sides to match exposed sides.
6. Comply with printed instructions of manufacturer of factory-manufactured items.
7. Roller application is acceptable only on gypsum wall board or plaster wall and ceiling surfaces. All woodwork and other surfaces are to be brushed or sprayed only.
8. **Hollow Metal Doors and Frames: primer and finish coats of paint shall be applied using spray equipment only and shall achieve a smooth finish without any orange peel texture or drips.**

B. Drying:

1. Allow sufficient drying time between coats, modifying period as material manufacturer recommends, to suit adverse weather conditions.
2. Consider oil-base and oleo-resinous solvent-type paint as dry for recoating when paint feels firm, does not deform or feel sticky under moderate thumb pressure, and applying another coat of paint does not cause undercoat to lift or lose adhesion.

C. Brush applications:

1. Brush out and work brush coats onto surface in even film.
 2. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections are not acceptable.
- D. Spray application:
1. Where spray application is used, apply each coat to provide hiding equivalent of brush coats.
 2. Do not double back with spray equipment to build up film thickness of two coats in one pass.
- E. Miscellaneous surfaces and procedures:
1. Exposed mechanical items:
 - a. Finish electric panels, access doors, conduits, pipes, ducts, grilles, registers, vents, and items of similar nature to match adjacent wall and ceiling surfaces, or as directed.
 - b. Paint visible duct surfaces behind vents, registers, and grilles flat black.
 - c. Wash metal with solvent, prime, and apply two coats of alkyd enamel.
 2. Primed hardware: Paint to match adjacent surfaces
 3. Interior enamel: Apply rolled finish.
- 3.5 COMPLETION AND CLEANING
- A. Non-painted surfaces, including glass, are to be scraped clean of excess paint and putty applied as part of Work of this Contract.
- B. Window sashes that operated before painting are to be operable at conclusion of Work.
- 3.6 PRODUCT AND SURFACE SCHEDULE
- Provide following paint finishes as manufactured by the Sherwin Williams Paint company, or approved equals. Substitutions submitted for approval shall include a comparison of the specified product with the substitute product.
- Ptd 'A': Hollow Metal Doors and Frames; semi-gloss finish
 Primer: (In addition to shop applied primer): SW Pro-Industrial Pro-Cryl Universal Primer, B66-310 Series
 Finish: (2) coats of SW Pro Industrial Waterbased Alkyd Urethane, B53-1150/2150 Series
- Ptd 'B': Gypsum wallboard walls, eg-shel finish
 Primer: Sherwin Williams ProMar Zero VOC Latex Primer, B28W2600
 Finish: (2) coats SW ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series
- Ptd 'C': Gypsum wallboard ceilings, flat finish
 Primer: Sherwin Williams ProMar Zero VOC Latex Primer, B28W2600
 Finish: (2) coats of SW ProMar 200 Zero VOC Latex Flat, B30-2600 Series
- Ptd 'D': Metal guardrails, handrails, pipe bollards, misc metals, gloss finish
 Primer: SW Pro-Industrial Pro-Cryl Universal Primer, B66-310 Series
 Finish: (2) coats of SW Pro Industrial Waterbased Alkyd Urethane, B53-1150/2150 Series
- Ptd 'E': CMU interior, high gloss
 Primer: Pro Industrial Heavy Duty Block Filler
 Finish: (2) coats of Pro Industrial WB Pre Catalyzed Epoxy

- Ptd 'F' Wood trim, semi-gloss finish
Primer: SW PrepRite ProBlock Primer Sealer, B51-620 Series
Finish: (2) coats of SW Pro Industrial Waterbased Alkyd Urethane, B53-1150/2150 Series
- Ptd 'G' Concrete walls, semi-gloss finish
Primer: SW Loxon Concrete & Masonry Primer Sealer, A24W8300
Finish: (2) coats of SW Solo Acrylic Semi-Gloss, A76 Series

END OF SECTION

SECTION 10 21 15

COMPOSITE TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Solid plastic toilet compartments including the following:
 - 1. Floor mounted overhead-braced toilet compartments.
 - 2. Privacy screens.
- B. Related work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 REFERENCES

- A. ASTM A666 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- D. National Fire Protection Association (NFPA) 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- B. Shop Drawings: Provide layout drawings and installation details with location and type of hardware required.
- C. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.
- D. Sustainable Design Submittals:
 - 1. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.
 - 2. Regional Materials: Certify distance between manufacturer and Project.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.
- B. Installer Qualifications: A company regularly engaged in installation of products specified in

this Section, with a minimum of 5 years experience.

- C. Materials: Doors, panels and pilasters, constructed from high density polyethylene (HDPE) resins. Partitions to be fabricated from polymer resins compounded under high pressure, forming a single component which is waterproof, nonabsorbent and has a self-lubricating surface that resists marks from pens, pencils, markers and other writing instruments. Cover all plastic components with a protective plastic masking.
 - D. Performance Requirements:
 - 1. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with ASTM E 84, Class B:
 - a. Tested to Meet ASTM E84, Class B flame spread/smoke developed rating.
 - 2. Material Fire Ratings:
 - a. National Fire Protection Association (NFPA) 286: Pass.
 - b. International Code Council (ICC): Class B.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Store products in manufacturer's unopened packaging until ready for installation.
- 1.7 PROJECT CONDITIONS
- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- 1.8 WARRANTY
- A. Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. Labor not included in warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Model numbers for toilet partitions manufactured by Scranton Products. are listed to establish a standard of quality for design, function, materials, workmanship, and appearance. Other manufacturers may be submitted for evaluation by the architect by following the conditions for substitutions. The architect shall be the sole judge as to the acceptability of all products submitted for substitution.
- B. Toilet partitions shall be the product(s) of a single manufacturer.

2.2 MOUNTING CONFIGURATIONS

- A. Toilet Partitions shall be:
 - 1. Scranton Products 'Hiny Hider' - Overhead-Braced,
Color: To be selected by Architect from manufacturer's full range of standard Class 'B' colors
Texture: Orange Peel
- B. Urinal Screens shall be:
 - 1. Scranton Products 'Hiny Hider' - Wall-Hung
Color: To be selected by Architect from manufacturer's full range of standard Class 'B' colors
Texture: Orange Peel

2.3 SOLID PLASTIC TOILET COMPARTMENTS

- A. Basis of Design: Hiny Hiders Toilet Partitions as manufactured by and supplied by Scranton Products, or approved equal.
 - 1. Style: Floor mounted overhead-braced toilet compartments.
- B. Doors, Panels, and Pilasters: 1 inch (25 mm) thick with all edges rounded to a radius. Mount doors and dividing panels based on height of specified system.
 - 1. Door and Panel Height: 55 inches (1397 mm).
 - 2. Aluminum heat sink fastened to bottom edges.
 - 3. Door Design: Traditional 2600.
 - 4. Panel Edge: Shiplap.
 - 5. Pilasters: 82 inches (2083 mm) high and fastened to floor.
- C. Panel Color: To be selected by Architect from manufacturer's full range of standard colors
- D. Pilaster Shoes: 3 inches (76 mm), 20-gauge stainless steel. Secured to pilasters with a stainless-steel tamper resistant Torx head sex bolt.
- E. Headrail: Heavy-duty extruded 6463-T5 alloy aluminum with anti-grip design. Finish to be clear anodized. Fastened to headrail brackets with stainless steel tamper resistant Torx head sex bolt, and fastened at the top of the pilaster with stainless steel tamper resistant Torx head screws.
 - 1. Headrail Brackets: 20-gauge stainless steel with satin finish. Secured to the wall with stainless steel tamper resistant Torx head screws.
- F. Wall Brackets:
 - 1. Aluminum Brackets: Heavy-duty aluminum 6463-T5 alloy.
 - 2. Brackets are fastened to pilasters with stainless steel tamper resistant Torx head screws and fastened to the panels with stainless steel tamper resistant Torx head sex bolts.
 - 3. Bracket Type: Continuous 54 inches (1372 mm) stainless steel.
- G. Door Hardware:
 - 1. Continuous Stainless Steel Spring Loaded Hinge:
 - a. Hinges: 54 inches (1372 mm).
 - 2. Latch Mechanism: Stainless Steel Slide Bolt Latch and Housing: Heavy-duty stainless-steel type 304. The latch and housing to have a bright finish. The slide bolt and button to have a black anodized finish.
 - 3. Doors supplied with one coat hook/bumper and door pull, in satin stainless steel.
 - 4. Equip outswing handicapped doors with second door pull and door stop.

2.4 SOLID PLASTIC PRIVACY SCREENS

- A. Provide plastic privacy screens in urinal applications as indicated or scheduled.
- B. Panels, and pilasters, if required, 1 inch (25 mm) thick with edges rounded to a radius. Color as selected by Architect from manufacturer's full line of current colors.
 - 1. Aluminum heat sink fastened to bottom edges.
 - 2. Recycled Content: Minimum 25 percent.
- C. Screen Type: Wall mounted.
 - 1. Urinal Screens: 30 inches (457 mm) wide by 42 inches (1067 mm) high.

- E. Wall Brackets: Extruded PVC plastic. Fastened to the panel/pilaster with stainless steel tamper resistant torx head screws and fastened to wall with stainless steel tamper resistant torx head sex bolts.
 - 1. Length of Wall Brackets: 41 inches (1041 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Examine areas to receive toilet partitions, screens, and shower compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that affect installation of partitions. Report discrepancies to the architect.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install partitions rigid, straight, plumb, and level manor, with plastic laid out as shown on shop drawings.
- C. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 3/8 inch (9.5 mm).
- D. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.
- E. Finished surfaces shall be cleaned after installation and be left free of imperfections.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION



**Hazardous Materials Survey
Harford Senior Center
4920 Harford Road
Baltimore, Maryland 21214**

Prepared for

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FIGURE 1: Floor Plans

FIGURE 2: Hazardous Materials Summary Table

APPENDIX A:	PHOTOGRAPHS
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LIST OF ACRONYMS AND ABBREVIATIONS

ACBM	Asbestos-Containing Building Material
ACM	Asbestos-Containing Material
ASHERA	Asbestos Emergency Response Act
EA	EA Engineering, Science, and Technology, Inc., PBC
EPA	U.S. Environmental Protection Agency
CAA	United States Clean Air Act Amendments
CFC	chlorofluorocarbon
CFL	Compact Fluorescent Light
ft	Foot (feet)
HBFC	hydrobromofluorocarbon
HCFC	hydrochlorofluorocarbon
HID	High Intensity Discharge
LBP	Lead-Based Paint
LCP	Lead-Containing Paint
MDE	Maryland Department of the Environment
mg/cm ²	Milligrams per square centimeter
ODS	Ozone-Depleting Substance
PCB	Polychlorinated biphenyl
ppm	Part per million
RACM	Regulated Asbestos-Containing Material
RRMM	RRMM Architects
UW	Universal Waste

EXECUTIVE SUMMARY

EA Engineering, Science, and Technology Inc., PBC. (hereafter referred to as EA) was retained by RRMM Architects (hereafter referred to as RRMM) to perform a Hazardous Materials Survey of the Harford Senior Center located at 4920 Harford Road, Baltimore, Maryland 21214. This included the interior of the building and the exterior façade of the building as well as the roof (hereafter collectively referred to as the Study Area). The interior of the building has a footprint of approximately 6,952 square feet of floor space. The Study Area is slated for renovation to better accommodate the needs of the Senior Center.

This Hazardous Materials Survey was performed to identify hazardous materials that may be impacted by renovation activities. The hazardous materials evaluated for the survey include Asbestos-Containing Building Materials (ACBMs), Lead-Based Paints (LBPs), liquid phase Polychlorinated Biphenyls (PCBs), Ozone-Depleting Substances (ODSs), and Universal Wastes (UWs).

Floor plans of existing conditions were provided to EA by RRMM for referral and use in the Survey. The floor plans were labeled by EA with room numbers for the purpose of documenting and reporting the findings specific to each room; the floor plans with the EA-designated room numbers are included as **Figure 1**. The EA-designated room numbers correlate to the room numbers in the Hazardous Materials Summary Table, provided as **Figure 2**, to identify the types and locations of the hazardous materials identified in the Study Area. Photographs taken during the survey are included in **Appendix A**.

The results of the survey, performed on May 2nd and May 9th, 2025, have identified hazardous materials in the Study Area. The following sections summarize EA's findings.

Asbestos-Containing Building Materials

The results of the survey have identified asbestos-containing building materials in the Study Area. A summary of the asbestos-containing building materials (material types and quantities) is provided in the following **Table ES-1**. The table also contains a column for information indicating whether or not the material is a regulated asbestos-containing material (RACM) per federal regulations.

Table ES-1 Approximate Quantities of ACBMs			
Material Type	Quantity	Unit of Measure	RACM
Light Gray 9" x 9" Floor Tile ¹	3,388	Square Feet	No
Gray 9" x 9" Floor Tile ¹	2,702	Square Feet	No
Joint Compound ²	5,647 ³	Square Feet	Yes
Black Mastic on Black Covebase	363	Linear Feet	No
Black Expansion Joint	126	Linear Feet	No
Gray Paper Wrap Around Ceiling Joist	8	Square Feet	No
White Window Glazing	140	Linear Feet	Yes
Pipe Flange Gasket (Assumed)	3	Each	No
Fire Door (Assumed)	3	Each	No

¹ This material is present beneath carpeting and/or non-ACM 12" x 12" vinyl floor tile.

² The asbestos-containing joint compound identified during the survey was associated with a wallboard system and is therefore considered an integral part of the wall system by the EPA. Analysis of the wall system was conducted, and the wall system was determined to be non-asbestos containing. The wall system itself is therefore not considered ACM by EPA; however, OSHA regards each of the materials used to construct wall systems as separate materials and each material must be analyzed separately for asbestos content. If any of the individual materials contain asbestos, work practices must be conducted in accordance with OSHA's Construction Asbestos Standard.

³ The quantity listed for joint compound is the estimated quantity of drywall observed at the building, as the joint compound cannot be economically separated from the wall system.

The EPA requires that regulated asbestos-containing material be removed before demolition/renovation activities begin. Further, although certain asbestos-containing building materials identified during the survey were not classified as RACM at the time of the survey, it is EA's professional opinion that these materials should also be removed since proposed renovation techniques are unknown at this time and to prevent the potential release of fibers during renovation and subsequent waste consolidation activities (segregation and reduction of renovation debris).

The pipe gaskets and fire doors were assumed to contain asbestos. These items were assumed to contain asbestos (rather than sampled/tested), as the materials were either inaccessible at the time of the survey or sampling would have caused damage to the structural integrity of the system while the facility is still in use.

It may be cost effective to have these assumed asbestos-containing building materials sampled and analyzed at an appropriate time so that they can be definitively classified as asbestos-containing building materials or non-asbestos materials. The most appropriate time to sample these materials is typically after the project has been turned over to the renovation contractor and work has commenced.

The OSHA "Asbestos in Construction Standard" (29 CFR 1926.1101) imposes restrictions on the disturbance of asbestos during demolition, remodeling, and renovation activities. Removal of any asbestos-containing building materials identified in the Study Area is considered Class II asbestos work by OSHA regulations. Class II asbestos work must be performed by trained employees using work practices required by the OSHA standard.

Lead-Based Paints

Lead-based paints (LBPs) were identified throughout the Study Area on interior and exterior building components. Specifically, LBP was identified on metal and wood substrates. In addition, lead-containing paints (i.e., paints containing lead but at concentrations less than the threshold for lead-based paint) were identified on various surfaces. In addition, a lead pipe and lead-glazed ceramic tiles were identified during the survey.

