ST. PAUL'S SCHOOL

2021 ASBESTOS 3 YEAR REINSPECTION

Prepared by:

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RPF File 21.0636

RPF Environmental, Inc. (RPF) conducted asbestos reinspection work for the St. Paul's School (SPS) located in Concord, New Hampshire on August 10, 2021, with EPA Asbestos Hazard Emergency Response Act (AHERA) requirement. The reinspection included a visual inspection of the areas known to contain asbestos-containing building materials (ACBM) and assumed ACBM, as stated in the AHERA inspection records provided to RPF for review.

In general, the ACBM inspected by RPF during this reinspection was observed to be in good to fair condition and the school should continue to manage the materials in accordance with the AHERA Management Plan and updated recommendations enclosed.

Buildings included in this phase of the reinspection work included: Memorial Hall, School House, Power Plant, Tuck Stores, Music and Dance, Alumni Hall, Post Office, Red Barn, Upper Building, Kittredge, White Farm, Hargate Art Center, Scudder House, and the New Chapel. Also included in this reinspection were the following sites: Site 234, Site 330, Site 331, Site 232, Site 329, Site 242, Site 255, Site 254, Site 289, Site 259, Site 261, Site 249, Site 229, Site 303, Site 304, Site 327, Old Miller house Sites 243-246, and Site 248.

This reinspection report should be filed with the AHERA plans for each school building, as well as the central facilities office. Appendix A contains a listing of the ACBM reinspected during this project and the AHERA assessment and minimum recommended actions for each area of ACBM in the school. Appendix B includes management plan recommendations and updates to be used in conjunction with your original management plan for each building.

The Asbestos Program Manager (AHERA-designated person) for the school is required, pursuant to the AHERA Rule, to review this report and the appendices and to then develop a written plan to implement recommendations for management, abatement or additional testing work, as applicable.

If you have any questions or comments, or if you would like assistance with the recommendations provided herein, please do not hesitate to call me.

Sincerely,
RPF ENVIRONMENTAL, INC.

Kara Forsythe, SMS
AHERA Compliance Manager, Inspector

Enclosures:

Appendix A: ACBM Inventory
Appendix B: Management Plan Updates
Appendix C: Reinspection Accreditation
Appendix D: Methodology and Limitations

APPENDIX A

CODE DESCRIPTIONS

(Index sheet for use with individual building listings included with Attachment 2)

EPA Assessment Codes:

1. Damaged or significantly damaged thermal systems insulation asbestos containing material (ACM)
2. Damaged friable surfacing ACM
3. Significantly damaged friable surfacing ACM
4. Damaged or significantly damaged friable miscellaneous ACM
5. ACBM with the potential for damage
6. ACBM with the potential for significant damage
7. Any remaining ACBM or friable suspected ACBM

NF. Material is nonfriable and assessments are not required.

Response Summary Codes: (Summary of minimum recommendations only, please reference text of report and Attachment 2 for additional recommendations.)

Code Description

1. **Continue to manage this ACBM under the buildings Management Plan, Operations and Maintenance (O&M) Program** and AHERA. Conduct spot maintenance repairs of any minor damage present (nonfriable ACBM) or that occurs in accordance with AHERA and the School O&M Program.

2. **Conduct repair, surface cleaning, encapsulation, or enclosure response actions** for this ACBM in accordance with AHERA. Use care to not create dust in the area and to prevent further disturbance. Continue to manage this ACBM under the buildings Management Plan, O&M Program and AHERA (See Summary Code 1). A licensed consultant design firm must prepare repair specifications (design) prior to obtaining pricing or bids for response actions by licensed asbestos contractors. Some small-scale maintenance work (<3 linear/square feet) can be completed by the School's maintenance staff if they qualify for the licensing exemption and they possess adequate training, current refresher training, and the necessary personal protective equipment and safety programs in place.

3. **Remove the ACBM and conduct surface decontamination** as recommended by accredited/licensed project designer in accordance with AHERA. Use care to not create dust in the area and to prevent further disturbance. Continue to manage any remaining ACBM under the buildings Management Plan, O&M Program and AHERA (See Summary Code 1). All assumed ACBM should be properly tested by a licensed inspection prior to abatement work or as soon as feasible, and the AHERA records updated accordingly. A licensed consultant design firm must prepare repair specifications (design) prior to obtaining pricing or bids for response actions by licensed asbestos contractors. All abatement activities must be conducted by properly accredited and licensed personnel/companies.

4. **Complete verification of AHERA Inspection documentation**. Licensed inspector must assume materials are ACBM or properly test additional suspect ACBM. Exterior materials, except under certain circumstances, are not covered under AHERA but still must be inspected and handled as ACBM in accordance with other State, local, and federal regulations. Licensed inspector and management planner must update ACBM listings and Management Plans as needed. Obtain architectural statements for new construction/renovation areas in accordance with AHERA. Confirm that proper numbers of samples have been collected.

5. **Abated material may be removed from ACBM listing**. Materials have been removed and abatement records are on file. RPF did not audit records for completeness or accuracy.

6. **Material could not be located** and may have been abated, or it was not possible to confirm if the materials observed were in fact newer replacement materials. Verify abatement records and, if all records are obtained and complete, update the ACBM listings to reflect the abatement work. If an MNO listing is due to an inaccessible area or locked room, such areas should be inspected when feasible.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Site No. 55 Memorial								
Basement								
Radio Station Mech	Pipe Insulation	-----	TSI	Yes	MNO	MNO	1, 6	Material is located above the finished ceiling.
Radio Station Mech	Pipe Fitting Insulation	-----	TSI	Yes	MNO	MNO	1, 6	
Radio Station Mech	Duct Skim Coat	-----	TSI	Yes	MNO	MNO	1, 6	
Band Room	9" Floor Tile	500 sq. ft.	Misc.	MNO	MNO	MNO	1	Materials have been covered over with carpet.
Women's Dressing Rm	9" Floor Tile	75 Sq. Ft.	Misc	No	Fair	NF	1	Materials need to be waxed.
Theater Storage (013)	Pipe Insulation	4 linear feet	TSI	Yes	Good	5	1	Materials is located above the ductwork/closet area.
Mechanical 012	Duct Expansion Cloth	6 Linear ft.	Misc	No	Fair	NF	1	Materials were observed to have water staining present, < 1 lf.
Hall and Foyer outside restrooms end entry to ladies room	9" Floor Tile	580 sq. ft	Misc	No	Fair	NF	1	Normal wear throughout with dents, scratches present throughout. Water damage by bubbler.
Storage (002)	9" Floor Tile	80 sq. ft	Misc	No	Good	NF	1	Mostly stored items present. School bookstore owns this space and does not have access.
First Floor								
Stage	Fire Curtain	1 Curtain	Misc.	Yes	Good	5	1,4	Suspect, test prior to removal.
Stairwell hall	9" Floor tile	300 sq. ft	Misc.	No	MNO	MNO	1	Materials have been covered over with carpet.
Auditorium	9" Floor tile	4,100 sq. ft	Misc.	No	Fair	NF	1	Materials observed to have some chipped, dented floor tiles present. Two floor tiles in front row broken with mastic exposed.
See notes on last page								

Site No. 234: Page 1 of 2

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Second Floor								
North Stairwell and lobby	9" Floor Tile	540 Sq. Ft.	Misc	No	Good	NF	1	
Auditorium Ceiling	Trowel On Surfacing Material	4,800 sq. ft	Surf	Yes	Good	5	1	
Auditorium Balcony	9" Floor Tile	2,100 sq. ft	Misc	No	Fair	NF	1	Material was observed to have some chipped and missing floor tiles present.
Auditorium & Balcony Wall	Trowel On Surfacing Material	400 Sq. Ft.	Surf	Yes	Good	5	1	
Projector Room	Light wire	2 Linear Ft.	Misc	No	Good	5	1	Materials are assumed to be ACM.
Attic	Duct Expansion Cloth	40 linear feet	Misc.	No	Good	5	1	Materials are assumed to be ACM.
Throughout	Other suspect ACBM is present in and on the building that requires further review, testing, assessment and, based on the results modifications to the management plan may be required. In addition, interior and exterior inspection are required prior to any renovation or demolition work.						4	See further discussion in report. Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. Please reference AHERA and the school management plan for discussion on assessment codes. MNO means material was not observed during reinspection. NF Means nonfriable and assessments are not required.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

Site No. 234: Page 2 of 2

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Site 013 Music & Dance								
Music								
Exterior: West Side Music	Corrugated transite siding	800 sq. ft	Misc	No	Good	NF	1	
Dance								
Exterior: North Side	Corrugated transite siding	1,500 sq. ft	Misc	No	Good	NF	1	
Throughout	Other suspect ACBM is present in and on the building that requires further review, testing, assessement and, based on the results modifications to the management plan may be required. In addition, interior and exterior inspection are required prior to any renovation or demolition work.						4	See further discussion in report. Possible inaccessible ACBM also.