Removal/abatement of LBP and LCP prior to planned alterations is not required; however, the presence of lead in paint of any concentration triggers OSHA regulatory standard 29 CFR

1926.62. Therefore, contractors must be made aware of the lead hazards in the Study Area. Worker protection requirements and engineering controls to protect the surrounding environment from lead contamination should be implemented by contractors in accordance with pertinent regulations. Untested paint on building components should be considered to contain regulated levels of lead until subsequent testing shows otherwise.

Demolition debris with LBP and lead-glazing may be disposed of as non-hazardous provided the material is not classified as a hazardous waste in accordance with 40 CFR Part 261 and SW-846 (Test Methods for Evaluating Solid Waste Physical/Chemical). Metal objects coated with LBP and the lead pipe can be recycled.

Liquid Polychlorinated Biphenyls

Equipment assumed to contain liquid phase Polychlorinated Biphenyls (PCBs) was identified in the Study Area. The type of equipment observed and the recorded quantity is provided in the following **Table ES-2**.

Table ES-2		
Approximate Quantities for Equipment Containing PCBs		
Equipment Type	Quantity	Unit of Measure
Light Ballast	92	Each

Due to the voluminous quantity, the lighting fixtures in the Study Area were not dismantled to inspect individual light ballasts for markings related to PCB content. Therefore, the ballasts are assumed to contain PCBs.

Ballasts marked as “No PCBs” can be disposed of as non-hazardous waste. Ballasts lacking the “No PCBs” mark should be removed and disposed of in accordance with EPA’s Toxic Substances Control Act (TSCA) 40 CFR Part 761. If an unmarked ballast is not leaking, the associated lighting fixture does not require special handling or disposal. If an unmarked ballast is leaking, any material impacted by the leak should be treated as hazardous waste. Containers storing unmarked ballasts must be labeled in accordance with EPA labeling requirements specified in 40 CFR Part 262 Subpart C.

Ozone-Depleting Substances

Equipment suspected of containing Ozone-Depleting Substances (ODSs) was identified in the Study Area. The types of equipment observed and the recorded quantities are provided in the following **Table ES-3**.

Table ES-3		
Approximate Quantities for Equipment Containing ODSs		
Equipment Type	Quantity	Unit of Measure
Commercial Refrigerator	2	Each
Household Refrigerator	1	Each
Rooftop Air-Condensing Unit	1	Each
Rooftop Air-Conditioning Unit	2	Each

Under EPA's rule, refrigerant must be recovered from equipment that is typically dismantled on-site before disposal (e.g., retail/commercial food refrigeration, central air-conditioning units, chillers, and industrial process refrigeration) in accordance with the EPA's requirements for servicing.

Equipment that typically enters the waste stream with the charge intact (e.g., household refrigerators, motor vehicle air conditioners, household freezers, and room air conditioners) is subject to special safe disposal requirements. Under the safe disposal requirements, the final person in the disposal chain (e.g., a scrap metal recycler or landfill owner) is responsible for ensuring that refrigerant is recovered from the equipment before the final disposal of the equipment. However, persons "upstream" can remove the refrigerant and provide documentation of its removal to the final person if this is more cost-effective. If the final person in the disposal chain (e.g., a scrap metal recycler or landfill owner) accepts appliances that no longer hold a refrigerant charge, that person is responsible for maintaining a signed statement from whom the appliance(s) is being accepted. The signed statement must include the name and address of the person who recovered the refrigerant and the date that the refrigerant was recovered, or a copy of a contract stating that the refrigerant will be removed prior to delivery.

Universal Wastes

Universal wastes (UW) were identified in the Study Area. The types of universal wastes observed and the recorded quantities are provided in the following **Table ES-4**.

Table ES-4		
Approximate Quantities for UW		
Equipment Type	Quantity	Unit of Measure
4' Fluorescent Light Tube	324	Each
2' Fluorescent Light Tube	1	Each
Compact Fluorescent Light Bulb	1	Each
High Intensity Discharge Bulb	26	Each
Thermostat	2	Each
Battery in Emergency Light Fixture	11	Each

All UW should be placed in a container that is structurally sound, will prevent damage to the contents, is compatible with its contents, and will be kept closed at all times (except when adding items to or removing items from the container). The container must be without damage, or evidence of spillage, that could lead to leakage of the waste contained inside. The disposal of UW is outlined in the EPA regulations in 40 CFR Part 273 and in Maryland regulations in COMAR Title 26, Subtitle 13.

1. INTRODUCTION

The Study Area was surveyed to identify and quantify certain potentially hazardous materials that may be affected by the planned renovation activities. Specifically, the hazardous materials evaluated for this project included Asbestos-Containing Building Materials, Lead-Based Paints, liquid phase Polychlorinated Biphenyls, Ozone-Depleting Substances, and Universal Wastes.

Floor plans of existing conditions were provided to EA prior to the survey. The rooms outlined on the floor plans were assigned room numbers during the survey; the assigned room numbers were used in the Hazardous Materials Summary Table provided as **Figure 2** to identify the locations, types, and quantities of the hazardous materials, by room, in the Study Area.

Photographs taken during the survey are included in **Appendix A**.

1.1 ASBESTOS-CONTAINING BUILDING MATERIALS

Asbestos means the asbestiform varieties of chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Asbestos-containing materials (ACM) means any material or product which contains greater than one percent (1%) asbestos. Asbestos-containing building materials (ACBM) means ACM that is found in or on interior structural members or other parts of a building. ACBM is divided into three categories in the EPA regulations (40 CFR Part 763). These categories are thermal system insulation, surfacing materials, and miscellaneous materials. Each category is generally described as follows:

- Thermal System Insulation (TSI) includes those materials applied to pipes, fittings, boilers, breeching tanks, ducts, or other interior/exterior structural components to prevent heat loss or gain, or water condensation, or for other purposes of maintaining temperatures.
- Surfacing (S) Materials include those materials sprayed on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.
- Miscellaneous (M) Materials include interior/exterior building material on structural components, structural members or fixtures, such as roofing, floor and ceiling tiles, caulks, mastics/adhesives, and does not include surfacing material or thermal system insulation.

The EPA requires that Regulated Asbestos-Containing Materials (RACM) be removed before demolition/renovation begins in accordance with the “National Emission Standards for Hazardous Air Pollutants” (NESHAP) 40 CFR Part 61. The State of Maryland also regulates the removal/abatement of asbestos in buildings (COMAR 26.11.21). RACM includes the following:

- Friable ACM;
- Category I non-friable ACM (resilient floor covering, resilient floor covering mastic, asphalt roofing products, packings, and gaskets) that has become friable;

- Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; and
- Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated in 40 CFR 61 Subpart M.

Asbestos is further classified as either 'Friable' or 'Non-Friable'. Friable asbestos material is defined as any material containing more than 1% asbestos that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. Non-friable asbestos materials are subcategorized as Category I and Category II, where Category I materials include resilient floor covering, resilient floor covering mastic, asphalt roofing products, packings, and gaskets. Category II materials include all other non-friable asbestos-containing materials.

1.2 LEAD-BASED PAINTS

The Maryland Department of the Environment (MDE) definition of lead-based paint (LBP) is used as the basis for this screening. Lead-based paint is defined as paint or coating that contains lead at a concentration greater than 0.7 milligrams per square centimeter, as determined by an X-Ray Fluorescence (XRF) instrument.

XRF is a common quantitative analytical technique used to measure the concentration of elements in solid or liquid materials. In this technique, the sample is bombarded by some form of ionizing radiation such as X-rays, or gamma-rays, which can cause the atoms of the sample to emit characteristic X-rays. These characteristic X-rays from the sample, known as fluorescent X-rays, can be detected and analyzed to provide information as to what concentration of atoms are contained in the sample. Since this technique does not harm the sample in any way, it is considered a nondestructive testing technique.

Lead-based paint is also defined by the MDE as paint chips containing greater than 0.5% lead by weight, as determined through laboratory analysis (Method SW846-7420). Since removal of paint chips from the substrate are required, this method is considered a destructive testing technique.

1.3 LIQUID POLYCHLORINATED BIPHENYLS

Polychlorinated Biphenyls (PCBs) are man-made mixtures of synthetic organic chemicals known as chlorinated hydrocarbons ranging from oily liquids to waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in a wide range of industrial and commercial applications. These applications included but were not limited to electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics and rubber products; and in pigments, dyes and carbonless copy paper.

Concern over the toxicity and occurrence in the environment of PCBs led Congress in 1976 to enact §6(e) of the Toxic Substances Control Act (TSCA) that included among other things, prohibitions on the manufacture, processing, and distribution in commerce of PCBs. Thus, TSCA

legislated true "cradle to grave" (i.e., from manufacture to disposal) management of PCBs in the United States.

PCB content has been categorized into three classifications by the federal government. Electrical equipment that contains less than 50 parts per million (ppm) of PCBs is defined as non-PCB. Electrical equipment that contains between 50 ppm and less than 500 ppm of PCBs is defined as PCB-contaminated. Electrical equipment with a PCB content of 500 ppm and greater is classified as PCB.

PCBs were commonly sold in the United States of America under the trade name "Arocolor." However, companies that used PCBs in the manufacture of transformers and capacitors often used other trade names. According to the EPA, electrical light ballasts manufactured prior to July 1978 have a greater than 50% chance of containing PCBs at concentrations of 50 ppm or greater. Ballasts manufactured after July 1978 are required to bear a "No PCB" label indicating they do not contain PCBs.

This study did not include inspection or testing for non-liquid PCBs.

1.4 OZONE-DEPLETING SUBSTANCES

Ozone-depleting substances (ODSs) are generally small organic molecules (less than three carbons) that contain chlorine, fluorine, or bromine. Some uses of ODSs include refrigerants, fire suppressants, and cleaning compounds. Title VI of the United States Clean Air Act Amendments (CAA) of 1990 has classified ozone-depleting substances as belonging to Class I substances (most harmful) or Class II substances (less harmful).

Class I substances are those with a greater ozone-depletion potential. Class I substances identified in Title VI are chlorofluorocarbons (CFCs), halons, carbon tetrachloride, methyl chloroform (1,1,1-trichloroethane), hydrobromofluorocarbon (HBFC) and methyl bromide. Class II substances are those with a lesser ozone-depletion potential. All hydrochlorofluorocarbons (HCFCs) are Class II substances.

Effective July 1, 1992, Section 608 of the CAA prohibits individuals from knowingly venting ozone-depleting substances (generally CFCs and HCFCs) used as refrigerants into the atmosphere while maintaining, servicing, repairing, or disposing of air-conditioning or refrigeration equipment.

1.5 UNIVERSAL WASTES

A universal waste is a common product/material that exhibits low-level hazards. Universal wastes include batteries, pesticides, mercury-containing equipment, bulbs/lamps, and aerosol cans. All universal waste must be handled in a manner to prevent the release of the hazardous substance into the environment, contained in a secure manner, labeled, and safely transported to a destination facility. Definitions of universal waste are detailed in 40 CFR 273.9, and general descriptions of universal waste are provided as follows.

A battery is an electrochemical cell that receives, stores, and delivers electric energy. Batteries can be disassembled into cells before removal and transportation as described in 40 CFR 273.13 (small quantity handlers) and 40 CFR 273.33 (large quantity handlers).

In general, there are several types of batteries, including primary and secondary. Primary batteries are most common in households and are known as single-use batteries. Primary batteries automatically convert chemical energy into electrical energy using zinc and manganese chemistry. Secondary batteries are known as re-chargeable batteries. Recharging occurs when electrical current is applied to the battery, reversing the chemical reaction that occurs during battery use. Secondary batteries are usually composed of nickel cadmium, nickel metal hydride or lithium-ion chemistry. Lead-acid batteries are the oldest type of the secondary batteries and are typically used to power vehicles.

Pesticides include any substance/chemical designed to control and manage pests.

Mercury-containing equipment includes a device or part of a device (including thermostats but excluding batteries and bulbs/lamps) that contains elemental mercury integral to its function. Thermostats are typically used to control a heating or cooling system. A thermostat is an electro-mechanical on/off switch that is activated by temperature changes. The sensing element is usually a spiral bimetallic strip that coils and uncoils in response to temperature changes because of differential expansion of the two bonded metals. In a mercury-switch thermostat, a ball of mercury rolls between contacts in one or more sealed glass ampoules, which are attached to a metal strip. The switch works when the mercury makes or breaks an electrical circuit, which creates a signal for heating or cooling from a furnace or central air conditioning system. Each glass ampoule contains approximately three grams of mercury, which is approximately the size of a dime. Mercury's unique properties, high conductivity, high surface tension and liquidity at room temperature, have made it a useful component in many electric switches.

A lamp, also referred to as a universal waste lamp, is the bulb or tube portion of an electric lighting device specifically designed to produce radiant energy. Examples of common universal waste lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

An aerosol can is a non-refillable receptacle containing a compressed, liquefied, or dissolved gas under pressure (propellant) for the sole purpose of releasing a liquid, paste, or powder (product). Equipped with a self-closing release device, aerosol cans are widely used for dispensing a broad range of products including paints, solvents, pesticides, food and personal care products, and many others. Aerosol cans are frequently hazardous due to their ignitability characteristic (as propellants are often propane or butane), and in some cases may also contain listed or exhibit other hazardous waste characteristics.

1.6 LIMITATIONS AND EXCLUSIONS

The following limitations and exclusions apply to this project:

- Areas above and behind fixed substrates (e.g., plaster, drywall, masonry block, concrete, etc.) were not accessed, as the survey was limited to non-intrusive measures due to its occupied status.
- Sampling of energized components was not performed due to risk of electrical hazards.
- Quantities of hazardous materials identified herein were approximate on the dates of the survey and are limited to accessible, observable materials. Quantities may change in the future due to daily operations in the Study Area.
- The conclusions presented in this report are based on the visual findings observed on the dates of the survey.
- Subsurface investigation measures were excluded per the scope of work for this project.
- Patching of sample locations for non-friable materials was not conducted, with the exception of roofing materials. Areas of sampled roofing materials were patched by a roofing contractor retained by others.
- Non-liquid PCBs were not characterized.
- The survey did not include dismantling of equipment (e.g., mechanical, process, industrial, etc.) to identify potential hazardous materials within the equipment.

2. ASBESTOS-CONTAINING BUILDING MATERIALS

The National Emission Standard for Hazardous Air Pollutants (NESHAP) requires the building owner/operator to perform an asbestos inspection of affected portions of facilities prior to demolition or renovation activities.

Maryland Department of the Environment (MDE) accredited Asbestos Inspectors performed an asbestos inspection of accessible portions of the Study Area. Certificates of the inspectors are included in **Appendix B**.

2.1 INSPECTION AND ANALYTICAL METHODOLOGY

The survey consisted of performing a records review followed by an inspection to identify suspect asbestos-containing building materials (ACBMs) in accessible building areas. The inspection was non-intrusive (i.e., the inspection did not include accessing areas behind hard walls, above hard ceilings, below hard floors, or behind other fixed substrates).

2.1.1 Records Review

A records review consists of reviewing previous asbestos inspection/survey reports, abatement records, and/or as-built drawings, if available, associated with the facility.

2.1.2 On-site Inspection

The on-site inspection involved a combination of visual assessment and minimally destructive sampling methodologies. The visual assessment primarily focused on identifying homogeneous areas of suspect materials present within the Study Area. Sampling of each homogeneous area was then conducted from random locations where the suspect homogeneous area of ACBM was identified and accessible. Where possible, samples were collected from inconspicuous locations. Samples from suspect friable materials were patched in a manner to limit the release of potential asbestos fibers; however, these locations were not permanently or professionally repaired.

2.1.3 Sample Collection and Analysis

EA collected samples of materials that were suspected of containing asbestos in accordance with the Asbestos Hazard Emergency Response Act (AHERA) (40 CFR 763 Subpart E). All areas of surfacing materials, thermal system insulation materials, or miscellaneous materials that were uniform in color and texture were grouped into homogeneous areas and sampled according to the AHERA asbestos sampling protocol as shown in the following **Table 2-1**.

Table 2-1 AHERA Asbestos Sampling Protocol Per Category		
Surfacing Materials	Thermal System Insulation	Miscellaneous Materials
3 samples per area $\leq 1,000$ ft ²	3 samples for each TSI material	Sample in a manner sufficient to determine (Note – EA's Standard Operating Procedure is to collect at least 2 samples per homogenous area)
5 samples per area $> 1,000$ ft ² but $\leq 5,000$ ft ²	1 sample per area of patched insulation (< 6 linear or square feet)	
7 samples per area $> 5,000$ ft ²	Sample in a manner sufficient per mechanical system not assumed to be ACBM where cement or plaster is used on fittings such as tees, elbows, or valves (Note – EA's Standard Operating Procedure is to collect at least 2 samples per homogenous area)	

Samples were submitted to BATTA Laboratories, LLC (BATTA) for analysis by Polarized Light Microscopy (PLM) in accordance with the EPA Method for the Determination of Bulk Asbestos Samples (EPA 600/R-93/116). Based on the laboratory findings, further analysis of samples by Transmission Electron Microscopy (TEM) was not considered necessary. BATTA is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP #101032-0) for the analysis of bulk asbestos by PLM and bulk asbestos by TEM.

2.2 RESULTS

2.2.1 Records Review

No records in the form of previous inspection/survey reports, abatement records, or as-builts drawings were made available to EA.

2.2.2 On-site Inspection and Sampling Results

As a result of the inspection, suspect ACBMs were identified within the Study Area. Samples of the accessible suspect materials were collected, and the samples were analyzed by BATTA. Based upon the laboratory analysis, ACBMs were identified and are listed in the following **Table 2-2**.

Table 2-2 Laboratory Analytical Results						
EA Sample No.	Material Description	Color	Location	Category*	Friable (Yes/No)	PLM Analysis
HSC-EA-04B-1	Joint Compound	White	Wall	M	Yes	2% Chrysotile
HSC-EA-06A	Expansion Joint	Black	Wall	M	No	5% Chrysotile
HSC-EA-06B	Expansion Joint	Black	Wall	M	No	5% Chrysotile
HSC-EA-07A	Window Glazing	White	Window	M	No	2% Chrysotile
HSC-EA-07B	Window Glazing	White	Window	M	No	2% Chrysotile

Table 2-2 Laboratory Analytical Results						
EA Sample No.	Material Description	Color	Location	Category*	Friable (Yes/No)	PLM Analysis
HSC-EA-08A	Expansion Joint	Black	Wall	M	No	5% Chrysotile
HSC-EA-08B	Expansion Joint	Black	Wall	M	No	5% Chrysotile
HSC-EA-09A	Paper Wrap on Ceiling Joist	White	Wall	M	Yes	40% Chrysotile
HSC-EA-09B	Paper Wrap on Ceiling Joist	White	Wall	M	Yes	50% Chrysotile
HSC-EA-13A	Floor Tile	Light Gray	Floor	M	No	2% Chrysotile
HSC-EA-13B	Floor Tile	Light Gray	Floor	M	No	2% Chrysotile
HSC-EA-15A	Covebase Mastic	Black	Floor	M	No	2% Chrysotile
HSC-EA-27A	9" x 9" Floor Tile	Gray	Floor	M	No	3% Chrysotile
HSC-EA-27B	9" x 9" Floor Tile	Gray	Floor	M	No	3% Chrysotile
HSC-EA-29A	9" x 9" Floor Tile	Light Gray	Floor	M	No	2% Chrysotile
HSC-EA-29B	9" x 9" Floor Tile	Light Gray	Floor	M	No	3% Chrysotile

*Category: M=Miscellaneous

Representative photographs of the ACBMs are included in **Appendix A**. BATTA's asbestos laboratory analytical report, including a listing of all samples collected in the Study Area and the chain-of-custody for the samples, is included in **Appendix C**.

2.2.3 Presumed Asbestos-Containing Materials

Presumed Asbestos-Containing Materials (PACM) as defined by OSHA include thermal system insulation and surfacing material found in a building constructed no later than 1980. No materials meeting the definition of PACM were observed within the Study Area.

2.2.4 Assumed Asbestos-Containing Building Materials

Assumed ACBMs include any material that is suspected to contain asbestos and that was not sampled. Pipe gaskets and fire doors were assumed to contain asbestos. These items were assumed to contain asbestos (rather than sampled/tested), as the materials were either inaccessible at the time of the survey or sampling would have caused damage to the structural integrity of the system while the facility is still in use.

Representative photographs of the assumed ACBMs are included in **Appendix A**. The quantities and locations of assumed ACBMs are provided in the Hazardous Materials Summary Table in **Figure 2**.

2.2.5 Homogeneous Areas Documented as Non Asbestos-Containing

The following homogeneous areas were documented as non asbestos-containing based upon sampling and laboratory analysis:

Interior

- Pink 12" x 12" Floor Tile with White and Black Streaks
- Off-White 12" x 12" Floor Tile with Tan Streaks
- Gray 12" x 12" Floor Tile with White Streaks
- Black Mastic Under Floor Tiles
- Yellow Carpet Mastic
- Tan Covebase Mastic
- Gray Duct Mastic
- White Sink Caulk
- Gray Door Caulk
- White Door Caulk
- 2' x 4' Dropped Ceiling Tiles
- 1' x 1' Dropped Ceiling Tiles

Exterior

- Light Gray Expansion Joint
- White Door Caulk

Roof

- Built-Up Roofing System
- Gray Roof Caulk
- White Roof Caulk
- Shingled Roof System Over Entrance

2.2.6 Quantities for Asbestos-Containing Building Materials

Approximate quantities for the identified and assumed ACBMs are listed by material type in the following **Table 2-3**. The table also contains a column for information indicating whether or not the material was a regulated asbestos-containing material (RACM) at the time of the inspection, per federal regulations. The locations, types, and approximate quantities of ACBMs in the Study Area are provided, by room number, in the Hazardous Materials Summary Table in **Figure 2**.

Table 2-3 Approximate Quantities of ACBMs			
Material Type	Quantity	Unit of Measure	RACM
Light Gray 9" x 9" Floor Tile ¹	3,388	Square Feet	No
Gray 9" x 9" Floor Tile ¹	2,702	Square Feet	No
Joint Compound ²	5,647 ³	Square Feet	Yes
Black Mastic on Black Covebase	363	Linear Feet	No
Black Expansion Joint	126	Linear Feet	No
Gray Paper Wrap Around Ceiling Joist	8	Square Feet	No

Table 2-3			
Approximate Quantities of ACMs			
Material Type	Quantity	Unit of Measure	RACM
White Window Glazing	140	Linear Feet	Yes
Pipe Flange Gasket (Assumed)	3	Each	No
Fire Door (Assumed)	3	Each	No

¹ This material is present beneath carpeting and/or non-ACM 12" x 12" vinyl floor tile.

² The asbestos-containing joint compound identified during the survey was associated with a wallboard system and is therefore considered an integral part of the wall system by the EPA. Analysis of the wall system was conducted, and the wall system was determined to be non-asbestos containing. The wall system itself is therefore not considered ACM by EPA; however, OSHA regards each of the materials used to construct wall systems as separate materials and each material must be analyzed separately for asbestos content. If any of the individual materials contain asbestos, work practices must be conducted in accordance with OSHA's Construction Asbestos Standard.

³ The quantity listed for joint compound is the estimated quantity of drywall observed at the building, as the joint compound cannot be economically separated from the wall system.

3. LEAD-BASED PAINTS

A Lead-Based Paint (LBP) Inspector certified through the Maryland Department of the Environment (MDE) performed a LBP survey of the Study Area. A certificate of the inspector is included in **Appendix D**.

3.1 INSPECTION AND ANALYTICAL METHODOLOGY

EA performed a limited (screening) survey to identify locations of LBP that may be disturbed by renovation activities. The survey was intended to determine whether or not lead-based paint is present in the Study Area, and if present, which building components contain lead-based paint.

Building areas and components that appear to have a similar painting history and substrate were grouped together for screening/testing purposes. This survey was not intended to be a comprehensive surface-by-surface inspection (i.e., HUD level inspection) of the Study Area, nor is a survey of that type necessary or required for planned renovation activities. The survey was limited to areas that were readily accessible.

For survey and testing purposes, each direction within the Study Area was given a specific name as follows: wall A correlates with the side of the building facing Harford Road, with walls B through D being labeled in a clockwise orientation from wall A.

3.1.1 Records Review

A records review consists of reviewing previous lead inspection reports, abatement records and/or as-built drawings, if available, associated with the facility.

3.1.2 XRF Instrumentation

Direct reading X-Ray Fluorescence (XRF) instrumentation was used to identify LBP. Specifically, a Niton XLp 300 analyzer manufactured by Niton LLC was utilized during the survey. Surface coatings were considered LBP if the XRF result exceeds the State of Maryland definition of LBP of greater than 0.7 milligrams of lead per square centimeter ($> 0.7\text{mg}/\text{cm}^2$). The XRF performance characteristic sheets are included in **Appendix E**. The performance characteristic sheet specifies calibration tolerances, XRF indices for positive and negative results, and modes of operation.

3.1.3 Paint Chip Analysis

Lead-based paint is also defined by the MDE as paint chips containing greater than 0.5% lead by weight, as determined through laboratory analysis (Method SW846-7420). Paint chip samples are collected in the event there is limited access to or irregularly-shaped surfaces of the substrate.

3.2 RESULTS

3.2.1 Records Review

No records in the form of as-built drawings, previous lead inspection reports, or lead abatement records were made available to EA.

3.2.2 XRF Results

Lead-based paints were detected in the Study Area through use of the XRF as identified in the following **Table 3-1**.

Table 3-1 Components with Lead-Based Paint (> 0.7mg/cm ²)					
Reading No.	Component	Substrate	Color	EA Room No.	Result (mg/cm ²)
27	Door Frame	Wood	White	13	2.0
52	Door Frame	Wood	White	22	0.9
53	Door	Wood	White	22	0.8
59	Pipe	Metal	White	23	4.7
191	Pipe	Metal	Beige	Exterior	7.3
195	Bollard	Metal	Yellow	Exterior	0.8

A lead pipe and lead-glazed tiles were also identified within the Study Area.

The general locations of lead-based paints, lead pipe, and lead-glazed tiles within the Study Area are provided in the Hazardous Materials Summary Table in **Figure 2**. Representative photographs of the LBP are included in **Appendix A**.

In addition, lead-containing paints (paints containing lead but at concentrations less than the threshold for lead-based paint) were identified on various surfaces tested within the Study Area.

The XRF data from all tested surfaces is included in **Appendix F**.

3.2.3 Paint Chip Analysis

No paint chip samples were collected during the survey.

4. LIQUID POLYCHLORINATED BIPHENYLS

The on-site inspectors investigated the Study Area for equipment containing liquid phase Polychlorinated Biphenyls (PCBs) during the survey.

4.1 INSPECTION AND ANALYTICAL METHODOLOGY

The Study Area was inspected for equipment that may contain liquid phase PCBs. Such equipment commonly includes light ballasts located within fluorescent light fixtures, electrical transformers, and hydraulic equipment. For this survey, no sampling or laboratory analysis was performed in association with the inspection for suspect PCB-containing equipment. Inspection for materials/items containing non-liquid PCBs was not included in this survey.

4.1.1 Records Review

A records review consists of reviewing previous PCB-containing equipment inspection reports, abatement records, and/or as-built drawings, if available, associated with the facility.

4.1.2 On-site Inspection

The on-site inspection for liquid phase PCBs involved a visual inspection for suspect equipment that may contain PCBs, including light ballasts associated with fluorescent light fixtures, electrical transformers, and hydraulic equipment.

4.1.3 Manufacturer and Utility Review

If the presence or absence of PCBs in suspect equipment could not be confirmed in the field, EA conducted additional research by contacting the manufacturer and/or utility provider in order to obtain information on the suspect equipment. It should be noted that the manufacturer was not contacted for every piece of suspect equipment present in the Study Area, as certain types of equipment were present in voluminous quantities (e.g., light ballasts).

4.2 RESULTS

4.2.1 Records Review

No records in the form of as-built drawings, previous inspection reports, or abatement records were made available to EA.

4.2.2 On-site Inspection

EA's inspection of the Study Area resulted in the identification of light ballasts associated with fluorescent light fixtures. Due to the voluminous quantity, the lighting fixtures were not dismantled to inspect individual light ballasts for markings related to PCB content. Therefore, the ballasts are assumed to contain PCBs.

Representative photographs of the equipment determined to be suspect PCB-containing as a result of the inspection are included in **Appendix A**.

4.2.3 Manufacturer Review

Suspect PCB-containing equipment was identified; however, contact with the manufacturer was not conducted due to the voluminous quantity of light fixtures present in the Study Area.

4.2.4 Quantities for Liquid PCBs

Approximate quantities for PCBs are listed by equipment type in the following **Table 4-1**. The locations as well as the approximate quantity of equipment assumed to contain PCBs within the limits of the Study Area are provided, by room number, in the Hazardous Materials Summary Table in **Figure 2**.

Table 4-1 Approximate Quantities for Equipment Containing PCBs		
Equipment Type	Quantity	Unit of Measure
Light Ballast	92	Each

5. OZONE-DEPLETING SUBSTANCES

The on-site inspectors investigated the Study Area for equipment containing Ozone-Depleting Substances (ODSs) during the survey.

5.1 INSPECTION AND ANALYTICAL METHODOLOGY

The Study Area was inspected for known types of equipment containing ODSs. Such equipment commonly includes refrigerators, window air-conditioning units, water fountains, and chillers. No sample collection or laboratory analysis was performed in association with the inspection for equipment suspected of containing ODSs.

5.1.1 Records Review

A records review consists of reviewing previous inspection reports, abatement records and/or as-built drawings, if available, associated with the facility.

5.1.2 On-Site Inspection

The on-site inspection involved a visual assessment of the Study Area for suspect equipment that could contain ODSs. Dismantling of suspect equipment was not performed to confirm the presence or absence of ODSs.

5.1.3 Manufacturer and Utility Review

If the presence or absence of ODSs in suspect equipment could not be confirmed in the field, EA conducted additional research by contacting the manufacturer in order to obtain information on the suspect equipment.

5.2 RESULTS

5.2.1 Records Review

No records in the form of as-built drawings, previous inspection reports, or abatement records were made available to EA.

5.2.2 On-site Inspection

Equipment assumed to contain ODSs was identified in the Study Area in the following forms:

- Refrigerators – One (1) household refrigerator unit and two (2) commercial refrigerator units were observed. Based upon the working condition of these units, it is anticipated that these units still contain ozone-depleting substances.
- Rooftop Air-Conditioning Units – Two (2) air-conditioning units were observed. The manufacturer labels on these units expressly identifies the presence of 410A refrigerant in the units.