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Alumni Hall								
First Floor								
107/108 Office	Floor Tile	486 Sq. Ft.	Misc	No	MNO	MNO	1	Material has been covered over with carpeting.
101/120/119 Business Office	Floor Tile	486 Sq. Ft.	Misc	No	MNO	MNO	1	
110/111 HR	Floor Tile	405 Sq. Ft.	Misc	No	MNO	MNO	1	
Second Floor								
2nd Floor, Hall Closet	Transite floor	10 sq. ft	Misc	No	Good	NF	1	
2nd Floor, A-1 Kitchen	Linoleum	63 Sq. Ft.	Misc	No	MNO	MNO	1	Material has been covered over with newer flooring.
2nd Floor, Bath	Linoleum	20 Sq. Ft.	Misc	No	MNO	MNO	1	
All gender bathroom (previously listed as Men's Bathroom)	Linoleum	12 Sq. Ft.	Misc	No	MNO	MNO	1	
Office Storage	Linoleum	16 Sq. Ft.	Misc	No	MNO	MNO	1	
Third Floor								
Hall, Bath	Linoleum	75 sq. ft	Misc	No	MNO	MNO	1	Material has been covered over with newer flooring.
Apt. 4, Bath	Linoleum	75 sq. ft	Misc	No	MNO	MNO	1	
Apt. 5, Bath	Linoleum	100 sq. ft	Misc	No	MNO	MNO	1	
Hall Closet	Transite floor	5 sq. ft	Misc	No	Good	MNO	1	Materials have been covered by carpet.
Throughout	Other suspect ACBM is present in and on the building that requires further review, testing, assessment and, based on the results modifications to the management plan may be required. In addition, interior and exterior inspection are required prior to any renovation or demolition work.						4	See further discussion in report. Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
School House								
Basement								
Safe	9" Floor Tile	140 sq. ft	Misc	No	Good	NF	1	
Basement Ceiling	Pipe Insulation	-------	TSI	MNO	MNO	MNO	1	Material is located above the ceiling.
Basement Ceiling	Pipe Fittings	-------	TSI	MNO	MNO	MNO	1	
Basement Electrical Room-17	9" Floor Tile	------	Misc	MNO	MNO	MNO	1	Majority of material removed by ABS in 2008. Remaining material is present under the electrical switchgear (20 sq. ft. approx) and is inaccessible.
Third Floor								
Room 312 Closet	9" Floor Tile	20 Sq. Ft.	Misc	No	Good	NF	1	
Registrar's Office Closet	9" Floor Tile	30 Sq. ft	Misc	No	Good	NF	1	
Throughout	Other suspect ACBM is present in and on the building that requires further review, testing, assessement and, based on the results modifications to the management plan may be required. In addition, interior and exterior inspection are required prior to any renovation or demolition work.						4	See further discussion in report. Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Physical Plant/Maintenance: Site No. 404								
Boiler Room								
Hall entrance to boiler room	Fire Door	1 Door	Misc.	MNO	MNO	MNO	1	Material is assumed to be present underneath metal jacket.
Facilities Building								
Facilities Director office (former reception/key office)	Pipe Fitting Insulation	-------	TSI	MNO	MNO	MNO	1,6	Material was not observed and may be above the sheetrock ceiling or within the wall space.
	Pipe Insulation	-------	TSI	MNO	MNO	MNO	1,6	
Maintenance and Secretaries offices	Pipe Insulation	-------	TSI	MNO	MNO	MNO	1,6	Material was not observed and may be above the sheetrock ceiling or within the wall space.
Maintenance and Secretaries offices	Pipe Fitting Insulation	-------	TSI	MNO	MNO	MNO	1,6	
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
New Chapel: Site 51								
First Floor								
Choir	Flooring Paper	675 sq. ft	Misc	Yes	MNO	MNO	1, 6	Material is located under the wood flooring.
Side Entrance near choir	Flooring Paper	100 sq. ft	Misc	MNO	MNO	MNO	1, 6	
Sacristy Hall	Flooring Paper	475 sq. ft	Misc	MNO	MNO	MNO	1, 6	
Sacristy	Flooring Paper	220 sq. ft	Misc	MNO	MNO	MNO	1, 6	
Exterior	Other suspect exterior materials are present and further review is required. Prior to any exterior renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Scudder House: Site No. 402								
Second Floor								
Bathroom	9" Floor Tile	75 sq. ft	Misc.	No	Good	NF	1	Prior to removal testing is recommended. Limited access to the materials due to stored materials present.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Friedman Center previously listed as Hargate Art Center: Site No. 11								
Fire proofing coating	Throughout Attic spaces	15,000 sq. ft.	Surfacing	MNO	MNO	MNO	1	Some materials were removed during the 2016-2017 renvoatiosn, however remaining materials have been encpasulated over with gypsum board.
Throughout	Other exterior suspect materials are present such as slate roofing compounds and sealants and further review is required. Prior to any renovation and/or demolition of exterior roofing additional survey work must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

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St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Food Services Site 414								
First Floor								
Upper Dining room	Flooring paper	3,500 sq. ft	Misc.	No	MNO	MNO	1	Materials is underneath the wood flooring.
Second Floor								
Food services storage room	Flooring paper	240 sq. ft	Misc.	No	MNO	MNO	1	Materials is underneath the wood flooring/floor tile.
Women's locker room	Flooring paper	160 sq. ft	Misc.	No	MNO	MNO	1	Materials is underneath the wood flooring/floor tiles.
Men's locker room	Flooring paper	200 sq. ft	Misc.	No	MNO	MNO	1	
Women's room	Flooring paper	80 sq. ft	Misc.	No	MNO	MNO	1	
Break room	Flooring paper	225 sq. ft	Misc.	No	MNO	MNO	1	
Linen Storage	Flooring paper	225 sq. ft	Misc.	No	MNO	MNO	1	Materials is underneath the wood flooring.
Corridor	Flooring paper	100 sq. ft	Misc.	No	MNO	MNO	1	Materials is underneath the wood flooring.
Third Floor								
Guest bathroom	Flooring paper	130 sq. ft	Misc.	No	MNO	MNO	1	Materials is underneath the wood flooring.
Resident bathroom	Flooring paper	60 sq. ft	Misc.	No	MNO	MNO	1	
Corridor	Flooring paper	360 sq. ft	Misc.	No	MNO	MNO	1	
Fourth Floor								
Room 16	Flooring paper	120 sq. ft	Misc.	No	MNO	MNO	1	Materials is underneath the wood flooring.
Room 17	Flooring paper	160 sq. ft	Misc.	No	MNO	MNO	1	
Room 18	Flooring paper	160 sq. ft	Misc.	No	MNO	MNO	1	
Room 19	Flooring paper	160 sq. ft	Misc.	No	MNO	MNO	1	
Linen Storage	Flooring paper	50 sq. ft	Misc.	No	MNO	MNO	1	
See notes on last page								

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Food Services Site 414								
Fourth Floor (continued)								
Room 20	Flooring paper	140 sq. ft	Misc.	No	MNO	MNO	1	Material is underneath the wood flooring.
Room 21	Flooring paper	200 sq. ft	Misc.	No	MNO	MNO	1	
Corridor	Flooring paper	300 sq. ft	Misc.	No	MNO	MNO	1	
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

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Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Bookstore previously listed as Post Office: Site No. 406								
First Floor								
Post Master Area	9" Floor Tile and associated mastic	690 sq. ft	Misc.	MNO	MNO	MNO	5	Materials were removed by Aulson in 2019.
Post Master Area	Trowelled-On Surfacing Material	1,477 sq. ft	Misc.	Yes	Good	5	1	
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

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St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Red Barn								
First Floor								
Shop	Transite Ceiling Panel	600 sq. ft	Misc.	No	MNO	MNO	1	Materials have been enclosed with spray foam insulation.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference the report, code description sheet, and the school management plan for discussion on assessment codes

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See code description sheet, further discussion, and requirements in report

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Service Building (White Farm Garage), Site 411								
Basement Level								
Boiler Room	Transite Ceiling and Wall Panels	500 sq. ft	Misc.	No	Fair/Damaged	NF	3	Rough edges should be covered or encapsulated. Some areas of broken transite present on walls and ceilings. Area should be priotized for removal.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference the report, code description sheet, and the school management plan for discussion on assessment codes

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See code description sheet, further discussion, and requirements in report

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Approximate Quantity	Category	Friable	Condition	Assessment	Response	Notes
Nash								
First Floor								
Student room 10	9" Floor tile and mastic	216 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 11	9" Floor tile and mastic	230 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 12	9" Floor tile and mastic	230 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 13	9" Floor tile and mastic	230 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 14	9" Floor tile and mastic	230 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 15	9" Floor tile and mastic	230 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 16	9" Floor tile and mastic	216 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
First floor cooridor	9" Floor tile and mastic	128 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Second Floor								
Student room 20	9" Floor tile and mastic	170 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 21	9" Floor tile and mastic	121 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 22	9" Floor tile and mastic	121 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 23	9" Floor tile and mastic	121 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 24	9" Floor tile and mastic	121 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 25	9" Floor tile and mastic	121 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 26	9" Floor tile and mastic	170 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Student room 27	9" Floor tile and mastic	216 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Corridor	9" Floor tile and mastic	500 sq. ft	Misc.	No	MNO	MNO	1	Covered over with carpet.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.						4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference the report, code description sheet, and the school management plan for discussion on assessment codes

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See code description sheet, further discussion, and requirements in report