- Rooftop Air-Condensing Unit – One (1) air-condensing unit is present in the Study Area. The manufacturer label on this unit that would identify the presence of refrigerant in the unit was not legible, and therefore refrigerant is assumed to be present.

Representative photographs of assumed sources of ODSs are included in **Appendix A**.

5.2.3 Manufacturer Review

Equipment suspected of containing ODSs was identified; however, contact with the manufacturer was not considered necessary.

5.2.4 Quantities for Ozone-Depleting Substances

Approximate quantities for equipment assumed to contain ODSs are listed by equipment type in the following **Table**. The locations, types, and the approximate quantities of suspect equipment within the Study Area are provided, by room number, in the Hazardous Materials Summary Table in **Figure 2**.

Table 5-1 Approximate Quantities for Equipment Containing ODSs		
Equipment Type	Quantity	Unit of Measure
Commercial Refrigerator	2	Each
Household Refrigerator	1	Each
Rooftop Air-Condensing Unit	1	Each
Rooftop Air-Conditioning Unit	2	Each

6. UNIVERSAL WASTES

The on-site inspectors investigated the Study Area for items classified as Universal Wastes (UW) during the survey.

6.1 INSPECTION AND ANALYTICAL METHODOLOGY

The Study Area was inspected for equipment and items classified as UW. Such equipment commonly includes batteries, pesticides, mercury-containing equipment, bulbs/lamps, and aerosol cans. No sampling or laboratory analysis was performed in association with the inspection for UW.

6.1.1 Records Review

Records review consists of reviewing previous UW inspection reports, abatement records and/or as-built drawings, if available, associated with the facility.

6.1.2 On-site Inspection

The on-site inspection involved a visual assessment that focused on identifying UW in the Study Area. If considered necessary during the survey, EA performed limited dismantling of suspect equipment to confirm the presence or absence of a UW.

6.1.3 Manufacturer Review

If the presence or absence of UW (e.g., the presence or absence of mercury in equipment) could not be confirmed in the field, EA conducted additional research by contacting the manufacturer and attempting to obtain information on the suspect equipment.

6.2 RESULTS

6.2.1 Records Review

No records in the form of as-built drawings, previous inspection reports, or abatement records were provided to EA.

6.2.2 On-site Inspection

The results of the on-site inspection confirmed the presence of UW in the Study Area in the following forms:

- Light Bulbs and Tubes - Light fixtures were observed to contain 4' and 2' fluorescent tubes, high-intensity discharge bulbs (HID), and compact fluorescent light bulbs (CFLs).
- Batteries – Lead-acid batteries were observed within the Study Area in emergency light fixtures.

- Thermostats – Thermostats manufactured by Dayton were identified to contain mercury ampoules.

EA identified additional thermostats that could potentially contain mercury. These thermostats were subsequently dismantled and determined not to contain mercury ampoules. These non-mercury containing thermostats were manufactured by Paragon Electric Company, Inc.

Representative photographs of the UW are included in **Appendix A**.

6.2.3 Manufacturer Review

Universal waste was identified in the Study Area; however, contact with the manufacturer was not considered necessary.

6.2.4 Quantities for Universal Waste

Approximate quantities for UW are listed by equipment type in the following **Table**. The locations, type, and approximate quantities of UW within the Study Area are provided, by room number, in the Hazardous Materials Summary Table in **Figure 2**.

Table 6-1 Approximate Quantities for UW		
Equipment Type	Quantity	Unit of Measure
4' Fluorescent Light Tube	324	Each
2' Fluorescent Light Tube	1	Each
CFL Bulb	1	Each
HID Bulb	26	Each
Thermostat	2	Each
Battery in Emergency Light Fixture	11	Each

7. CONCLUSIONS/RECOMMENDATIONS

The results of the survey have identified hazardous materials within the Study Area. A Hazardous Materials Summary Table provided in **Figure 2** identifies the locations, types, and approximate quantities of the hazardous materials in the Study Area. The disturbance of these hazardous materials during renovation activities will trigger requirements to comply with Federal, State, and Local regulations.

7.1 ASBESTOS-CONTAINING BUILDING MATERIALS

The results of the survey have identified the following types of asbestos-containing building materials: floor tile, expansion joint, paper wrap around ceiling joist, joint compound, black mastic on black covebase, window glazing, fire doors (assumed), and pipe flange gaskets (assumed).

The fire doors and pipe flange gaskets were assumed to contain asbestos, as the materials were either inaccessible at the time of the survey or sampling would have caused damage to the structural integrity of the system while the facility is still in use. It may be cost effective to have these assumed asbestos-containing materials sampled and analyzed at an appropriate time so that asbestos content can be determined. The most appropriate time to sample these materials is typically after the project has been turned over to the renovation contractor and work has commenced.

The EPA requires that regulated asbestos-containing material be removed before demolition/renovation activities begin. Further, although certain asbestos-containing building materials identified during the survey were not classified as RACM at the time of the survey, it is EA's professional opinion that these materials should also be removed since proposed renovation techniques are unknown at this time and to prevent the potential release of asbestos fibers during renovation and subsequent waste consolidation activities (segregation and reduction of renovation debris).

The OSHA "Asbestos in Construction Standard" (29 CFR 1926.1101) imposes restrictions on the disturbance of asbestos during demolition, remodeling, and renovation activities. Removal of any asbestos-containing building materials identified in the Study Area is considered Class II asbestos work by OSHA regulations. Class II asbestos work must be performed by trained employees using work practices required by the OSHA standard.

7.2 LEAD-BASED PAINTS

Lead-based paints (LBPs) were identified throughout the Study Area. In addition, lead-containing paints (LCP) (i.e., paints containing lead but at concentrations less than the threshold for lead-based paint) were identified on various surfaces. In addition, a lead pipe and lead-glazed ceramic tile were identified in the Study Area.

Removal/abatement of LBP and LCP prior to planned alterations is not required; however, the presence of lead in paint of any concentration triggers OSHA regulatory standard 29 CFR

1926.62. Therefore, contractors must be made aware of the lead in paint hazards in the Study Area. Worker protection requirements and engineering controls to protect the surrounding environment from lead contamination should be implemented by contractors in accordance with pertinent regulations. Untested paint on building components should be considered to contain regulated levels of lead until subsequent testing shows otherwise.

Demolition debris with LBP and lead-glazing may be disposed of as non-hazardous provided the material is not classified as a hazardous waste in accordance with 40 CFR Part 261 and SW-846 (Test Methods for Evaluating Solid Waste Physical/Chemical). Metal objects coated with LBP and the lead pipe can be recycled.

7.3 LIQUID POLYCHLORINATED BIPHENYLS

Liquid Polychlorinated Biphenyl (PCB) containing equipment was identified in the form of light ballasts. Based upon the voluminous quantity of light fixtures, the light fixtures were not dismantled to inspect individual light ballasts for markings related to PCB content. The uninspected ballasts are assumed to contain PCBs.

Ballasts marked as “No PCBs” can be disposed of as non-hazardous waste. Ballasts lacking the “No PCBs” mark should be removed and disposed of in accordance with EPA’s Toxic Substances Control Act (TSCA), 40 CFR Part 761. If an unmarked ballast is not leaking, the associated lighting fixture does not require special handling or disposal. If an unmarked ballast is leaking, any material impacted by the leak should be treated as hazardous waste. Containers storing unmarked ballasts must be labeled in accordance with EPA labeling requirements specified in 40 CFR Part 262 Subpart C.

7.4 OZONE-DEPLETING SUBSTANCES

Ozone-depleting substances were identified in equipment including commercial refrigerators, a household refrigerator, a rooftop air-condensing unit, and rooftop air-conditioning units. Such substances must be recovered from any related equipment that will be impacted by the planned renovation activities.

Under EPA's rule, refrigerant must be recovered from equipment that is typically dismantled on-site before disposal (e.g., retail/commercial food refrigeration, central air-conditioning, chillers, and industrial process refrigeration) in accordance with the EPA's requirements for servicing.

Equipment that typically enters the waste stream with the charge intact (e.g., household refrigerators, motor vehicle air conditioners, household freezers, and room air conditioners) is subject to special safe disposal requirements. Under the safe disposal requirements, the final person in the disposal chain (e.g., a scrap metal recycler or landfill owner) is responsible for ensuring that refrigerant is recovered from equipment before the final disposal of the equipment. However, persons "upstream" can remove the refrigerant and provide documentation of its removal to the final person if this is more cost-effective. If the final person in the disposal chain (e.g., a scrap metal recycler or landfill owner) accepts appliances that no longer hold a refrigerant charge, that person is responsible for maintaining a signed statement from whom the appliance(s)

is being accepted. The signed statement must include the name and address of the person who recovered the refrigerant, and the date that the refrigerant was recovered, or a copy of a contract stating that the refrigerant will be removed prior to delivery.

7.5 UNIVERSAL WASTES

EA identified universal wastes within the Study Area in the form of 4' and 2' fluorescent light tubes, high-intensity discharge (HID) bulbs, compact fluorescent light bulbs (CFLs), mercury-containing thermostats, and batteries in emergency light fixtures.

All universal waste impacted by planned renovation activities should be placed in a container that is structurally sound, will prevent damage to the contents, is compatible with its contents, and will be kept closed at all times (except when adding items to or removing items from the container). The container must be without damage, or evidence of spillage, that could lead to leakage of the waste contained inside. The disposal of universal waste is outlined in the EPA regulations in 40 CFR Part 273 and in Maryland regulations in COMAR Title 26, Subtitle 13.

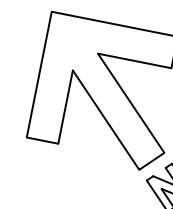
Figure 1
Floor Plans

Figure 1: Floor Plans with EA Designated Room Numbers



EXISTING FLOOR PLAN
SCALE: 3/16"=1'-0"

* Room 27 is located in the upper level above Room 1



gba
gant-brunnett
ARCHITECTS
15 West Mulberry Street
Baltimore, Maryland 21201-4406
Telephone Number: 410-234-8444

PROFESSIONAL CERTIFICATION
I CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM
A DULY LICENSED ARCHITECT UNDER THE LAWS
OF THE STATE OF MARYLAND, LICENSE NUMBER
EXPIRATION DATE 00000000.
(C) GANT BRUNETT ARCHITECTS
ALL REPRODUCTION IS PROHIBITED

CITY OF BALTIMORE
DEPARTMENT OF
GENERAL SERVICES
DESIGN AND
CONSTRUCTION
DIVISION

NO	DATE	DESCRIPTION

HARFORD SENIOR CENTER
4920 HARFORD RD, BALTIMORE, MD 21214
CONTRACT NO. GS 1218

EXISTING
FLOOR
PLAN

4/18/18

EA 101

OF

Figure 2

Hazardous Materials Summary Table

Hazardous Materials Summary Table
Harford Senior Center

AREA		ASBESTOS-CONTAINING BUILDING MATERIALS										PCBs		OZONE-DEPLETING COMPOUNDS				UNIVERSAL WASTE						LEAD-BASED PAINT *
EA Assigned Room Number	Room Name	Asbestos Description (Material, Color, Size)	Black Expansion Joint (LF)	Gray Paper Wrap Around Ceiling Joist (SF)	Joint Compound (SF)	Light Gray 9" x 9" Vinyl Floor Tile w/ Black Specs (SF) ¹	Black Mastic on Black Covebase (LF)	Gray 9" x 9" Vinyl Floor Tile w/ Black Streaks (SF) ¹	White Window Glazing (LF)	Fire Door (Assumed) (Each)	Pipe Flange Gasket (Assumed) (Each)	Light Ballast (Each) (Assumed)	hydraulic Door Stop (Each) (Assumed)	Commercial Refrigerator (Each)	Household Refrigeratr (Each)	Air-Condensing Unit (Each)	Air-Conditioning Unit (Each)	Light Bulb / Tube (Each)				Thermostat (Each)	Battery in Emergency Light Fixture (Each)	• LBP Present
																		4'	2'	CFL	HID			
1	Storage	Black Expansion Joint	8									5						10						
1	Storage	Gray Paper Wrap Around Ceiling Joist		8																				
1	Storage	Joint Compound			28																			
2	Multi-Purpose 2	Black Mastic Behind Black Covebase					206					23						92			8		4	
2	Multi-Purpose 2	Gray 9x9 Vinyl Floor Tile w/ Black Streaks						1994																
2	Multi-Purpose 2	Fire Door (Assumed)								1														
2	Multi-Purpose 2	Joint Compound			2060																			
3	Storage/ Mechanical	Gray 9x9 Vinyl Floor Tile w/ Black Streaks						168				4						8						
3	Storage/ Mechanical	Pipe Flange Gasket (Assumed)									3													
4	Conference Room	Joint Compound			120							4						8						
4	Conference Room	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				206																		
5	File Room	Joint Compound			54							2						8						
5	File Room	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				165																		
6	Office	Joint Compound			54							2						8						
6	Office	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				169																		
7	Computer Lab	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				170						2						8						
8	Office Area	Joint Compound			224							6						24						
8	Office Area	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				403																		
9	Storage	Gray 9x9 Vinyl Floor Tile w/ Black Streaks						72				2						8						
10	TV Room	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				180						2						8						
10	TV Room	Joint Compound			44																			

Hazardous Materials Summary Table
Harford Senior Center

AREA		ASBESTOS-CONTAINING BUILDING MATERIALS										PCBs		OZONE-DEPLETING COMPOUNDS				UNIVERSAL WASTE						LEAD-BASED PAINT *
EA Assigned Room Number	Room Name	Asbestos Description (Material, Color, Size)	Black Expansion Joint (LF)	Gray Paper Wrap Around Ceiling Joist (SF)	Joint Compound (SF)	Light Gray 9" x 9" Vinyl Floor Tile w/ Black Specs (SF) ¹	Black Mastic on Black Covebase (LF)	Gray 9" x 9" Vinyl Floor Tile w/ Black Streaks (SF) ¹	White Window Glazing (LF)	Fire Door (Assumed) (Each)	Pipe Flange Gasket (Assumed) (Each)	Light Ballast (Each) (Assumed)	hydraulic Door Stop (Each) (Assumed)	Commercial Refrigerator (Each)	Household Refrigerator (Each)	Air-Condensing Unit (Each)	Air-Conditioning Unit (Each)	Light Bulb / Tube (Each)				Thermostat (Each)	Battery in Emergency Light Fixture (Each)	• LBP Present
																		4'	2'	CFL	HID			
11	Card Room	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				202						2						8						
11	Card Room	Joint Compound			224																			
12	Reception	Joint Compound			256							2						8						
12	Reception	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				244																		
13	Vestibule	Black Mastic Behind Black Covebase					21																	
13	Vestibule	Joint Compound			104																			
13	Vestibule	Gray 9x9 Vinyl Floor Tile w/ Black Streaks						94																
13	Vestibule	Fire Door (Assumed)								1														•
14	Closet 3	Black Mastic Behind Black Covebase					18																	
14	Closet 3	Joint Compound			188																			
15	Closet 2	Joint Compound			88																			
15	Closet 2	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				14																		
15	Closet 2	Black Mastic Behind Black Covebase					11																	
16	Hallway	Joint Compound			540							3	1					12			5		3	
16	Hallway	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				256																		
16	Hallway	Black Mastic Behind Black Covebase					63																	
17	Closet 1	Joint Compound			112																			
17	Closet 1	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				16																		
17	Closet 1	Black Mastic Behind Black Covebase					12																	
18	Janitor Storage	Black Expansion Joint	20									2						6						
18	Janitor Storage	Fire Door (Assumed)								1														
18	Janitor Storage	Joint Compound			143																			
19	Women's Restroom	Joint Compound			168							3						8	1					•
20	Multi-Purpose 1	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				932						12						48			2	2	1	
21	Art Room	Joint Compound			104							4						8						
21	Art Room	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				240																		
22	Kitchen Storage	Black Mastic Behind Black Covebase					8					2						8			2		1	•

Hazardous Materials Summary Table
Harford Senior Center

AREA		ASBESTOS-CONTAINING BUILDING MATERIALS										PCBs		OZONE-DEPLETING COMPOUNDS				UNIVERSAL WASTE						LEAD-BASED PAINT *
EA Assigned Room Number	Room Name	Asbestos Description (Material, Color, Size)	Black Expansion Joint (LF)	Gray Paper Wrap Around Ceiling Joist (SF)	Joint Compound (SF)	Light Gray 9" x 9" Vinyl Floor Tile w/ Black Specs (SF) ¹	Black Mastic on Black Covebase (LF)	Gray 9" x 9" Vinyl Floor Tile w/ Black Streaks (SF) ¹	White Window Glazing (LF)	Fire Door (Assumed) (Each)	Pipe Flange Gasket (Assumed) (Each)	Light Ballast (Each) (Assumed)	hydraulic Door Stop (Each) (Assumed)	Commercial Refrigerator (Each)	Household Refrigerator (Each)	Air-Condensing Unit (Each)	Air-Conditioning Unit (Each)	Light Bulb / Tube (Each)				Thermostat (Each)	Battery in Emergency Light Fixture (Each)	• LBP Present
																		4'	2'	CFL	HID			
23	Kitchen	Gray 9x9 Vinyl Floor Tile w/ Black Streaks						342				5		2	1			20		1	4		2	•
23	Kitchen	Joint Compound			672																			
24	Men's Restroom	Joint Compound			144							1						4						
25	Kitchen Mechanical	Gray 9x9 Vinyl Floor Tile w/ Black Streaks						32																
25	Kitchen Mechanical	Joint Compound			192																			
26	Game Room	Black Mastic Behind Black Covebase					24					4						12						
26	Game Room	Light Gray 9x9 Vinyl Floor Tile w/ Black Specs				191																		
26	Game Room	Joint Compound			128																			
27	Storage - 2nd Floor	Black Expansion Joint	8																					
---	Exterior - Ground Level	Black Expansion Joint	90																		5			•
---	Exterior - Ground Level	White Window Glazing							140															
---	Exterior - Roof															1	2							•
			126	8	5,647	3,388	363	2,702	140	3	3	92	1	2	1	1	2	324	1	1	26	2	11	*

Notes:

- SF - Square Feet
- LF - Linear Feet
- * In addition to Lead-Based Paints, Lead-containing paints (i.e., paints containing lead but at concentrations less than the threshold for lead-based paint) were identified on various components throughout the Study Area.
- ¹ This material is present beneath carpeting and/or non-ACM 12” x 12” vinyl floor tile.

Appendix A

Photographs

PHOTOGRAPH LOG
Harford Senior Center



Harford Senior Center
Front of Building



Harford Senior Center
Rear of Building



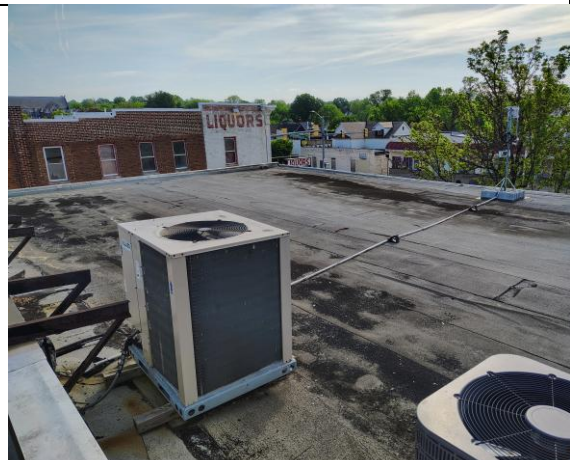
Harford Senior Center
Alley Side



Harford Senior Center
Side Street



Overview of Roof
Upper Level



Overview of Roof
Lower Level

PHOTOGRAPH LOG
Harford Senior Center



Overview of Room 1
Storage



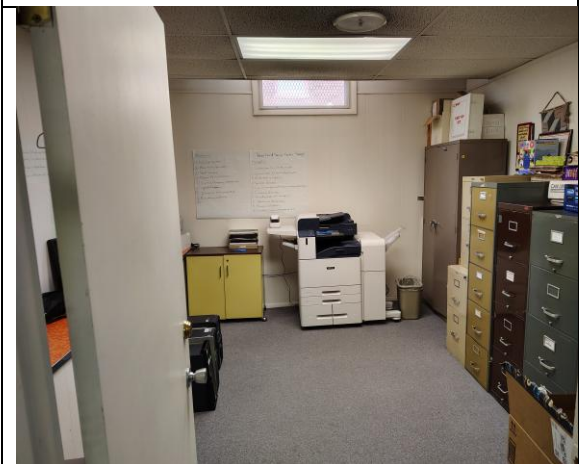
Overview of Room 2
Multi-Purpose Room



Overview of Room 3
Storage/Mechanical Room



Overview of Room 4
Conference Room



Overview of Room 5
File Room



Overview of Room 6
Office

PHOTOGRAPH LOG
Harford Senior Center



Overview of Room 7
Computer Lab



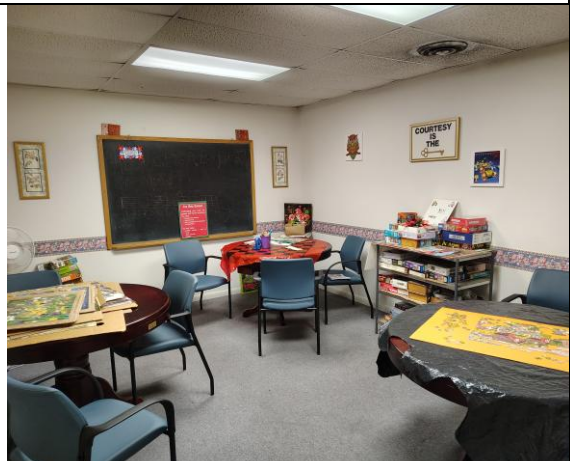
Overview of Room 8
Office Area



Overview of Room 9
Storage



Overview of Room 10
TV Room

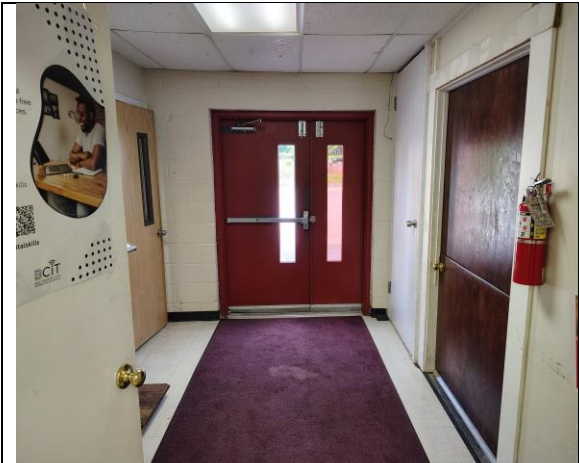


Overview of Room 11
Card Room



Overview of Room 12
Reception

PHOTOGRAPH LOG
Harford Senior Center



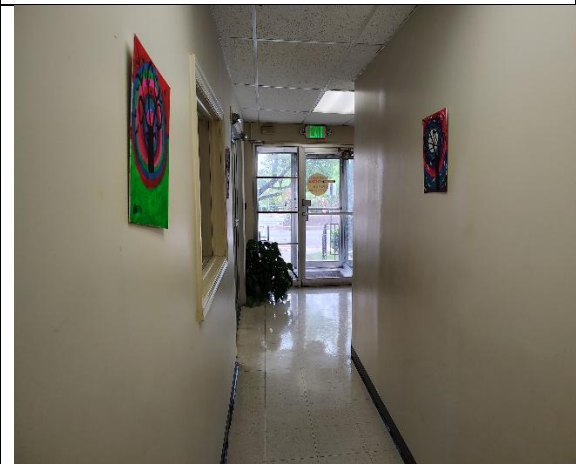
Overview of Room 13
Vestibule



Overview of Room 14
Closet 3



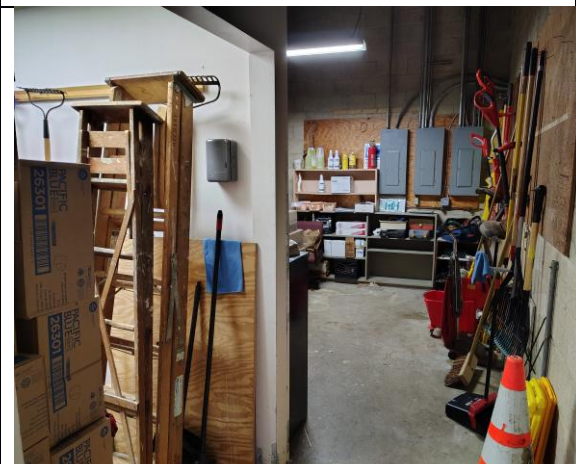
Overview of Room 15
Closet 2



Overview of Room 16
Hallway



Overview of Room 17
Closet 1



Overview of Room 18
Janitor Storage

PHOTOGRAPH LOG
Harford Senior Center



Overview of Room 19
Women's Restroom



Overview of Room 20
Multi-Purpose Room 1



Overview of Room 21
Art Room



Overview of Room 22
Kitchen Storage



Overview of Room 23
Kitchen

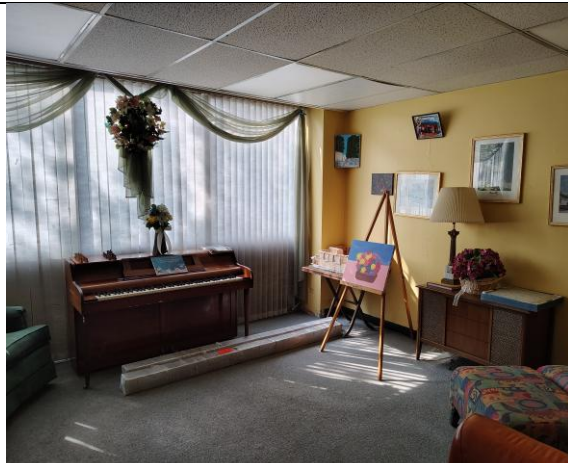


Overview of Room 24
Men's Restroom

PHOTOGRAPH LOG
Harford Senior Center



Overview of Room 25
Kitchen Mechanical Room



Overview of Room 26
Game Room



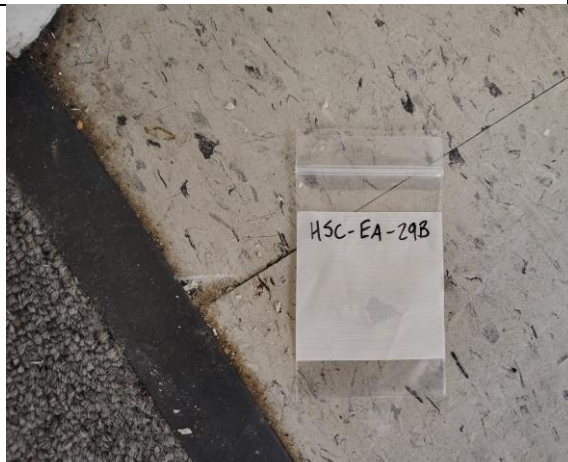
Overview of Room 27
Storage – Second Floor



Gray Paper Wrap on Ceiling Joist
ACM – 50% Chrysotile

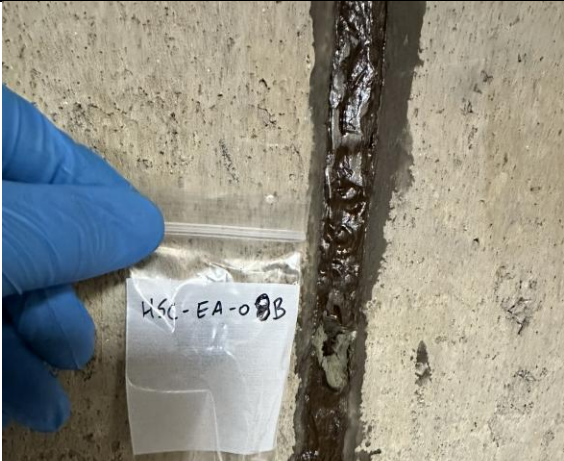
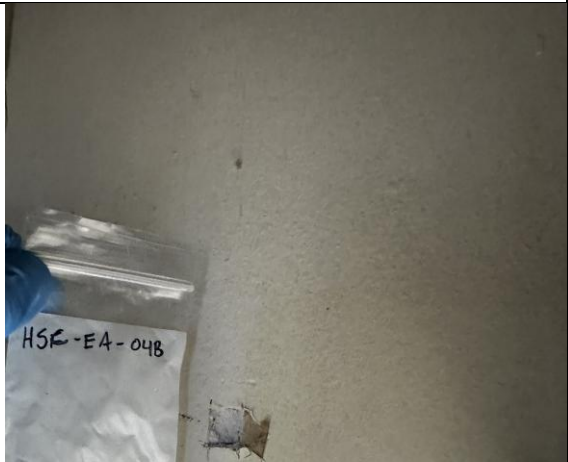


9" x 9" Gray Vinyl Floor Tile with Black
Streaks
ACM – 3% Chrysotile



9" x 9" Light Gray Vinyl Floor Tile with Black
and Gray Streaks
ACM – 3% Chrysotile

PHOTOGRAPH LOG
Harford Senior Center

	
White Window Glazing ACM – 2% Chrysotile	Black Expansion Joint ACM – 5% Chrysotile
	
Joint Compound ACM – 2% Chrysotile	Black Mastic Behind Black Covebase ACM – 2% Chrysotile
	
Pipe Flange Gasket Assumed ACM	Representative Fire Door Assumed ACM

PHOTOGRAPH LOG
Harford Senior Center



Reading #191 - Exterior Pipe
Lead-Based Paint



Readings #52 & 53 - White Door and Door
Frame
Lead-Based Paint



Reading #27 - White Door Frame
Lead Based Paint



Reading #195 - Yellow Parking Bollard
Lead-Based Paint



Reading #59 - White Pipe
Lead-Based Paint



Readings #84 & 85 - White Ceramic Tile
Lead in Glazing

PHOTOGRAPH LOG
Harford Senior Center



Reading #7 - Roof Pipe
Lead Pipe



Fluorescent Light Ballast
Assumed PCB-Containing Equipment



Rooftop Air-Condensing Unit
Assumed ODS-Containing Equipment



Representative Rooftop Air-Conditioning Unit
ODS- Containing Equipment



Representative Commercial Refrigerator
Assumed ODS-Containing Equipment



Household Refrigerator
Assumed ODS-Containing Equipment

PHOTOGRAPH LOG
Harford Senior Center

	
Compact Fluorescent Light Bulb Universal Waste	Representative High-Intensity Discharge Bulb Universal Waste
	
2' Fluorescent Light Tube Universal Waste	Representative 4' Fluorescent Light Tube Universal Waste
	
Representative Battery Inside Emergency Light Fixture Universal Waste	Mercury-Containing Thermostats Universal Waste

Appendix B

Certificates of AHERA Inspectors

AEROSOL MONITORING & ANALYSIS, INC.