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 330							
Basement							
Basement Bathroom	Floor Tile	Misc	No	MNO	MNO	1	Materials have been covered over with linoleum.
Basement, N.W. Bedroom	Floor Tile	Misc	No	MNO	MNO	1	Materials have been covered over with carpet.
S.W. Bedroom & Hall Closet	Floor Tile	Misc	No	Good	NF	1	
First Floor							
1st Floor Bathroom	Floor Tile	Misc	No	MNO	MNO	1	Materials have been covered over with linoleum.
Kitchen	Floor Tile	Misc	No	MNO	MNO	1	Materials have been covered over with linoleum.
Enclosed Porch	Transite floor	Misc	No	MNO	MNO	1	Materials have been covered over with carpet.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 331 41 Armour Place							
Hall Closet	Floor Tile	Misc	No	Good	NF	1	
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 329 47 Armour Place							
First Floor							
Kitchen	Floor Tile	Misc	MNO	MNO	MNO	1	Site representative indicated this material has been covered over with newer ceramic flooring.
1st Floor Bathroom	Floor Tile	Misc	MNO	MNO	MNO	1	
Basement							
Basement, N.W. Bedroom	Floor Tile	Misc	No	Good	NF	1	
Basement, Bathroom	Floor Tile	Misc	MNO	MNO	MNO	1	Site representative indicated this material has been covered over with newer flooring.
S.E. Bedroom	Floor Tile	Misc	MNO	MNO	MNO	1	
S.W. Bedroom	Floor Tile	Misc	MNO	MNO	MNO	1	
Hall and closet	Floor Tile	Misc	MNO	Good	NF	1	Materials in closet are accessible and in good condition. The hallway has been covered over.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 254							
1st Floor, Bathroom	Linoleum	Misc	MNO	MNO	MNO	1	Site representative indicated this material has been covered over with newer flooring
Kitchen	Linoleum	Misc	MNO	MNO	MNO	1	
Throughout	Other exterior suspect materials are present and further review is required. Prior to any renovation and/or demolition additional samples maybe required in addition to the 2010 NESHAP survey conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 332							
Attic	Vermiculite Insulation	TSI	Yes	Good	5	1	Tested in 2011, Trace amounts of asbestos present. Refrence the RPF Rpt # 114540 for further details.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site 261							
First Floor							
Bathroom	Linoleum	Misc	MNO	MNO	MNO	1	Materials have been covered over with newer flooring.
Kitchen	Linoleum	Misc	MNO	MNO	MNO	1	
Laundry	Linoleum	Misc	MNO	MNO	MNO	1	
Hall	Linoleum	Misc	MNO	MNO	MNO	1	
Second Floor							
Bathroom	Linoleum	Misc	MNO	MNO	MNO	1	Materials have been covered over with newer flooring.
Third Floor							
3rd Floor Bathroom	Linoleum	Misc	MNO	MNO	MNO	1	Materials have been covered over with newer flooring.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site 249							
Kitchen	Linoleum	Misc	MNO	MNO	MNO	1	Site representative indicated this material has been covered over with newer flooring
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 264							
Basement	Pipe Insulation	TSI	Yes	MNO	MNO	5	Materials were removed by ABS in 2018.
Attic	Duct surfacing material	Surfacing	No	Good	5	1,4	Material is in the attic with a labeled sign as ACBM. Records of this materials identified as ACBM was not available. Prior to removal further review and testing recommended.
Throughout	Other exterior suspect materials are present and further review is required. Prior to any renovation and/or demolition additional samples maybe required in addition to the 2009 NESHAP survey and removal records.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

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St. Paul's School: 3 Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 304							
Basement	Pipe Insulation	TSI	Yes	MNO	MNO	1	Material has been enclosed and is inaccessible. The material continues into the steam tunnel to Gordon Rink.
First Floor							
Kitchen, laundry, hall and 1/2 bathroom	Linoleum	Misc.	MNO	MNO	MNO	1,4	Older flooring may be present underneath the ceramic tile. Confirmation testing should be performed prior to disturbance.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

Response Codes: 1. Manage ACBM in accordance with Management Plan; 2. Conduct repairs and cleaning; 3. Conduct removal and cleaning; 4. Material suspect and requires further testing; 5. ACBM has been removed and may be removed from listings; 6. ACBM was not observed and further review is required. See further discussion and requirements in report.

St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 245, 246 Old Miller House							
Site 246							
Laundry	Linoleum	Misc.	MNO	MNO	MNO	1	
Kitchen	Linoleum	Misc.	MNO	MNO	MNO	1	Materials have been covered over with newer flooring.
Site 245							
Kitchen	Linoleum	Misc.	MNO	MNO	MNO	1	Materials have been covered over with newer flooring.
1st floor bathroom	Linoleum	Misc.	MNO	MNO	MNO	1	
2nd floor bathroom	Linoleum	Misc.	MNO	MNO	MNO	1	
Washroom	Linoleum	Misc.	MNO	MNO	MNO	1	
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

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St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 248							
Kitchen & Bathroom	Linoleum	Misc	MNO	MNO	MNO	1	Site representative indicated this material has been covered over with newer flooring.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

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St. Paul's School : 3-Year AHERA Reinspection 2021

Location	ACBM	Category	Friable	Condition	Assessment	Response	Notes
St. Paul's School							
Site No. 234							
2nd floor Bathroom	Floor Tile	Misc	MNO	MNO	MNO	1	Site representative indicated this material has been covered over with ceramic flooring.
Wall Chase	Pipe Insulation	TSI	Yes	MNO	MNO	1	Materials are present within the wall chases.
Throughout	Other suspect materials are present and further review is required. Prior to any renovation and/or demolition a full NESHAP survey must be conducted in accordance with various state and federal regulations.					4	Possible inaccessible ACBM also.

Category: MISC is miscellaneous material; TSI is thermal system insulation; SURF is surfacing material. Categorized in accordance with 40 CFR Part 763.

Assessment Codes based on 40 CFR Part 763: 1. Damaged or significantly damaged thermal system insulation ACM; 2. Damaged friable surfacing ACM; 3. Significantly damaged friable surfacing ACM; 4. Damaged or significantly damaged friable miscellaneous ACM; 5. ACBM with potential for damage; 6. ACBM with potential for significant damage; 7. Any remaining ACM. "NF" means nonfriable, and assessments are not required. MNO means material not observed. Please reference AHERA and the school management plan for discussion on assessment codes.

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APPENDIX B

AHERA Management Plan – 2021 Update Recommendations

The following comments and recommendations should be reviewed in conjunction with the findings and discussions contained in the text of the report, attachments, the school's 1989 initial AHERA Report and Management Plan, and the federal standard 40 CFR Part 763. In particular, the existing Operations and Maintenance program should be referenced for additional work methods, minimum requirements and procedures, and safety and health.

Documentation review during the reinspection consisted of only those specific documents which list ACBM and were provided by the school for RPF to review. A full review or audit of the AHERA Plans for each building (including abatement records), other record-keeping requirements, or AHERA implementation records was not completed as part of this service. Except as otherwise noted, the reinspection work only included ACBM's identified in the inspection report provided to RPF by the school. During the reinspection and initial inspections, abatement documentation and other record-keeping items were not completely reviewed or audited for accuracy and completeness. This type of review was beyond the scope of services for the project.

A full inspection (for confirmation of previous inspection results) was also not completed during this project. In the event that other readily accessible suspect materials were observed by the inspector during the course of the reinspection (materials that may have been missed during the initial inspection or may require confirmation testing), the inspector provided preliminary notation on the reinspection reports to make the school aware that additional inspection or review may be required. Based on the RPF preliminary review of the records provided to RPF, it is RPF's opinion that the AHERA Plans may not address all of the possible ACBM present. However, in accordance with AHERA reinspection requirements, the inspector did not conduct full initial inspection during the course of the reinspection work.

Asbestos Program Manager

The school must maintain a current true and correct statement, signed by the individual designated by the school (the Asbestos Program Manager) that certifies that the general, local education agency responsibilities, as stipulated by the AHERA regulation, have been met or will be met. It is important to update this as personnel changes occur and that a copy is maintained with the current Management Plan documentation. The Asbestos Program Manager must be sure to receive and maintain adequate training and to obtain and file all necessary recordkeeping requirements pursuant to AHERA and the Management Plan, including but not limited to: training, reinspections, surveillance, O&M activity, abatement design and final reports, annual notifications, and other related asbestos management information and documentation.

Resources

Below is an estimated cost for various training and requirements of the AHERA management plan with reasonable cost assumptions over the next three years:

Task/Description	Estimated Costs
Annual 2-hour Awareness Training	$700-$900
O&M Initial Training - up to 5	$1,600-$2,000
O&M Refresher Training	$750-$950
6-month Periodic Surveillance (if outsourced and not performed by the trained in-house staff)	$800 -$1,200
3-year AHERA Reinspection 2024	$1,800-$2,100
Additional Inspection, Lab Work, Updates	$15,000-$35,000

In addition, it is anticipated that some of the repair and cleaning work (small-scale and of short duration) that is recommended will be completed by in-house O&M level trained facilities staff, in accordance with the school's existing O&M Program and AHERA requirements. As such, the incremental increase in cost will likely be approximately $1,500 for various materials and disposal.

3-Year Reinspection

The school must continue to have a reinspection completed by a licensed inspector and management planner at least once during every three-year period from the inception of the Management Plan.

6-Month Surveillance

The school must continue to have periodic surveillance of all ACBM at least every 6-months, by either an adequately trained O&M level staff member or an outside licensed inspector.

Maintenance and Custodial Staff Training

The school shall ensure that all custodial and maintenance employees are properly trained in accordance with AHERA and other applicable rules and regulations

> 2 Hour Awareness: All janitorial, custodial and maintenance staff shall have a minimum of 2-hour asbestos awareness training upon hiring and each year
>
> O&M Level Training: Maintenance staff who may come in contact or who may disturb asbestos shall have a minimum of 16-hours of training upon hire and annual refresher training per State and EPA/OSHA requirements.

O&M Level Activity

The school must continue to ensure that all appropriate procedures are taken to protect building occupants for any O&M activity undertaken, including but not limited to:

- Restrict entry into the area by persons other than those necessary to perform the maintenance project, either by physically isolating the area or by scheduling.

- Post signs to prevent entry by unauthorized persons.
- Shut off or temporarily modify the air-handling system and restrict other sources of air movement.
- Use work practices or other controls, such as wet methods, protective clothing, HEPA-vacuums, mini-enclosures, and glove bags, as necessary to inhibit the spread of any released fibers.
- Clean all fixtures or other components in the immediate work area.
- Place the asbestos debris and other cleaning materials in a sealed, leak-tight container for proper disposal at a permitted site.

O&M activity is typically limited to small-scale, short duration work where the primary intent is building maintenance, repair, or renovation where the removal of ACBM is not the primary goal of the job; and the amount of ACBM to be disturbed or repaired is less than 3 linear or 3 square feet. Larger projects or activity cannot be broken up or scheduled in groups to minimize the quantity of ACBM for the purposes of classifying work as small-scale, short duration O&M activity.

Worker Protection

The school must comply with either the OSHA Asbestos Construction Standard at 29 CFR 1926.1101 (or for public employees the Asbestos Worker Protection Rule at 40 CFR 763.120) including proper training, personal protective equipment, respiratory protection programs, medical surveillance, proper equipment and engineering controls, and other relevant work and safety requirements.

General O&M Cleaning

Cleaning should be completed through each entire room marked (or as otherwise indicated on the attached room-by-room inventory) as having damaged ACBM or friable ACBM present, as stated in AHERA, on a semi-annual basis.

(i) HEPA-vacuum or steam-clean all carpets.

(ii) HEPA-vacuum or wet-clean all other floors and all other horizontal surfaces.

(iii) Dispose of all debris, filters, mop heads, and cloths in sealed, leak-tight containers

Fiber Release Episodes

In the event of the falling or dislodging of small amounts, less than 3 square or 3 linear feet of ACBM, ensure the following is completed by O&M level trained, qualified staff:

- Immediately restrict access and thoroughly saturate the debris using wet methods.
- Clean the area using appropriate O&M level methods.
- Place the asbestos debris in a sealed, leak-tight container for proper disposal
- Repair the area of damaged ACBM as applicable according to the AHERA rule.

In the event of the falling or dislodging of more than 3 square or 3 linear feet of ACBM:

- Immediately restrict entry to the area and post signs to prevent entry into the area by persons other than those necessary to perform the response action.
- Shut off or temporarily modify the air-handling system to prevent the distribution of fibers to other areas in the building.
- Contact the school's outside consultant for assistance with testing and design of the appropriate response action. Use the design plan to obtain pricing from qualified abatement contractors to complete the response action.

Other Specific ACBM Updates

Flooring and Mastic

The floor tile and mastic present in the various buildings is nonfriable ACBM with the potential for damage. No immediate response action is required, as these materials can safely be managed in place. The materials were in good condition with some minor wear and tear observed. Care should be used not to disturb the underlying flooring (i.e., drilling or cutting holes for electrical/plumbing work). Regarding the flooring that is not covered with carpeting and/or newer 12" floor tile, care should be taken to avoid activities which will abrade the surface of the floor tile. Buffing, stripping, and other flooring maintenance activity should be completed in accordance with the most current guidelines for ACBM flooring. High speed buffing or use of abrasive pads must not be conducted on the ACBM floors. (Reference the Draft EPA Region I Guidance Document enclosed herein.)

The flooring ACBM must be managed properly in accordance with AHERA and this management plan until they are completely removed.

Flooring mastic, along with any floor tile or linoleum that is, was, or may have been assumed to be ACBM, should continue to be classified as ACBM and properly tested prior to any flooring removal work (as applicable). It should be noted that a recent EPA advisory statement recommends that flooring which was previously tested as asbestos-free be confirmed using electron microscopy prior to any removal or other activities that may results in the disturbance of the flooring.

Pipe Fitting Insulation

The insulation observed in Memorial is located above the ceilings in the majority of the areas identified. In addition, inaccessible materials are likely present in various areas on campus. These materials were observed to be in good condition in general and are categorized as ACBM with the potential for damage. Special care should be used when accessing areas above ceilings or within walls to avoid accidental disturbance to the ACBM insulation or any possible debris and contaminated dust.

Initial and periodic cleaning of the adjacent surfaces should be performed on an annual basis at a minimum, using wet-wiping and HEPA vacuuming.

Troweled-On Surfacing

The troweled-on surfacing was observed in the Memorial Site 055 building. These materials are in good to fair condition in general and are classified as ACBM with the potential for damage. The materials should be managed in accordance with AHERA and this Management Plan. Special care should be used when accessing ceilings or within walls to avoid accidental disturbance to the ACBM gypsum wallboard with joint compound or plaster for any possible debris or contaminated dust.

Transite Panels

No immediate response action is required. The ACBM is nonfriable with the potential for damage. The ACBM must be managed properly in accordance with AHERA and this management plan until they are completely removed. In the event that any renovation work or other construction, repairs or maintenance is to be completed, then the APM must review the work to determine that the ACBM will not be impacted either directly or indirectly by the work. If there exists a potential that the ACBM may be disturbed, then an accredited project designer/management planner should review the project and prepare abatement specification as required.

Duct expansion cloth

No immediate response action is required. The ACBM is nonfriable with the potential for damage. The ACBM must be managed properly in accordance with AHERA and this management plan until they are completely removed. In the event that any renovation work or other construction, repairs or maintenance is to be completed, then the APM must review the work to determine that the ACBM will not be impacted either directly or indirectly by the work. If there exists a potential that the ACBM may be disturbed, then an accredited project designer/management planner should review the project and prepare abatement specification as required.

Light Wire

No immediate response action is required. The ACBM is nonfriable with the potential for damage. The ACBM must be managed properly in accordance with AHERA and this management plan until they are completely removed. In the event that any renovation work or other construction, repairs or maintenance is to be completed, then the APM must review the work to determine that the ACBM will not be impacted either directly or indirectly by the work. If there exists a potential that the ACBM may be disturbed, then an accredited project designer/management planner should review the project and prepare abatement specification as required.

Duct expansion cloth

No immediate response action is required. The ACBM is nonfriable with the potential for damage. The ACBM must be managed properly in accordance with AHERA and this management plan until they are completely removed. In the event that any renovation work or other construction, repairs or maintenance is to be completed, then the APM must review the work to determine that the ACBM will not be impacted either directly or indirectly by the work. If there exists a potential that the ACBM may be disturbed, then an accredited project designer/management planner should review the project and prepare abatement specification as required.

Assumed ACBM

Based on the RPF preliminary review of the records provided to RPF, it is RPF's opinion that the AHERA Plans may not address all the possible ACBM present. For example, although not directly regulated by AHERA, various exterior suspect materials are present, as well as possible interior hidden ACBM. Based on the types and conditions of the listed assumed ACBM in this school building, it is recommended that all the assumed nonfriable ACBM be managed in-place accordance with the requirements of AHERA and the operations and maintenance program.

Assumed ACBM that does not require any immediate response actions includes the following materials:

- Sink basin undercoat in kitchen and some classrooms
- Building seam caulk throughout the building
- Ceramic tile mastic and grout (2 types) in bathrooms,
- Covebase, stair treads and adhesive throughout the building
- Glue Daubs
- Interior Window Glaze
- Tectum Board
- Chalkboards and adhesive
- Door Caulk
- Various exterior materials.

The gypsum board with joint compound throughout the building also requires initial testing and is assumed ACBM. Care should be used not to disturb the materials during the interim including notification and facilities staff, faculty and others that may disturb the gypsum or joint compound materials.

The non-friable assumed ACBM listed above are classified under AHERA as ACBM with the potential for damage. However, it should be noted that nonfriable ACBM and nonfriable assumed ACBM can be rendered friable when, for example, they are subjected to certain forces such as cutting, grinding, sawing, sanding, drilling, high-speed buffing, and other abrasive forces. This is particularly true during demolition or removal of nonfriable ACBM.

Under normal building conditions, the assumed nonfriable ACBM does not pose an immediate hazard. The materials are in good to fair condition in general, with some minor wear and tear. Care should be taken to ensure that the chalkboards are not broken or chipped. The exterior roofing, caulking, and glazing materials should not be subjected to grinding, cutting, abrasion, or other forces which would result in the production of dust.

The assumed nonfriable ACBM must be managed properly in accordance with AHERA and this management plan until they are completely removed. In the event that any renovation work or other construction, repairs or maintenance is to be completed, then the APM must review the work to determine that the ACBM will not be impacted, either directly or indirectly. If there exists a possibility that the ACBM may be disturbed, then an accredited project designer/management planner should review the project and prepare abatement specification as required.

Testing of the interior, accessible assumed ACBM should be completed as soon as feasible by a licensed inspector and the management plan be updated accordingly by a licensed management planner.