This is to certify that
CALLIE PAFF

*has met the attendance requirements and successfully completed
the course entitled*

4-HOUR EPA ASBESTOS INSPECTOR REFRESHER

For Accreditation Under TSCA Title II

06/06/2025

Course Date

AIR06062025-04

Certification No.

06/06/2025

Exam Date

VAAIR06062025-04

VA Certification No.

06/06/2026

Expiration Date

DAVID TRUMAN

Principal Instructor

David Truman

E. Rush Barnett

Course Director

E. Rush Barnett

1331 Ashton Road

P.O.Box 646

Hanover, MD 21076

P: 410-684-3327

F: 410-684-3724

www.amatraining.com

AEROSOL MONITORING & ANALYSIS, INC.

This is to certify that

JONATHAN KUJAWA

*has met the attendance requirements and successfully completed
the course entitled*

4-HOUR EPA ASBESTOS INSPECTOR REFRESHER

For Accreditation Under TSCA Title II

08/15/2024

Course Date

08/15/2024

Exam Date

8/15/2025

Expiration Date

STEVE SIERACKI

Principal Instructor

Steve Sieracki

VAIR08152024-07

Certification No.

VAVAIR08152024-07

Virginia Certification No.

E. Rush Barnett

Course Director

E. Rush Barnett



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P: 410-684-3327

F: 410-684-3724

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Appendix C

Asbestos Laboratory Results/Chain-of-Custody

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NY ELAP LAB# 11993 for
PCM, PLM, TEM & Lead

batta
LABORATORIES

BATTA LABORATORIES, LLC
A Certified MBE Company

Delaware Industrial Park, 6 Garfield Way
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EPA Lab ID #DE004



NVLAP
Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0
Batch#: N/A
COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Page 1 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705
Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Date Sampled: 05/09/25
Sampled By: CLIENT
Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592192	HSC-EA-01A	Exterior Roof	Shingle	n/a	Soft		Black	3% Cellulose 97% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592193	HSC-EA-01A-LAYER1	Exterior Roof	Tar	n/a	Soft		Black	3% Cellulose 97% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592194	HSC-EA-01B	Exterior Roof	Shingle	n/a	Soft		Black	3% Cellulose 97% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592195	HSC-EA-01B-LAYER1	Exterior Roof	Tar	n/a	Soft		Black	3% Cellulose 97% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592196	HSC-EA-01C	Exterior Roof	Shingle	n/a	Soft		Black	3% Cellulose 97% Non-fibrous Material	No Asbestos Found
					Homogeneous				

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: AH

REVIEWED BY:

ARL

QA/QC Officer/Signatory

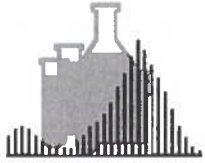
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Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592197	HSC-EA-01C-LAYER1	Exterior Roof	Tar	n/a	Soft		Black	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592198	HSC-EA-02A	Exterior Roof	Caulk	n/a	Soft		Gray	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592199	HSC-EA-02B	Exterior Roof	Caulk	n/a	Soft		Gray	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592200	HSC-EA-03A	Exterior Roof	Caulk	n/a	Soft		Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592201	HSC-EA-03B	Exterior Roof	Caulk	n/a	Soft		Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				

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Sampled By: CLIENT
Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592202	HSC-EA-04A	Room 9 Wall	Drywall	n/a	Firm		White	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592203	HSC-EA-04A-LAYER1	Room 9 Wall	Joint Compound	n/a	Soft		White	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592204	HSC-EA-04B	Room 16 Wall	Drywall	n/a	Firm		White	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592205	HSC-EA-04B-LAYER1	Room 16 Wall	Joint Compound	n/a	Soft		Tan	1% Cellulose 97% Non-fibrous Material	2% Chrysotile Total Asbestos = 2%
					Homogeneous				
1592206	HSC-EA-04C	Room 18 Wall	Drywall	n/a	Firm		White	2% Cellulose 98% Non-fibrous Material	No Asbestos Found
					Homogeneous				

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*NVLAP refers to a group of fibers Asbestos fibers as defined with 100% Asbestos. Within this classification group vermiculite, chrysotile, tremolite, and actinolite.

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Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data			Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592207	HSC-EA-04C-LAYER1	Room 18 Wall	Joint Compound	n/a	Soft Homogeneous		White	100% Non-fibrous Material	No Asbestos Found
1592208	HSC-EA-05A	Exterior Wall	Caulk	n/a	Soft Homogeneous		Tan	100% Non-fibrous Material	No Asbestos Found
1592209	HSC-EA-05B	Exterior Wall	Caulk	n/a	Soft Homogeneous		Tan	100% Non-fibrous Material	No Asbestos Found
1592210	HSC-EA-06A	Exterior Wall	Caulk	n/a	Soft Homogeneous		Gray	2% Cellulose 93% Non-fibrous Material	5% Chrysotile Total Asbestos = 5%
1592211	HSC-EA-06B	Exterior Wall	Caulk	n/a	Soft Homogeneous		Gray	2% Cellulose 93% Non-fibrous Material	5% Chrysotile Total Asbestos = 5%

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

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Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592212	HSC-EA-07A	Exterior Window	Glaze	n/a	Soft		Gray	98% Non-fibrous Material	2% Chrysotile Total Asbestos = 2%
					Homogeneous				
1592213	HSC-EA-07B	Exterior Window	Glaze	n/a	Soft		Gray	98% Non-fibrous Material	2% Chrysotile Total Asbestos = 2%
					Homogeneous				
1592214	HSC-EA-08A	Room 1 Wall	Glaze	n/a	Soft		Brown	5% Cellulose 90% Non-fibrous Material	5% Chrysotile Total Asbestos = 5%
					Homogeneous				
1592215	HSC-EA-08B	Room 18 Wall	Glaze	n/a	Soft		Brown	5% Cellulose 90% Non-fibrous Material	5% Chrysotile Total Asbestos = 5%
					Homogeneous				
1592216	HSC-EA-09A	Room 1 Ceiling by Vent	Insulation	n/a	Soft		Gray	30% Cellulose 30% Non-fibrous Material	40% Chrysotile Total Asbestos = 40%
					Homogeneous				

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Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592217	HSC-EA-09B	Room 1 Ceiling by Vent	Insulation	n/a	Soft		Gray	30% Cellulose 20% Non-fibrous Material	50% Chrysotile Total Asbestos = 50%
					Homogeneous				
1592218	HSC-EA-10A	Room 25 Duct	Glaze	n/a	Soft		Gray	5% Cellulose 95% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592219	HSC-EA-10B	Room 25 Duct	Glaze	n/a	Soft		Gray	5% Cellulose 95% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592220	HSC-EA-11A	Room 14 Under Red Carpet	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592221	HSC-EA-11B	Room 14 Under Red Carpet	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				

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Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592222	HSC-EA-12A	Room 26 Under Gray Carpet	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592223	HSC-EA-12B	Room 26 Under Gray Carpet	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592224	HSC-EA-13A	Room 10 Floor	Floor Tile	n/a	Firm		White	98% Non-fibrous Material	2% Chrysotile Total Asbestos = 2%
					Homogeneous				
1592225	HSC-EA-13A-LAYER1	Room 10 Floor	Mastic	n/a	Soft		Black	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592226	HSC-EA-13B	Room 11 Floor	Floor Tile	n/a	Firm		White	98% Non-fibrous Material	2% Chrysotile Total Asbestos = 2%
					Homogeneous				

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EPA Lab ID #DE004



NVLAP
Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0

Batch#: N/A

COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Page 8 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Date Sampled: 05/09/25

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592227	HSC-EA-13B-LAYER1	Room 11 Floor	Mastic	n/a	Soft		Black	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592228	HSC-EA-14A	Room 18 Ceiling	Ceiling Tile	n/a	Soft		Gray	30% Cellulose 10% Mineral Wool 60% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592229	HSC-EA-14B	Room 18 Ceiling	Ceiling Tile	n/a	Soft		Gray	30% Cellulose 10% Mineral Wool 60% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592230	HSC-EA-15A	Room 14 Behind Covebase	Mastic	n/a	Soft		Black	98% Non-fibrous Material	2% Chrysotile Total Asbestos = 2%
					Homogeneous				
1592231	HSC-EA-15B	Room 14 Behind Covebase	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: AH

REVIEWED BY:

APL

QA/QC Officer/Signatory

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EPA Lab ID #DE004



NVLAP
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CERTIFICATE OF PLM ANALYSIS

Page 9 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Date Sampled: 05/09/25

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592232	HSC-EA-16A	Room 13 Door	Caulk	n/a	Soft		Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592233	HSC-EA-16B	Room 13 Door	Caulk	n/a	Soft		Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592234	HSC-EA-17A	Room 2 Door	Caulk	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592235	HSC-EA-17B	Room 24 Door	Caulk	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592236	HSC-EA-18A	Room 20 Wall Behind Covebase	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

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CERTIFICATE OF PLM ANALYSIS

Page 10 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Date Sampled: 05/09/25

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592237	HSC-EA-18B	Room 20 Wall Behind Covebase	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592238	HSC-EA-19A	Room 22 Ceiling	Ceiling Tile	n/a	Soft		Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592239	HSC-EA-19B	Room 20 Ceiling	Ceiling Tile	n/a	Soft		Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592240	HSC-EA-20A	Room 23 Ceiling	Ceiling Tile	n/a	Soft		Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592241	HSC-EA-20B	Room 22 Ceiling	Ceiling Tile	n/a	Soft		Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous				

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

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CERTIFICATE OF PLM ANALYSIS

Page 11 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Date Sampled: 05/09/25

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross Color	Non-asbestiform Components	Asbestiform Components
1592242	HSC-EA-21A	Room 2 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592243	HSC-EA-21B	Room 24 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592244	HSC-EA-22A	Room 23 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592245	HSC-EA-22B	Room 23 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592246	HSC-EA-23A	Room 16 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

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NVLAP

Lab Code: 101032-D

Dept. Code: PLM

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CERTIFICATE OF PLM ANALYSIS

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Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Date Sampled: 05/09/25

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross Color	Non-asbestiform Components	Asbestiform Components
1592247	HSC-EA-23B	Room 16 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592248	HSC-EA-24A	Room 24 Sink	Caulk	n/a	Soft	White	100% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592249	HSC-EA-24B	Room 19 Sink	Caulk	n/a	Soft	White	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592250	HSC-EA-25A	Room 23 Floor	Floor Tile	n/a	Firm	White	100% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592251	HSC-EA-25A-LAYER1	Room 23 Floor	Mastic	n/a	Soft	Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

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Page 13 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Date Sampled: 05/09/25

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592252	HSC-EA-25B	Room 22 Floor	Floor Tile	n/a	Firm		White	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592253	HSC-EA-25B-LAYER1	Room 22 Floor	Mastic	n/a	Soft		Tan	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592254	HSC-EA-26A	Room 2 Floor	Floor Tile	n/a	Firm		Red	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592255	HSC-EA-26A-LAYER1	Room 2 Floor	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592256	HSC-EA-26B	Room 2 Floor	Floor Tile	n/a	Firm		Red	100% Non-fibrous Material	No Asbestos Found
					Homogeneous				

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Report Date: 05/16/25

Sampling Data

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Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data				Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1592257	HSC-EA-26B-LAYER1	Room 2 Floor	Mastic	n/a	Soft		Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592258	HSC-EA-27A	Room 3 Floor	Floor Tile	n/a	Firm		Tan	97% Non-fibrous Material	3% Chrysotile Total Asbestos = 3%
					Homogeneous				
1592259	HSC-EA-27A-LAYER1	Room 3 Floor	Mastic	n/a	Soft		Black	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				
1592260	HSC-EA-27B	Room 2 Floor	Floor Tile	n/a	Firm		Tan	97% Non-fibrous Material	3% Chrysotile Total Asbestos = 3%
					Homogeneous				
1592261	HSC-EA-27B-LAYER1	Room 2 Floor	Mastic	n/a	Soft		Black	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous				

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: AH

REVIEWED BY:

APL

QA/QC Officer/Signatory

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*Organically-bound, nonfriable material may interfere with the accurate and reproducible quantification of asbestos. In these cases, the EPA recommends further analysis by a matrix-reduction method. Batta recommends the NY ELAP Item 198.6/198.4 over the Chatfield method. When point count techniques are utilized on organically-bound, nonfriable materials without the EPA-recommended matrix reduction steps, Batta Laboratories assumes no responsibility regarding the accuracy or precision associated with these results. In these cases, Batta employs a modified version of the EPA point count method.

*WRTA refers to a group of fibrous Amphiboles typically associated with 'I' and 'h' Amphibole. Within this classification are: winchite, richterite, tremolite, and actinolite.

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NY ELAP LAB# 11993 for
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EPA Lab ID #DE004



NVLAP
Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0

Batch#: N/A

COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Page 15 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Date Sampled: 05/09/25

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross Color	Non-asbestiform Components	Asbestiform Components
1592262	HSC-EA-28A	Room 20 Floor	Floor Tile	n/a	Firm	Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592263	HSC-EA-28A-LAYER1	Room 20 Floor	Mastic	n/a	Soft	Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592264	HSC-EA-28B	Room 20 Floor	Floor Tile	n/a	Firm	Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592265	HSC-EA-28B-LAYER1	Room 20 Floor	Mastic	n/a	Soft	Tan	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592266	HSC-EA-29A	Room 20 Floor	Floor Tile	n/a	Firm	Gray	98% Non-fibrous Material	2% Chrysotile Total Asbestos = 2%
					Homogeneous			

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: AH

REVIEWED BY:

APL

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EPA Lab ID #DE004



NVLAP
Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0

Batch#: N/A

COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Page 16 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705

Date Sampled: 05/09/25

Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/ Gross	Color	Non-asbestiform Components	Asbestiform Components
1592267	HSC-EA-29A-LAYER1	Room 20 Floor	Mastic	n/a	Soft	White	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592268	HSC-EA-29B	Room 20 Floor	Floor Tile	n/a	Firm	Gray	97% Non-fibrous Material	3% Chrysotile Total Asbestos = 3%
					Homogeneous			
1592269	HSC-EA-29B-LAYER1	Room 20 Floor	Mastic	n/a	Soft	Black	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592270	HSC-EA-30A	Exterior Door	Caulk	n/a	Soft	Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592271	HSC-EA-30B	Exterior Door	Caulk	n/a	Soft	Gray	100% Non-fibrous Material	No Asbestos Found
					Homogeneous			

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

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REVIEWED BY:

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EPA Lab ID #DE004

NVLAP

Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0
Batch#: N/A
COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Page 17 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705
Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Date Sampled: 05/09/25

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross Color	Non-asbestiform Components	Asbestiform Components
1592272	HSC-EA-31A	Room 9 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592273	HSC-EA-31B	Room 9 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592274	HSC-EA-32A	Room 19 Ceiling	Ceiling Tile	n/a	Soft	Gray	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592275	HSC-EA-32B	Room 26 Ceiling	Ceiling Tile	n/a	Soft	Pink	30% Cellulose 70% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592276	HSC-EA-33A	Exterior Roof	Shingle	n/a	Soft	Black	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			

Note 1 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: AH

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NVLAP
Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0
Batch#: N/A
COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Page 18 of 18

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 05/16/25

Sampling Data

BLI Project #: L446705
Project Name: EA ENGINEERING- 16559-01-00 HARFORD SENIOR CENTER - BALTIMORE, MD