Exterior Suspected ACBM

Exterior ACBM (in many cases) is not directly regulated by AHERA but are regulated by other State and federal regulations. Prior to any disturbance, renovation, or demolition, a licensed inspector must inspect for and sample any suspect exterior ACBM to be impacted or disturbed. If ACBM is found, a licensed project designer should prepare abatement plans as needed to facilitate work.

Warning Labels

The schools must ensure warning labels are and continue to be immediately adjacent to any friable and nonfriable ACBM, suspected ACBM, and assumed to be ACM located in routine maintenance areas (such as boiler rooms, mechanical space and maintenance areas) at each school building. The warning label must read (in print which is readily visible because of large size or bright color) as follows: CAUTION: ASBESTOS. HAZARDOUS. DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT.

Asbestos Abatement Activity

Asbestos response actions, as defined by AHERA, must be detailed in a specification (project design) prepared by a licensed asbestos abatement project designer in accordance with AHERA and State regulations. Licensed personnel/contractors must carry out the response actions. Abatement activity itself is beyond the scope of the management plan/O&M program.

New Construction, Additions and Renovated Space

For any new buildings or renovated space, obtain architectural/engineering (A/E) statements for new construction/renovation areas in accordance with AHERA, certifying that no asbestos was specified or used. In lieu of A/E statements, all newly installed buildings materials must be tested pursuant to the AHERA inspection requirements.

Prior to any renovation or demolition activity, additional inspection and testing by a licensed inspector is required to satisfy current state, EPA and OSHA requirements that may exceed the inspection requirements under AHERA and the existing inspection documentation for the school buildings.

In the event that any renovation work or other construction, repairs or maintenance is to be completed, then the APM must review the work to determine that the ACBM will not be impacted, either directly or indirectly. If there exists a potential that the ACBM may be disturbed, then an accredited project designer/management planner should review the project and prepare abatement specification as required. Only properly accredited and licensed personnel should complete the work.

AHERA Management Plan – 2021 Update Recommendations

Conflict of Interest

Pursuant to the EPA AHERA requirements and industry standards, abatement contractors should be engaged for inspection, testing, lab work, design or oversight, and clearance testing services. These services must be performed by qualified, certified firms completely independent of any abatement contractors used to complete work for the school.

**Note: Also reference the 2021 Reinspection Report for additional comments and recommendations.*

OSHA Asbestos Flooring Maintenance Information

OSHA ASBESTOS FLOORING MAINTENANCE SECTION

1926.1101(l)(3) Care of asbestos-containing flooring material.

1926.1101(l)(3)(i)

All vinyl and asphalt flooring material shall be maintained in accordance with this paragraph unless the building/facility owner demonstrates, pursuant to paragraph (g)(8)(i)(I) of this section that the flooring does not contain asbestos.

1926.1101(l)(3)(ii)

Sanding of flooring material is prohibited.

1926.1101(l)(3)(iii)

Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

1926.1101(l)(3)(iv)

Burnishing or dry buffing may be performed only on flooring which has sufficient finish so that the pad cannot contact the flooring material.

..1926.1101(l)(4)

1926.1101(l)(4)

Waste and debris and accompanying dust in an area containing accessible thermal system insulation or surfacing ACM/PACM or visibly deteriorated ACM:

1926.1101(l)(4)(i)

shall not be dusted or swept dry, or vacuumed without using a HEPA filter;

1926.1101(l)(4)(ii)

shall be promptly cleaned up and disposed of in leak tight containers.

OSHA Standards Interpretation and Compliance Letters

11/05/1999 - Questions regarding the cleaning of asbestos-containing floor tile.

OSHA Standard Interpretation and Compliance Letters - Table of Contents

Interpretation **:Record Type**
(l)(3)1926.1101;(k)(7)1910.1001 **:Standard Number**
Questions regarding the cleaning of asbestos-containing **:Subject**
.floor tile
11/05/1999 **:Information Date**

November 5, 1999

William A. Onderick, President
RFM Inc.
1008 Dogwood Lane
West Chester, Pennsylvania 19382

Dear Mr. Onderick:

Thank you for your July 27 letter regarding the cleaning of asbestos-containing floor tile. You wish clarification of the provisions in the Occupational Safety and Health Administration (OSHA) asbestos standards which regulate this activity. Your questions and our answers are provided below.

:Question 1

> Are we correct that asbestos floor tile **cleaning** activities (normal maintenance such as stripping and buffing operations) are covered under both the Asbestos General Industry Standard (§1910.1001) and the Asbestos Construction Standard (§1926.1101)?

:Answer

control methods for only Class I or II asbestos work. The fact that the asbestos PELs are not exceeded when the floor stripping uses low abrasion pads at speeds greater than 300 revolutions per minute (rpm) is not a sufficient condition to warrant the receipt of a variance permitting such use. In order to receive a variance, the employer must have implemented some means of maintaining asbestos aerosol levels in the employees' breathing zones at levels equal to or less than the levels occurring at speeds lower than 300 rpm.

:Question 4

While the Construction Standard discusses submitting alternative work procedures, the General Industry Standard does not. How does one handle an alternative work procedure regarding the General Industry Standard?

:Answer

As we noted in our reply to your third question, the Construction Asbestos Standard makes allowances for alternative control methods for only Class I or II asbestos work. Therefore, whether the stripping or buffing of asbestos-containing flooring material is covered by the Construction Asbestos Standard or the General Industry Asbestos Standard, the employer who wishes to use alternative stripping or buffing procedures must seek a permanent variance.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. Please be aware that OSHA's enforcement guidance is subject to periodic review and clarification, amplification, or correction. Such guidance could also be affected by subsequent rulemaking. In the future, should you wish to verify that the guidance provided herein remains current, you may consult OSHA's website at http://www.osha.gov. If you have any further questions, please feel free to contact OSHA's Office of Health Compliance Assistance at (202) 693-2190.

Sincerely,

Richard E. Fairfax, Director
Directorate of Compliance Programs

OSHA Standard Interpretation and Compliance Letters - Table of Contents

[Text Only]

Standard Interpretations
02/09/2000 - Use of electric floor buffer with rotating blade attachment to remove asbestos-containing mastic.

Standard Interpretations - Table of Contents

• **Standard Number:** 1926.1101(g)(8); 1926.1101(b)

OSHA requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at http://www.osha.gov.

February 9, 2000

Ms. Paula K. Smith
Attorney for Utah OSHA
State of Utah
Labor Commission
Office of General Counsel
160 East 300 South, 3rd Floor
P.O. Box 146600
Salt Lake City, Utah 84114-6600

Dear Ms. Smith:

Thank you for your December 14, 1999 letter to the Occupational Safety and Health Administration's (OSHA's) Directorate of Compliance Programs (DCP). We are providing you with interpretations of the Construction Asbestos Standard, 29 CFR 1926.1101, based on the specific situation you describe pertaining to floor tile and associated mastic removal.

Scenario: You describe an employer in Utah who was using an electric floor buffer with a rotating blade attachment to remove asbestos-containing mastic without first erecting a negative pressure enclosure (NPE) in which to perform the work. The employer in this scenario had wetted the floor. Utah OSHA (UOSH) believes the floor buffer was a

United States
Environmental Protection
Agency

National Risk Management
Research Laboratory
Cincinnati, OH 45268

Research and Development

EPA/600/SR-95/121 August 1995

EPA

Project Summary

Airborne Asbestos Concentrations During Buffing, Burnishing, and Stripping of Resilient Floor Tile

John R. Kominsky, Ronald W. Freyberg, and James M. Boiano

This study was conducted to evaluate airborne asbestos concentrations during low-speed spray-buffing, ultra high-speed burnishing, and wet-stripping of asbestos-containing resilient floor tile under pre-existing and prepared levels of floor care maintenance. Airborne asbestos concentrations were measured before and during each floor-care procedure to determine the magnitude of the increase in airborne asbestos levels during each procedure. Airborne total fiber concentrations were also measured for comparison with the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.1 f/cm^3, 8-hr. time-weighted average (TWA). Low-speed spray-buffing and wet-stripping were evaluated on pre-existing floor conditions and three levels of prepared floor-care conditions (poor, medium, and good). Ultra high-speed burnishing and wet-stripping were evaluated on two levels of prepared floor-care conditions (poor and good). All of the computed 8-hr. TWA personal sample results were below the OSHA PEL. It is noted that the floor tile in this study was of low asbestos content and in good condition, hence it is conceivable that floor tile with higher percentages of asbestos could result in higher levels of airborne asbestos during routine floor care maintenance activities. TEM analysis showed higher exposures to fibers predominantly less than 5 µm in length, whereas these shorter fibers were not counted by PCM.

This study shows that low-speed spray-buffing, ultra high-speed burnishing, and wet-stripping of asbestos-containing resilient floor tile can be sources of airborne asbestos in building air. The results suggest that multiple layers of sealant applied to the floor prior to the application of the floor finish can reduce the release of asbestos fibers during polish removal. The results of this study further support the U.S. EPA Recommended Interim Guidance for Maintenance of Asbestos-Containing Floor Coverings.

This Project Summary was developed by EPA's National Risk Management Research Laboratory, Cincinnati, OH, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Introduction

Three principal types of preventive maintenance are routinely performed on resilient floor tile: spray-buffing, ultra high-speed burnishing, and wet-stripping followed by refinishing. Spray-buffing is the restorative maintenance of a previously polished floor by use of a floor-polishing machine (operating at 175 to 1000 rpm) immediately after the surface has been mist-sprayed with a restorative product whereby the floor is buffed to dryness. Ultra high-speed burnishing is the buffing of a previously polished floor by using a floor polishing machine (operating at greater than 1500 rpm) without using a

restorative spray product. Wet-stripping is the removal of the finish from the floor using a chemical floor-polish stripper and a 175 rpm floor machine equipped with an appropriate strip pad. This current study was conducted to evaluate airborne asbestos concentrations during low-speed spray-buffing, ultra high-speed burnishing, and wet-stripping of asbestos-containing resilient floor tile under pre-existing and prepared levels of floor care maintenance.

Objectives

The objectives of the study were as follows:

- To determine the airborne asbestos concentrations during low-speed spray-buffing of asbestos-containing resilient floor tile in pre-existing floor condition.
- To determine airborne asbestos concentrations during polish removal from asbestos-containing resilient floor tile in pre-existing floor condition.
- To determine and compare the airborne asbestos concentrations during low-speed spray-buffing of asbestos-containing resilient floor tile in poor, medium, and good floor conditions.
- To determine and compare airborne asbestos concentrations during polish removal after low-speed spray-buffing of asbestos-containing resilient floor tile in medium and good conditions using a manual floor machine.
- To determine and compare the airborne asbestos concentrations during ultra high-speed burnishing of asbestos-containing resilient floor tile in poor and good floor conditions.
- To determine and compare the airborne asbestos concentrations during polish removal after ultra high-speed burnishing of asbestos-containing resilient floor tile in poor and good floor conditions using an automated floor machine.
- To determine whether personal breathing zone concentrations during low-speed spray-buffing of floors in pre-existing, poor, medium, and good conditions exceed the OSHA Permissible Exposure Limit (PEL) of 0.1 f/cm^3, 8-hr. Time-Weighted Average (TWA).
- To determine whether personal breathing zone concentrations during ultra high-speed burnishing of floors in poor and good conditions exceed the OSHA PEL of 0.1 f/cm^3, 8-hr. TWA.
- To determine whether personal breathing zone concentrations during polish removal after low-speed spray-buffing of floors in pre-existing, poor, medium, and good condition exceed the OSHA PEL of 0.1 f/cm^3, 8-hr. TWA.
- To determine whether personal breathing zone concentrations during polish removal after ultra high-speed burnishing of floors in poor and good conditions exceed the OSHA PEL of 0.1 f/cm^3, 8-hr. TWA.

Site Description

This study was conducted in an unoccupied building located at the decommissioned Chanute Air Force Base (AFB) in Rantoul, IL. The study was conducted in a room which contained approximately 8600 ft^2 of open floor space tiled with 9-inch by 9-in. resilient floor tile containing approximately 5% chrysotile asbestos. Representatives of the Chemical Specialties Manufacturers Association (CSMA) and a floor products manufacturer visually inspected the physical condition of the floor. Their inspection focused on the evenness of the floor plane and the physical condition of the tile. They concluded that the floor was acceptable for the proposed study.

Configuration for Low-speed Spray-buffing and Wet-stripping Experiments

Approximately 6500 ft^2 of floor space was isolated as the experimental test area. A containment shell was constructed from 2-in. by 4-in. and 2-in. by 6-in. lumber to provide five equally-dimensioned test rooms, each with approximately 1300 ft^2 of floor space and 7-ft ceiling height. The containment shell was then surfaced with 6-mil polyethylene sheeting to provide airtight walls and ceilings for the five test rooms. The ceiling for each test room consisted of a single layer of polyethylene sheeting. The walls of each test room were surfaced with seven layers of polyethylene sheeting. Four high-efficiency particulate air (HEPA) filtration units were placed in the hallway outside of the five test rooms to ventilate the test rooms and reduce the airborne asbestos concentrations to background levels after each experiment.

Configuration for Ultra High-Speed Burnishing and Wet-Stripping Experiments

Upon completion of the low-speed spray-buffing and wet-stripping experiments, the test area was reconfigured to accommodate the ultra high-speed burnishing and wet-stripping experiments. The test area was reconfigured to provide a single test room of approximately 6500 ft^2 of floor space and 7-ft. ceiling height. The ceiling for the test room consisted of a single layer of polyethylene sheeting. The walls were surfaced with eight layers of polyethylene sheeting. Three HEPA filtration units were placed in the hallway outside of the test room to ventilate the test room and reduce the airborne asbestos concentrations to background levels after each experiment. The units were operated during the preparation phase of each experiment but not during the actual burnishing or wet-stripping experiments. All three HEPA units discharged the air outdoors via 12-in. diameter flexible ducting. Fresh air into the test room was obtained directly from outdoors through windows.

Experimental Design

Low-Speed Spray-Buffing and Wet-Stripping

Pre-existing Conditions

Low-speed spray-buffing was first evaluated on the pre-existing floor-care condition. Pre-existing condition was the condition of the floor as it existed in the room prior to evaluating the prepared floor-care conditions. Pre-existing floor conditions consisted of an undetermined number of coats of a Carnauba-type, buffable polish on the floor tile. Low-speed spray-buffing of the pre-existing floor-care condition was evaluated five times, once in each of the five test rooms. Wet-stripping (including polish and sealant removal) was also evaluated on the pre-existing floor-care condition. Wet-stripping of the pre-existing floor-care condition was evaluated five times, once in each of the five test rooms.

Prepared Floor Care Conditions

Low-speed spray-buffing was evaluated on three levels of prepared floor-care conditions: 1) poor floor-care condition, 2) medium floor-care condition, and 3) good floor-care condition. Poor floor-care condition was defined as a floor with one coat of sealant and one coat of polish. Medium floor-care condition was defined as a floor with one coat of sealant and two coats of polish. Good floor-care condition was defined as a floor with two coats of sealant and three coats of polish. Floor-care conditions were defined in consultation with the CSMA and other representatives of floor-care products manufacturers. Each floor-care condition was evaluated five times, once in each of the five test rooms, to yield a total of 15 experiments.

Wet-stripping after low-speed spray-buffing was evaluated on two levels of floor-

dure had a statistically significant effect on airborne asbestos concentrations measured during the procedure (p=0.0128). Specifically, larger increases in airborne asbestos concentrations were observed during wet-stripping than during spray-buffing. The estimated airborne asbestos concentrations during spray-buffing and wet-stripping as a proportion of the respective baseline concentrations were calculated along with the corresponding 95% confidence interval. The average airborne asbestos concentration measured during low-speed spray-buffing was approximately 11 times greater than the average baseline concentration. The 95% confidence interval for this proportion is (2.6, 47). The lower 95% confidence limit is greater than 1, which indicates this is a statistically significant increase. The average airborne asbestos concentration measured during wet-stripping was approximately 186 times greater than baseline concentrations. The 95% confidence interval for this proportion is (44, 788). The lower 95% confidence limit is greater than 1, which indicates this is a statistically significant increase.

PCM Concentrations

Two personal breathing zone samples were collected during each experiment and analyzed by PCM. None of the individual PCM concentrations exceeded the OSHA PEL of 0.1 f/cm^3. The highest individual PCM concentration (0.023 f/cm^3) was measured during wet-stripping. The 8-hr TWA concentrations associated with the measured levels were calculated by assuming zero exposure beyond that which was measured during the experiment. The 8-hr TWA concentrations ranged from 0.001 to 0.003 f/cm^3 during low-speed spray-buffing and from 0.0003 to 0.003 f/cm^3 during wet-stripping of floors in pre-existing condition. None of the 8-hr TWA concentrations exceeded the OSHA PEL of 0.1 f/cm^3.

Although the results of the personal breathing zone samples analyzed by PCM were all below the OSHA PEL, considerably higher exposures were shown by the personal breathing zone samples analyzed by TEM. Two primary reasons explain why the TEM concentrations were considerably higher than the PCM concentrations. First, PCM cannot detect fibers thinner than 0.25 µm in width. Second, the PCM method used in this study (i.e., NIOSH 7400) does not count fibers shorter than 5 µm in length. Over 99% of the asbestos structures measured during low-speed spray-buffing and wet-stripping of floors in pre-existing condition were shorter than 5 µm in length and would therefore not be counted by the PCM method.

Caution should be exercised in extrapolating the PCM measurements collected during this study to conditions at other sites. These tile were of low asbestos content and in good condition, and no other asbestos exposure activity was assumed.