Date Sampled: 05/09/25

Sampled By: CLIENT

Date Analyzed: 05/15/25

Sample ID		Client-supplied Data		Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross Color	Non-asbestiform Components	Asbestiform Components
1592278	HSC-EA-33B	Exterior Roof	Shingle	n/a	Soft	Black	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592279	HSC-EA-33B-LAYER1	Exterior Roof	Tar	n/a	Soft	Black	1% Cellulose 99% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592280	HSC-EA-34A	Room 26 Ceiling	Ceiling Tile	n/a	Fibrous	Brown	90% Cellulose 10% Non-fibrous Material	No Asbestos Found
					Homogeneous			
1592281	HSC-EA-34B	Room 26 Ceiling	Ceiling Tile	n/a	Fibrous	Brown	90% Cellulose 10% Non-fibrous Material	No Asbestos Found
					Homogeneous			

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Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: AH

REVIEWED BY:

APL

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L446768

EA Asbestos Sample Data Sheet

Project Name: Project Location: Project Number:		Harford Senior Center Baltimore, MD 16559-01		Inspector(s): Project Manager: Date Sampled:	JK, ZW SW 5/9/2025
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
Sample Number or ID	Material Description (Use FT-Floor Tile, CT-Ceiling Tile, PF-Pipe Fitting)	Color	Sample Location (Floor, Room)	ACBM Type (TSI or S or M)	Multiple Layers
HSC-EA-01A	R-1	Black	Exterior - Roof	M	Yes
HSC-EA-01B	R-1	Black	Exterior - Roof	M	Yes
HSC-EA-01C	R-1	Black	Exterior - Roof	M	Yes
HSC-EA-02A	C-1	Gray	Exterior - Roof	M	No
HSC-EA-02B	C-1	Gray	Exterior - Roof	M	No
HSC-EA-03A	C-2	White	Exterior - Roof	M	No
HSC-EA-03B	C-2	White	Exterior - Roof	M	No
HSC-EA-04A	DW/JC	White	Room 9 - Wall	M	Yes
HSC-EA-04B	DW/JC	White	Room 16 - Wall	M	Yes
HSC-EA-04C	DW/JC	White	Room 18 - Wall	M	Yes
HSC-EA-05A	C-7	Gray	Exterior - Wall	M	No
HSC-EA-05B	C-7	Gray	Exterior - Wall	M	No
HSC-EA-06A	C-8	Black	Exterior - Wall	M	No
HSC-EA-06B	C-8	Black	Exterior - Wall	M	No
HSC-EA-07A	OM-2	White	Exterior - Window	M	No
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
	Homogeneous area = Suspect Materials of one type and color	Samples required for the following: TSI: 3 samples for each TSI material; 1 sample per area of patched insulation (<6 linear or squared feet); Sample in a manner sufficient per mechanical system not assumed to be ACBM where cement or plaster is used on fittings such as tees, elbows, or valves. Surfacing: 3 samples per area < 1,000 ft²; 5 samples per area > 1,000 ft²; 7 samples per area > 5,000 ft². Miscellaneous: Sample in a manner sufficient to determine (Note EBA's Standard Operating Procedure is to collect at least 2 samples per homogenous area).			

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L446705

EA Asbestos Sample Data Sheet

Project Name: Project Location: Project Number:		Harford Senior Center Baltimore, MD 16559-01		Inspector(s): Project Manager: Date Sampled:	JK, ZW SW 5/9/2025
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
Sample Number or ID	Material Description (Use FT-Floor Tile, CT-Ceiling Tile, PF-Pipe Fitting)	Color	Sample Location (Floor, Room)	ACBM Type (TSI or S or M)	Multiple Layers
HSC-EA-07B	OM-2	White	Exterior - Window	M	No
HSC-EA-08A	C-3	Black	Room 1 - Wall	M	No
HSC-EA-08B	C-3	Black	Room 18 - Wall	M	No
HSC-EA-09A	OM-1	White	Room 1 - Ceiling by vent	M	No
HSC-EA-09B	OM-1	White	Room 1 - Ceiling by vent	M	No
HSC-EA-10A	M-1	Gray	Room 25 - Duct	M	No
HSC-EA-10B	M-1	Gray	Room 25 - Duct	M	No
HSC-EA-11A	M-2	Yellow	Room 14 - Under Red Carpet	M	No
HSC-EA-11B	M-2	Yellow	Room 14 - Under Red Carpet	M	No
HSC-EA-12A	M-3	Yellow	Room 26 - Under Gray Carpet	M	No
HSC-EA-12B	M-3	Yellow	Room 26 - Under Gray Carpet	M	No
HSC-EA-13A	FT-5	Light Gray	Room 10, Floor	M	Yes
HSC-EA-13B	FT-5	Light Gray	Room 11, Floor	M	Yes
HSC-EA-14A	DCT-1	White	Room 18 - Ceiling	M	No
HSC-EA-14B	DCT-1	White	Room 18 - Ceiling	M	No
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
	Homogeneous area = Suspect Materials of one type and color	Samples required for the following: TSI: 3 samples for each TSI material; 1 sample per area of patched insulation (<6 linear or squared feet); Sample in a manner sufficient per mechanical system not assumed to be ACBM where cement or plaster is used on fittings such as tees, elbows, or valves. Surfacing: 3 samples per area < 1,000 ft ² ; 5 samples per area > 1,000 ft ² ; 7 samples per area > 5,000 ft ² . Miscellaneous: Sample in a manner sufficient to determine (Note EBA's Standard Operating Procedure is to collect at least 2 samples per homogeneous area).			TSI = Thermal System Insulation S = Surface Material M = any other building material or structural component

5/14/25
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L446205

EA Asbestos Sample Data Sheet

Project Name: Project Location: Project Number:	Harford Senior Center Baltimore, MD 16559-01		Inspector(s): Project Manager: Date Sampled:	JK, ZW SW 5/9/2025	
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
Sample Number or ID	Material Description (Use FT-Floor Tile, CT-Ceiling Tile, PF-Pipe Fitting)	Color	Sample Location (Floor, Room)	ACBM Type (TSI or S or M)	Multiple Layers
HSC-EA-15A	CB-1	Black	Room 14 - Wall behind covebase	M	No
HSC-EA-15B	CB-1	Black	Room 14 - Wall behind covebase	M	No
HSC-EA-16A	C-4	Gray	Room 13 - Door	M	No
HSC-EA-16B	C-4	Gray	Room 13 - Door	M	No
HSC-EA-17A	C-5	White	Room 2 - Door	M	No
HSC-EA-17B	C-5	White	Room 24 - Door	M	No
HSC-EA-18A	CB-2	Tan	Room 20 - Wall behind covebase	M	No
HSC-EA-18B	CB-2	Tan	Room 20 - Wall behind covebase	M	No
HSC-EA-19A	DCT-2	White	Room 22 - Ceiling	M	No
HSC-EA-19B	DCT-2	White	Room 20 - Ceiling	M	No
HSC-EA-20A	DCT-3	White	Room 23 - Ceiling	M	No
HSC-EA-20B	DCT-3	White	Room 22 - Ceiling	M	No
HSC-EA-21A	DCT-4	White	Room 2 - Ceiling	M	No
HSC-EA-21B	DCT-4	White	Room 24 - Ceiling	M	No
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
	Homogeneous area = Suspect Materials of one type and color	Samples required for the following: TSI: 3 samples for each TSI material; 1 sample per area of patched insulation (<6 linear or squared feet); Sample in a manner sufficient per mechanical system not assumed to be ACBM where cement or plaster is used on fittings such as tees, elbows, or valves. Surfacing: 3 samples per area < 1,000 ft ² ; 5 samples per area > 1,000 ft ² ; 7 samples per area > 5,000 ft ² . Miscellaneous: Sample in a manner sufficient to determine (Note: EBA's Standard Operating Procedure is to collect at least 2 samples per homogeneous area).			
		TSI = Thermal System Insulation S = Surface Material M = any other building material or structural component			

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L446705

EA Asbestos Sample Data Sheet

Project Name: Project Location: Project Number:		Harford Senior Center Baltimore, MD 16559-01		Inspector(s): Project Manager: Date Sampled:	JK, ZW SW 5/9/2025
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
Sample Number or ID	Material Description (Use FT-Floor Tile, CT-Ceiling Tile, PF-Pipe Fitting)	Color	Sample Location (Floor, Room)	ACBM Type (TSI or S or M)	Multiple Layers
HSC-EA-22A	DCT-5	White	Room 23 - Ceiling	M	No
HSC-EA-22B	DCT-5	White	Room 23 - Ceiling	M	No
HSC-EA-23A	DCT-6	White	Room 16 - Ceiling	M	No
HSC-EA-23B	DCT-6	White	Room 16 - Ceiling	M	No
HSC-EA-24A	C-6	White	Room 24 - Sink	M	No
HSC-EA-24B	C-6	White	Room 19 - Sink	M	No
HSC-EA-25A	FT-1	Off-White	Room 23 - Floor	M	Yes
HSC-EA-25B	FT-1	Off-White	Room 22 - Floor	M	Yes
HSC-EA-26A	FT-2	Pink	Room 2 - Floor	M	Yes
HSC-EA-26B	FT-2	Pink	Room 2 - Floor	M	Yes
HSC-EA-27A	FT-3	Gray	Room 3 - Floor	M	Yes
HSC-EA-27B	FT-3	Gray	Room 2 - Floor	M	Yes
HSC-EA-28A	FT-4	Gray	Room 20 - Floor	M	Yes
HSC-EA-28B	FT-4	Gray	Room 20 - Floor	M	Yes
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
	Homogeneous area = Suspect Materials of one type and color	Samples required for the following: TSI: 3 samples for each TSI material; 1 sample per area of patched insulation (<6 linear or squared feet); Sample in a manner sufficient per mechanical system not assumed to be ACBM where cement or plaster is used on fittings such as tees, elbows, or valves. Surfacing: 3 samples per area < 1,000 ft ² ; 5 samples per area > 1,000 ft ² ; 7 samples per area > 5,000 ft ² . Miscellaneous: Sample in a manner sufficient to determine (Note EBA's Standard Operating Procedure is to collect at least 2 samples per homogenous area).			TSI = Thermal System Insulation S = Surface Material M = any other building material or structural component

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L446705

EA Asbestos Sample Data Sheet

Project Name: Project Location: Project Number:		Harford Senior Center Baltimore, MD 16559-01		Inspector(s): Project Manager: Date Sampled:	JK, ZW SW 5/9/2025
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
Sample Number or ID	Material Description (Use FT-Floor Tile, CT-Ceiling Tile, PF-Pipe Fitting)	Color	Sample Location (Floor, Room)	ACBM Type (TSI or S or M)	Multiple Layers
HSC-EA-29A	FT-5	Light Gray	Room 20 - Floor	M	Yes
HSC-EA-29B	FT-5	Light Gray	Room 20 - Floor	M	Yes
HSC-EA-30A	C-9	White	Exterior - Door	M	No
HSC-EA-30B	C-9	White	Exterior - Door	M	No
HSC-EA-31A	DCT-7	White	Room 9 - Ceiling	M	No
HSC-EA-31B	DCT-7	White	Room 9 - Ceiling	M	No
HSC-EA-32A	DCT-8	White	Room 19 - Ceiling	M	No
HSC-EA-32B	DCT-8	White	Room 26 - Ceiling	M	No
HSC-EA-33A	R-2	Black	Exterior - Roof	M	Yes
HSC-EA-33B	R-2	Black	Exterior - Roof	M	Yes
HSC-EA-34A	DCT-10	White	Room 26 - Ceiling	M	No
HSC-EA-34B	DCT-10	White	Room 26 - Ceiling	M	No
PLEASE ANALYZE ALL LAYERS OF EACH SAMPLE					
	Homogeneous area = Suspect Materials of one type and color		Samples required for the following: TSI: 3 samples for each TSI material; 1 sample per area of patched insulation (<6 linear or squared feet); Sample in a manner sufficient per mechanical system not assumed to be ACBM where cement or plaster is used on fittings such as tees, elbows, or valves. Surfacing: 3 samples per area < 1,000 ft ² ; 5 samples per area > 1,000 ft ² ; 7 samples per area > 5,000 ft ² . Miscellaneous: Sample in a manner sufficient to determine (Note: EBA's Standard Operating Procedure is to collect at least 2 samples per homogeneous area).	TSI = Thermal System Insulation S = Surface Material M = any other building material or structural component	

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Appendix D

Certificate of LBP Inspector

THIS IS TO CERTIFY THAT
Zachary James Wolodkin
HAS MET THE LEAD PAINT SERVICES
ACCREDITATION REQUIREMENTS FOR
Risk Assessor

START DATE: 05/21/2024

EXPIRY DATE: 05/21/2026

TRAINING PROVIDER: Aerosol Monitoring & Analysis, Inc.

COURSE DATE: 03/28/2024

ACCREDITATION # 103830 RA



A handwritten signature in black ink, appearing to be "Zachary James Wolodkin", is written over the seal.

**ADMINISTRATOR, LEAD PAINT ACCREDITATION
MARYLAND DEPARTMENT OF THE ENVIRONMENT**

05/21/2024
APPROVED DATE

STATE OF MARYLAND

AEROSOL MONITORING & ANALYSIS, INC.

This is to certify that
ZACHARY WOLODKIN

25 PRIMROSE CT
PARKVILLE, MD 21234

*has met the attendance requirements and successfully completed
the course entitled*

2-DAY LEAD RISK ASSESSOR

This Training Meets the Certification Requirements for DC, MD & VA

03/28/2024 to 03/29/2024

Course Date

03/29/2024

Exam Date

3/29/2026

MD Expiration Date

3/29/2027

VA Expiration Date

3/29/2026

DC Expiration Date

103961

Certification No.

VA103961

VA Certification No.

103961

DC Certification No.