Prepared Floor Conditions

TEM Concentrations

Figure 1 illustrates the overall average (geometric mean) concentrations measured before and during low-speed spray-buffing and wet-stripping on floors in prepared floor conditions. Although the mean relative increase in airborne asbestos concentrations during low-speed spray-buffing tended to decrease as the floor care condition improved (i.e., poor condition resulted in a larger relative increase than medium, and medium condition showed a larger relative increase than good), the differences between the three levels of floor care were not statistically significant (p=0.1149). Overall, the average airborne asbestos concentration during low-speed spray-buffing was approximately 2.6 times higher than the average baseline concentration. This increase was statistically significant (p=0.0017). A 95% confidence interval for the mean airborne asbestos concentration during spray-buffing as a proportion of the baseline concentration showed that the overall mean airborne asbestos con-

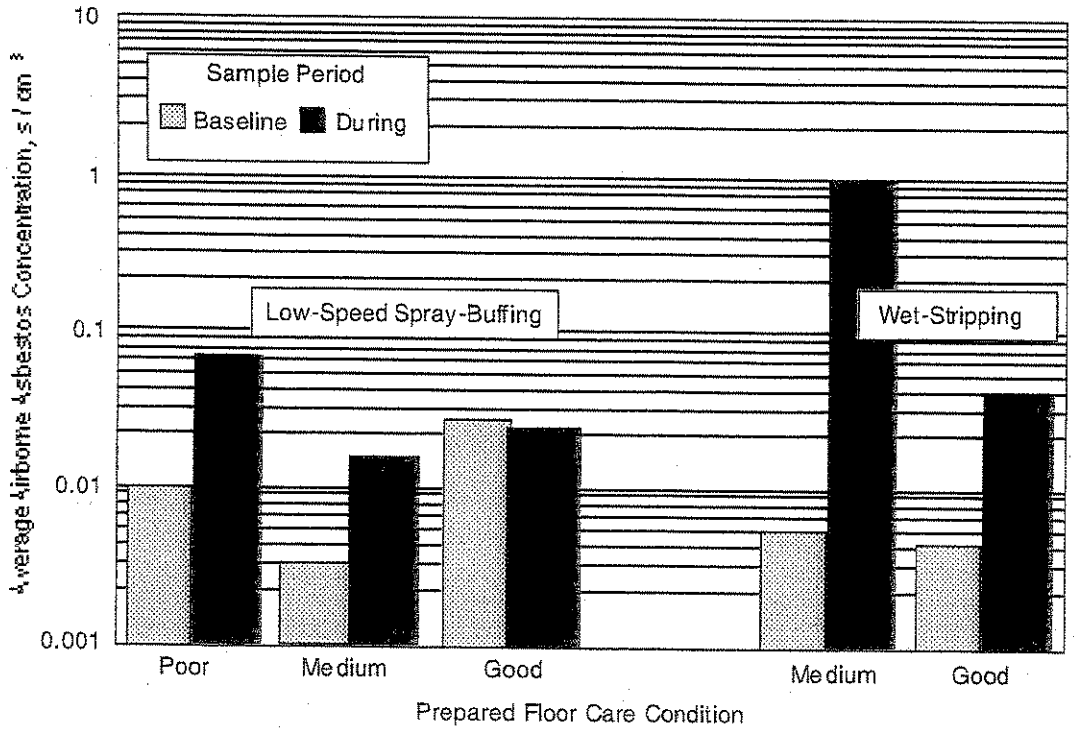

Figure 1. Average airborne asbestos concentrations during low-speed spraying of floors in prepared conditions.

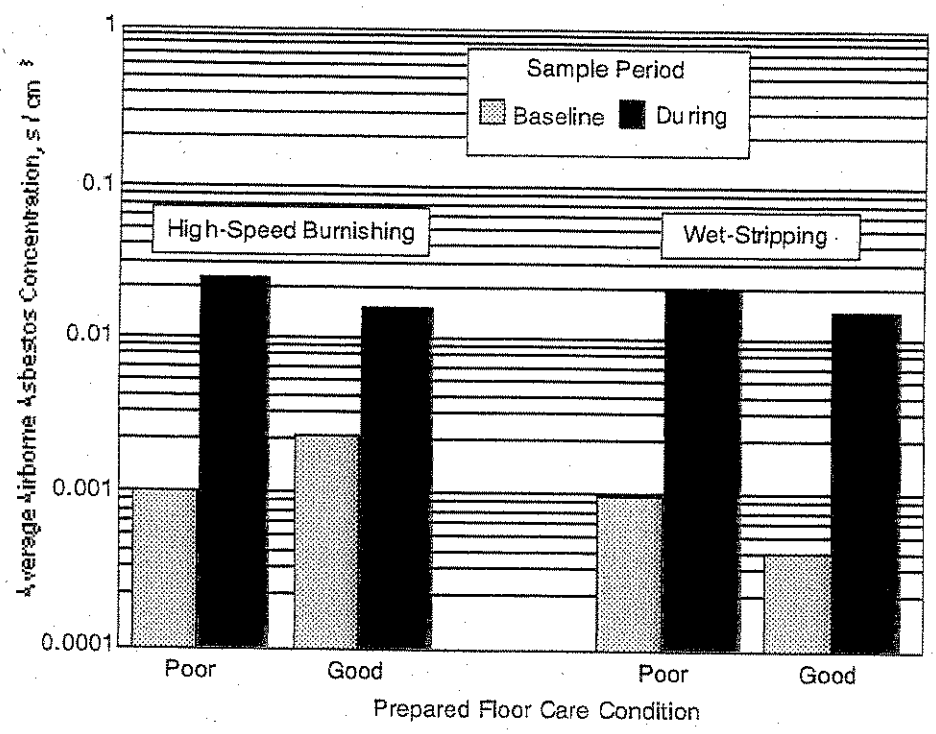

Figure 2. Average airborne asbestos concentrations measured before and during ultra high-speed burnishing and wet-stripping of floors in prepared conditions.

TWA concentrations measured during wet-stripping (after ultra high-speed burnishing) exceeded the OSHA PEL of 0.1 f/cm³ for total fibers, all of the 8-hr TWA concentrations measured during ultra high-speed burnishing exceeded the OSHA PEL. These exceedances, however, were due to the excess nonasbestos-containing particulate generated during the burnishing process and not to elevated airborne asbestos particles.

Conclusions

The following are the principal conclusions reached during this study:

1) Larger increases in airborne asbestos concentrations were observed during wet-stripping than during low-speed spray-buffing of floors in pre-existing condition. The average airborne asbestos concentration measured during low-speed spray-buffing was approximately 11 times greater than the average baseline concentration. The average airborne asbestos concentration measured during wet-stripping was approximately 186 times greater than the respective average baseline concentration. In both cases, the increases in airborne asbestos concentrations were statistically significant.

2) The average airborne asbestos concentration measured during low-speed spray-buffing of floors in the three levels of prepared floor-care conditions (poor, medium, and good) was approximately 2.6 times higher than the average baseline concentration. This increase was statistically significant.

3) The level of prepared floor care did not significantly affect the airborne asbestos concentrations measured during low-speed spray-buffing. Although the average increase in airborne asbestos concentrations tended to decrease as the level of floor care improved, the differences due to the three levels of floor care were not statistically significant.

4) Wet-stripping of floors in medium and good condition (after low-speed spray-buffing) resulted in statistically significant increases in airborne asbestos concentrations. The average airborne asbestos concentration measured during wet-stripping of floors in medium condition was approximately 108 times higher than the average baseline concentration, whereas the average airborne asbestos concentration measured during wet-stripping of floors in good condition was approximately 8.0 times higher than the average baseline concentration. The increase was statistically significant for both floor-care conditions.

5) A second layer of sealant appears to significantly decrease airborne asbestos levels during wet-stripping (after low-speed spray buffing). Larger increases in airborne asbestos concentrations were observed during wet-stripping of floors in medium condition than on floors in good condition. The average increase (relative to baseline measurements) in airborne asbestos concentration during wet-stripping of floors in medium condi-

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***Alva Edwards** is the Technical Project Officer (see below) and*
***Thomas Sharp** is the EPA Project Officer*
The complete report, entitled "Airborne Asbestos Concentrations During Buffing, Burnishing, and Stripping of Resilient Floor Tile," (Order No. PB95-260212; Cost: $27.00, subject to change) will be available only from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Telephone: 703-487-4650

The EPA Technical Project Officer can be contacted at:
National Risk Management Research Laboratory
U.S. Environmental Protection Agency
Cincinnati, OH 45268

United States
Environmental Protection Agency
Technology Transfer and Support Division (CERI)
Cincinnati, OH 45268

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machine speeds and the release of asbestos particles from asbestos containin floor coverings. The higher the machine speed the greater the probability o asbestos fiber release.

5. When stripping floors becomes necessary, the machine used for stripping th finish should be equipped with the least abrasive pad as possible, a black pa being the most abrasive and the white pad the least abrasive. Consult with you floor tile and floor finish product manufacturer for recommendations on whic pad to use on a particular floor covering. Incorporate the manufacturer recommendations into your floor maintenance work procedures.

6. Do not operate a floor machine with an abrasive pad on unwaxed or unfinishe floor containing-asbestos materials.

Finishing of Vinyl Asbestos Floor Coverings

1. Prior to applying a finish coat to a vinyl asbestos floor covering, appl 2 to 3 coats of sealer. Continue to finish the floor with a high percent soli finish.

It is an industry recommendation to apply several thin coats of a high percen solid finish to obtain a good sealing of the floor's surface, thereby minimizin the release of asbestos particles from the floor's surface.

2. If spray-buffing of floors is used, always operate the floor machine at th lowest rates of speed possible and equip the floor machine with the leas abrasive pad as possible. A recent USEPA study indicated that spray-buffing wit high-speed floor machines resulted in significantly higher airborne asbesto concentrations than spray-buffing with low speed machines.

3. When dry-burnishing of floors is used, always operate the floor machine a the lowest rate of speed possible to accomplish the task (i.e., 1200-1750 rpms) and equip the floor machine with the least abrasive pad as possible.

4. After stripping a floor and applying a new coat of sealer and finish, us a wet mop for routine cleaning whenever possible. When dry mopping, a petroleum-based mop treatment is not recommended for use.