DAVID TRUMAN

Principal Instructor

David Truman

E. Rush Barnett

E. Rush Barnett

Course Director

DC Lead Training Provider Accreditation No. DC21-001-RA-I



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www.amatraining.com

Appendix E

XRF Performance Characteristic Sheet

Performance Characteristic Sheet

EFFECTIVE DATE: September 24, 2004

EDITION NO.: 1

MANUFACTURER AND MODEL:

Make: Niton LLC

Tested Model: XLp 300

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm² (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is not needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)						
	All Data			Median for laboratory-measured lead levels (mg/cm ²)		
Substrate	25 th Percentile	Median	75 th Percentile	Pb < 0.25	0.25 ≤ Pb < 1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

Appendix F

XRF Lead Data Sheet

XRF Lead Data Table
Harford Senior Center

READING NO.	COMPONENT	SUBSTRATE	SIDE	CONDITION	COLOR	SITE	INSPECTOR	FLOOR	ROOM	RESULTS	Pb mg/cm ²
2	CALIBRATE									POSITIVE	1.2
3	CALIBRATE									POSITIVE	1.1
5	CALIBRATE									POSITIVE	1.2
6	BEAM	METAL	C	POOR	TAN	HARFORD SENIOR CENTER	ZW	Roof	UPPER	NEGATIVE	0.0
7	VENT PIPE	METAL	NA	POOR	NP	HARFORD SENIOR CENTER	ZW	Roof	UPPER	POSITIVE	59.5
8	DUCT	METAL	NA	POOR	SILVER	HARFORD SENIOR CENTER	ZW	Roof	UPPER	NEGATIVE	0.0
9	ROOF HATCH	METAL	NA	POOR	RED	HARFORD SENIOR CENTER	ZW	Roof	UPPER	NEGATIVE	0.0
10	SUPPORT BEAM	METAL	A	POOR	BROWN	HARFORD SENIOR CENTER	ZW	Roof	UPPER	NEGATIVE	0.0
11	SUPPORT BEAM	METAL	A	POOR	BROWN	HARFORD SENIOR CENTER	ZW	Roof	UPPER	NEGATIVE	0.0
12	PARAPET WALL CAP	METAL	A	POOR	NP	HARFORD SENIOR CENTER	ZW	Roof	UPPER	NEGATIVE	0.0
13	ROOF DRAIN	METAL	C	POOR	NP	HARFORD SENIOR CENTER	ZW	Roof	LOWER	NEGATIVE	0.0
14	PARAPET WALL CAP	METAL	C	POOR	BROWN	HARFORD SENIOR CENTER	ZW	Roof	LOWER	NEGATIVE	0.0
15	CONDUIT	METAL	B	POOR	BROWN	HARFORD SENIOR CENTER	ZW	Roof	LOWER	NEGATIVE	0.0
16	ANTENNA POLE	METAL	B	FAIR	YELLOW	HARFORD SENIOR CENTER	ZW	Roof	LOWER	NEGATIVE	0.0
17	HVAC PIPE	METAL	D	POOR	WHITE	HARFORD SENIOR CENTER	ZW	Roof	UPPER	NEGATIVE	0.0
18	WALL	DRYWALL	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	1	NEGATIVE	0.0
19	DOOR	WOOD	B	FAIR	NP	HARFORD SENIOR CENTER	ZW	FIRST	1	NEGATIVE	0.0
20	PANEL	WOOD	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	1	NEGATIVE	0.0
21	WALL	CINDER BLOCK	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	1	NEGATIVE	0.0
22	WALL	CINDER BLOCK	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	1	NEGATIVE	0.0
23	WALL	CINDER BLOCK	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
24	WALL	DRYWALL	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
25	WALL	DRYWALL	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
26	DOOR	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
27	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	POSITIVE	2.0
28	DOORFRAME	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
29	DOORFRAME	METAL	C	FAIR	RED	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
30	DOOR	METAL	C	FAIR	RED	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
31	DOORFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
32	DOORFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
33	DOORFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	13	NEGATIVE	0.0
34	WALL	CINDERBLOCK	C	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	18	NEGATIVE	0.0
35	DOORFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	18	NEGATIVE	0.0
36	WALL	DRYWALL	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	18	NEGATIVE	0.0
37	WALL	CINDERBLOCK	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	18	NEGATIVE	0.0
38	WALL	DRYWALL	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
39	WALL	DRYWALL	A	FAIR	PINK	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
40	WALL	DRYWALL	C	FAIR	PINK	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
41	WALL	DRYWALL	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
42	CHAIR RAIL	WOOD	C	FAIR	PINK	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
43	DOOR	METAL	D	FAIR	RED	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.1
44	DOORFRAME	METAL	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
45	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
46	DOOR	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
47	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
48	DOOR	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
49	WINDOWFRAME	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
50	WINDOWSILL	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
51	DOORFRAME	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
52	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	22	POSITIVE	0.9
53	DOOR	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	22	POSITIVE	0.8
54	WALL	CINDERBLOCK	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	23	NEGATIVE	0.0
55	WALL	DRYWALL	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	23	NEGATIVE	0.0
56	DOOR	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	23	NEGATIVE	0.0
57	DOORFRAME	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	23	NEGATIVE	0.0
58	WALL	DRYWALL	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	23	NEGATIVE	0.0
59	PIPE	METAL	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	23	POSITIVE	4.7
60	PIPE	METAL	B	FAIR	BLACK	HARFORD SENIOR CENTER	ZW	FIRST	23	NEGATIVE	0.0
61	WALL	CINDERBLOCK	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	25	NEGATIVE	0.0
62	WALL	DRYWALL	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	25	NEGATIVE	0.0
63	DOOR	WOOD	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	25	NEGATIVE	0.0
64	DOORFRAME	WOOD	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	25	NEGATIVE	0.0
65	DOORFRAME	WOOD	C	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	3	NEGATIVE	0.0
66	WALL	CINDERBLOCK	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	3	NEGATIVE	0.0
67	WALL	CINDERBLOCK	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	3	NEGATIVE	0.0

XRF Lead Data Table
Harford Senior Center

READING NO.	COMPONENT	SUBSTRATE	SIDE	CONDITION	COLOR	SITE	INSPECTOR	FLOOR	ROOM	RESULTS	Pb mg/cm ²
68	PIPE	METAL	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	3	NEGATIVE	0.2
69	PIPE	METAL	D	FAIR	BLACK	HARFORD SENIOR CENTER	ZW	FIRST	3	NEGATIVE	0.0
70	PANEL	WOOD	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	3	NEGATIVE	0.1
71	PANEL	WOOD	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	3	NEGATIVE	0.0
72	WALL	DRYWALL	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	9	NEGATIVE	0.0
73	BASEBOARD	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	9	NEGATIVE	0.0
74	DOORFRAME	WOOD	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	9	NEGATIVE	0.0
75	PEGBOARD	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	9	NEGATIVE	0.0
76	WALL	DRYWALL	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	24	NEGATIVE	0.1
77	WALL	CERAMIC TILE	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	24	NEGATIVE	0.1
78	FLOOR	CERAMIC TILE	NA	FAIR	GRAY	HARFORD SENIOR CENTER	ZW	FIRST	24	NEGATIVE	0.0
79	WALL	CERAMIC TILE	C	FAIR	GREEN	HARFORD SENIOR CENTER	ZW	FIRST	24	NEGATIVE	0.0
80	DOORFRAME	WOOD	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	24	NEGATIVE	0.0
81	STALL	PLASTIC	NA	FAIR	BLUE	HARFORD SENIOR CENTER	ZW	FIRST	24	NEGATIVE	0.0
82	STALL	PLASTIC	NA	FAIR	GRAY	HARFORD SENIOR CENTER	ZW	FIRST	24	NEGATIVE	0.0
83	WALL	DRYWALL	A	FAIR	TAN	HARFORD SENIOR CENTER	ZW	FIRST	19	NEGATIVE	0.0
84	WALL	CERAMIC TILE	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	19	POSITIVE	3.9
85	WALL	CERAMIC TILE	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	19	POSITIVE	3.4
86	FLOOR	CERAMIC TILE	NA	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	19	NEGATIVE	0.0
87	FLOOR	CERAMIC TILE	NA	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	19	NEGATIVE	0.0
88	DOORFRAME	WOOD	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	19	NEGATIVE	0.0
89	DOORFRAME	WOOD	B	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	14	NEGATIVE	0.0
90	WALL	DRYWALL	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	14	NEGATIVE	0.0
91	CEILING	DRYWALL	na	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	14	NEGATIVE	0.0
92	CEILING BEAM	METAL	na	FAIR	RED	HARFORD SENIOR CENTER	ZW	SECOND	27	NEGATIVE	0.1
93	CEILING BEAM	METAL	na	FAIR	RED	HARFORD SENIOR CENTER	ZW	SECOND	27	NEGATIVE	0.1
94	WALL	DRYWALL	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	SECOND	27	NEGATIVE	0.0
95	WALL	BRICK	C	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	SECOND	27	NEGATIVE	0.0
96	WALL	CINDERBLOCK	C	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	SECOND	27	NEGATIVE	0.0
97	HANDRAIL	WOOD	NA	FAIR	NP	HARFORD SENIOR CENTER	ZW	SECOND	27	NEGATIVE	0.0
98	CONDUIT	METAL	C	FAIR	YELLOW	HARFORD SENIOR CENTER	ZW	SECOND	27	NEGATIVE	0.0
99	DOORFRAME	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	15	NEGATIVE	0.0
100	WALL	WOODPANEL	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	15	NEGATIVE	0.0
101	SHELF	WOOD	NA	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	15	NEGATIVE	0.0
102	SHELF SUPPORT	METAL	NA	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	15	NEGATIVE	0.0
103	WALL	DRYWALL	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	16	NEGATIVE	0.0
104	WINDOW	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	16	NEGATIVE	0.0
105	DOORFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	16	NEGATIVE	0.0
106	TRANSOM BOARD	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	16	NEGATIVE	0.0
107	WALL	DRYWALL	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	10	NEGATIVE	0.0
108	DOORFRAME	DRYWALL	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	10	NEGATIVE	0.0
109	CORNERGUARD	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	10	NEGATIVE	0.0
110	BASEBOARD	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	10	NEGATIVE	0.1
111	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	10	NEGATIVE	0.0
112	WINDOW	WOOD	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	10	NEGATIVE	0.0
113	WALL	DRYWALL	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	11	NEGATIVE	0.0
114	WALL	DRYWALL	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	11	NEGATIVE	0.0
115	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	11	NEGATIVE	0.0
116	BASEBOARD	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	11	NEGATIVE	0.0
117	WINDOW	WOOD	C	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	11	NEGATIVE	0.0
118	DOORFRAME	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	11	NEGATIVE	0.0
119	CORNERGUARD	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
120	CEILING	DRYWALL	na	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	16	NEGATIVE	0.0
121	CROWN MOLDING	WOOD	na	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	16	NEGATIVE	0.0
122	CORNERGUARD	WOOD	A	FAIR	PINK	HARFORD SENIOR CENTER	ZW	FIRST	2	NEGATIVE	0.0
123	CALIBRATE					HARFORD SENIOR CENTER	ZW			POSITIVE	1.2
125	CALIBRATE					HARFORD SENIOR CENTER	ZW			POSITIVE	1.1
132	CALIBRATE					HARFORD SENIOR CENTER	ZW			POSITIVE	1.2
133	CALIBRATE					HARFORD SENIOR CENTER	ZW			POSITIVE	1.0
134	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	20	NEGATIVE	0.0
135	DOORFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	20	NEGATIVE	0.0
136	DOORFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	26	NEGATIVE	0.0
137	WALL	DRYWALL	B	FAIR	YELLOW	HARFORD SENIOR CENTER	ZW	FIRST	26	NEGATIVE	0.0
138	WALL	WOODPANEL	C	FAIR	YELLOW	HARFORD SENIOR CENTER	ZW	FIRST	26	NEGATIVE	0.0
139	WINDOW	METAL	A	FAIR	SILVER	HARFORD SENIOR CENTER	ZW	FIRST	26	NEGATIVE	0.0

XRF Lead Data Table
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READING NO.	COMPONENT	SUBSTRATE	SIDE	CONDITION	COLOR	SITE	INSPECTOR	FLOOR	ROOM	RESULTS	Pb mg/cm ²
140	WALL	WOODPANEL	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	21	NEGATIVE	0.0
141	WALL	DRYWALL	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	21	NEGATIVE	0.0
142	CROWN MOLDING	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	21	NEGATIVE	0.1
143	CORNER GUARD	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	21	NEGATIVE	0.0
144	DOOR	WOOD	B	FAIR	TAN	HARFORD SENIOR CENTER	ZW	FIRST	12	NEGATIVE	0.0
145	DOORFRAME	WOOD	B	FAIR	TAN	HARFORD SENIOR CENTER	ZW	FIRST	12	NEGATIVE	0.0
146	WALL	DRYWALL	C	FAIR	TAN	HARFORD SENIOR CENTER	ZW	FIRST	12	NEGATIVE	0.0
147	BASEBOARD	WOOD	D	FAIR	TAN	HARFORD SENIOR CENTER	ZW	FIRST	12	NEGATIVE	0.0
148	WINDOW SILL	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	12	NEGATIVE	0.0
149	WINDOW SILL	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	12	NEGATIVE	0.0
150	WINDOW APRON	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	12	NEGATIVE	0.0
151	WALL	DRYWALL	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	17	NEGATIVE	0.0
152	SHELF	WOOD	NA	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	17	NEGATIVE	0.0
153	SHELF SUPPORT	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	17	NEGATIVE	0.0
154	CEILING	WOOD	NA	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	17	NEGATIVE	0.0
155	WALL	WOODPANEL	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
156	BASEBOARD	WOODPANEL	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.1
157	CORNERGUARD	WOOD	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
158	DOORFRAME	WOOD	B	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
159	WINDOWFRAME	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
160	WINDOWCASE	WOOD	D	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
161	WINDOW	METAL	D	FAIR	GRAY	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
162	WINDOW	METAL	D	FAIR	GRAY	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
163	WINDOWSILL	METAL	D	FAIR	GRAY	HARFORD SENIOR CENTER	ZW	FIRST	4	NEGATIVE	0.0
164	WALL	WOODPANEL	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	5	NEGATIVE	0.0
165	DOORFRAME	WOOD	B	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	5	NEGATIVE	0.0
166	WALL	WOODPANEL	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	6	NEGATIVE	0.0
167	BASEBOARD	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	6	NEGATIVE	0.0
168	DOORFRAME	WOOD	B	FAIR	YELLOW	HARFORD SENIOR CENTER	ZW	FIRST	6	NEGATIVE	0.0
169	WALL	DRYWALL	D	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	FIRST	6	NEGATIVE	0.0
170	BASEBOARD	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	7	NEGATIVE	0.0
171	DOORFRAME	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	7	NEGATIVE	0.0
172	WALL	DRYWALL	B	FAIR	TAN	HARFORD SENIOR CENTER	ZW	FIRST	8	NEGATIVE	0.0
173	BASEBOARD	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	8	NEGATIVE	0.0
174	DOORFRAME	WOOD	B	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	8	NEGATIVE	0.0
175	WINDOWSILL	WOOD	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	FIRST	8	NEGATIVE	0.0
176	DOOR LINTEL	WOOD	A	POOR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
177	AWNING BRACKET	METAL	A	POOR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
178	HANDRAIL	METAL	A	POOR	BLACK	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
179	SIGNPOST	WOOD	A	POOR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
180	WALL	BRICK	A	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
181	FLAGPOLE	METAL	A	FAIR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
182	GUTTER	METAL	B	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.2
183	GUTTER BRACKET	METAL	B	FAIR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
184	PIPE	METAL	B	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
185	WALL	CINDERBLOCK	B	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
186	WALL	CINDERBLOCK	B	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
187	WALL	CINDERBLOCK	C	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
188	WALL	CINDERBLOCK	C	POOR	GRAY	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
189	GUTTER	METAL	C	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.1
190	PIPE	METAL	C	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
191	PIPE	METAL	C	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	POSITIVE	7.3
192	DOOR	METAL	C	POOR	RED	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
193	DOORFRAME	METAL	C	FAIR	RED	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
194	PIPE	METAL	C	FAIR	YELLOW	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
195	BOLLARD	METAL	C	POOR	YELLOW	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	POSITIVE	0.8
196	PARKING LINES	ASPHALT	C	POOR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
197	WINDOW CAGE	METAL	D	POOR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.1
198	WINDOW SILL	BRICK	D	POOR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
199	WINDOW SILL	BRICK	D	POOR	WHITE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
200	WALL	CINDERBLOCK	D	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
201	WALL	CINDERBLOCK	D	POOR	TAN	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
202	DOOR	METAL	D	POOR	RED	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
203	DOORFRAME	METAL	D	POOR	RED	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
204	PIPE	METAL	D	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.2

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205	GUTTER	METAL	D	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
206	WALL	CINDERBLOCK	D	POOR	BEIGE	HARFORD SENIOR CENTER	ZW	EXTERIOR	EXTERIOR	NEGATIVE	0.0
207	CALIBRATE					HARFORD SENIOR CENTER	ZW			POSITIVE	1.0
208	CALIBRATE					HARFORD SENIOR CENTER	ZW			POSITIVE	1.1
209	CALIBRATE					HARFORD SENIOR CENTER	ZW			POSITIVE	0.9