5. During the winter months where sanding and/or salting of icy parking lot becomes necessary, it is an industry recommendation that a 16-24 ft. matting b used at the entrance way to the school building and where feasible inside th doorway. This would significantly eliminate the scuffing of floors by abrasiv sanding materials brought into the building on the shoes of students. Also mor frequent wet mopping and dry mopping of floors should be performed during th winter months to minimize damage to the floors.

6. Custodial and maintenance personnel responsible for daily VAT maintenanc should be limited to maintaining VAT floors totaling no more than 15,000-25,00 square feet per person/8-hour day, depending on conditions and othe responsibilities of the custodial and maintenance personnel.

DEFINITIONS

1. VAT: Vinyl Asbestos Tile.

2. Non-Friable: Any Asbestos Containing Material that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

3. Spray Buffing or Burnishing: The act of buffing or burnishing a floor finish while using a polishing or rejuvenating liquid. This liquid is sprayed on the floor in front of the buffer or burnisher a small area at a time. The floor machine is then used to polish the floor with this liquid. As a rule, polishes only polish while rejuvenaters help fill in minute scratches while polishing. Some of these products contain cleaners to help remove soiling on lightly soiled floors. How often these procedures are performed depends on many factors, such as, floor finish, traffic, machinery used, etc.

4. Dry Burnishing: The act of burnishing (high speed polishing) without any polishers, rejuvenaters or cleaners. Just the burnishing machine and the proper pad. This procedure hardens the finish and brings out the shine. Burnishing is performed using what is called a high speed burnisher or buffer. Simply put, this machine is a standard floor machine with an additional set of wheels for stability. These machines operate between 1,000 and 3,000 rpm. The faster the rpm, the faster and better the job can be performed.

5. Wet Scrubbing: A lightly abrasive (scrub) pad or brush is used on a 175-300 rpm floor machine to remove surface wear and dirt from the floor without removing all the floor finish. The floor is scrubbed with a neutral floor cleaner and water. This liquid is then removed with a mop or preferably with a wet vacuum. After rinsing, the floor is then re-coated with a compatible floor finish. The number of coats depends on the given situation and materials used.

6. Floor Stripping: When the floor finish has become heavily imbedded with soiling or discolored, it becomes necessary to totally remove (strip) the existing finish. This is accomplished by first applying a compatible floor finish remover or stripper. After the appropriate dwell time, the finish is liquified. The floor is then scrubbed using an abrasive pad or brush on a 175-300 rpm floor machine. The resulting liquid is then removed using a wet vacuum. These steps, in some cases, have to be repeated two or more times to assure the removal of all the existing finish. The floor is now rinsed as is appropriate with the products being used. The floor is now ready for finishing.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 25 1990

OFFICE OF
PESTICIDES AND TOXIC SUBSTANC

MEMORANDUM

SUBJECT: Recommended Interim Guidance for Maintenance of Asbestos-Containing Floor Coverings

FROM: Robert C. McNally, Chief
Assistance Programs Development Branch
Environmental Assistance Division (TS-799)

TO: Interested Parties

Attached are recommended interim guidelines for stripping wax or finish coat from asbestos-containing floors in your buildings. They were developed by the U.S. Environmental Protection Agency (EPA) in consultation with asbestos control professionals and several flooring material and floor care product manufacturers to reduce any possible exposure to asbestos fibers.

In November 1989, the local NBC affiliate in Washington, D.C. produced and aired a 3-part series on the potential danger of stripping asbestos-containing floor tiles. The NBC network news carried a brief portion of the series on November 29. The series concluded that stripping excess wax or finish coat from asbestos-containing floor tiles in schools may increase the asbestos exposure of school maintenance personnel and school children.

The series has precipitated numerous telephone calls to EPA Headquarters and to the ten EPA Regional offices. Perhaps many of you have also received calls from parents, staff, custodial workers, and others.

Since its airing, EPA's Environmental Assistance Division has tried to explain more clearly what the series did and did not demonstrate. First, there is no clear evidence that the "routine" stripping activities described in the series produced significantly elevated levels of asbestos fibers. In fact, the air levels generated during routine stripping were below those which require special procedures under federal regulation. Thus,

(continued on back)

APPENDIX C

STATE of NEW HAMPSHIRE
Department of Environmental Services
Asbestos Management & Control Program

ASBESTOS INSPECTOR

AI100394

KARA FORSYTHE DOB: 10/19/1978

EFF. Date: 11/2/2020 EXP. Date: 11/1/2021

Air Resources Director
Craig A. Wright

Craig A. Wright

STATE of NEW HAMPSHIRE
Department of Environmental Services
Asbestos Management & Control Program

ASBESTOS MANAGEMENT PLANNER

AM100394

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Craig A. Wright

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RPF ENVIRONMENTAL, INC.

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Class Location: Northwood, NH

This is to certify that

Kara Forsythe

has completed the requisite training and
has passed an examination for accreditation as:

Asbestos Inspector - Annual Refresher
Pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

January 14, 2021
Course Date

January 14, 2021
Examination Date

January 14, 2022
Expiration Date

20.0288 - 06 – 10/19/78
Certificate Number/DOB

Dennis Francoeur, Jr. - Instructor

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Pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

January 28, 2021
Course Date

January 28, 2021_
Examination Date

January 28, 2022
Expiration Date

21.0310 – 01 – 10/19/78
Certificate Number/DOB

Brianna Ham, Instructor

APPENDIX D

Regulatory Overview

Asbestos is highly regulated at the federal, state, and local levels. To date, the two primary Federal agencies responsible for generating asbestos-related regulations are the U.S. Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA). Additionally, regulations regarding asbestos vary from state-to-state and, in some cases, locally.

Regulations promulgated by the Environmental Protection Agency (EPA) include:

> Asbestos Abatement Projects; Worker Protection Rule
> Title 40 Part 763, Sub-part G of the Code of Federal Regulations
>
> Asbestos School Hazard Abatement Reauthorization Act (ASHARA) Training Requirements of (AHERA) Regulation, Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-part E, Code of Federal Regulations
>
> Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-part E of the Code of Federal Regulations
>
> National Emission Standard for Hazardous Air Pollutants (NESHAPS) National Emission Standard for Asbestos, Title 40, Part 61, Sub-part A, and Sub-part M (Revised Sub-part B) of the Code of Federal Regulations

The US Occupational Safety and Health Administration (OSHA) has also developed regulations for asbestos (abatement and related issues) including:

> Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules Title 29, Part 1910, Section 1001 and Part 1926, Section 1101 of the Code of Federal Regulations
>
> Respiratory Protection: Title 29, Part 1910, Section 134 of the Code of Federal Regulations Other related sections of 29 CFR 1926 and 29 CFR 1910

Individual state agencies must also be consulted for current updated copies of state rules and regulations. Regulations and requirements can very significantly from state to state.

In summary, based on current regulatory requirements, ACBM, which may be impacted or disturbed (such that asbestos fiber release occurs) by renovation, demolition, or other such activity, must be removed by qualified, licensed firms. ACBM, which will not be impacted or disturbed by renovation or demolition activity, may be left in place if managed properly and if the materials are maintained in good condition. A qualified, licensed project designer must design abatement work. All abatement should be monitored, tested, and inspected by a qualified EH&S firm/certified industrial hygienist independent of the abatement contractor. If you have further questions or concerns, you should contact your local or State health agency, or contact RPF.

AHERA REINSPECTION METHODS & LIMITATIONS

Reinspection Methods

The reinspection was completed in accordance with Part 763.85 (b) of 40 CFR Part 763, Subpart E - Asbestos Hazard Emergency Response Act (AHERA). Accessible ACBM's which were identified in the existing AHERA reports were visually reinspected in accordance with AHERA, to (a) observe whether the materials are friable, (b) observe the conditions of the ACBM and potential for disturbance, and (c) to assess the hazard potential of the ACBM. Documentation review consisted of only those specific documents which list ACBM which were provided by the school to RPF for review. A full review or audit of the AHERA Plans for the building (including abatement records), other record keeping requirements, and AHERA implementation records were not completed as part of this service. Please note that this reinspection report is intended to comply with the federal regulation and the report should not be considered or referenced as a detailed, full initial AHERA room-by-room inspection. Please also reference the initial AHERA Inspection Report prepared for the building by RPF and subsequent update records. This reinspection does not meet the requirements for full inspections prior to renovation or demolition activity.

A full inspection (for confirmation of previous inspection results) was also not completed during this project. In the event that other readily accessible suspect materials were observed by the inspector during the course of the reinspections (materials that may have been missed during the initial inspection or may require confirmation testing), the inspector provided preliminary notation on the reinspection reports to make the school aware that additional inspection or review may be required. However, in accordance with the AHERA reinspection requirements, the inspector did not conduct full initial inspection during the course of the reinspection work.

Limitations

- This reinspection only included the school buildings designated in the RPF listing. If other buildings are used as school buildings in accordance with 40 CFR Part 763 and need to be reinspected, please notify our office to make necessary arrangements. This reinspection and report does not meet the requirements set forth by US EPA, OSHA, and State agencies for conducting full asbestos inspections prior to renovation or demolition.

- The observations and conclusions presented in the report were based solely upon the services described herein, and not on scientific tasks or procedures beyond the Scope of Services as discussed in the proposal and text of the report. The conclusions and recommendations are based on visual observations and testing (which was limited as indicated in the report), and were arrived at in accordance with generally accepted standards of industrial hygiene practice and asbestos professionals. In addition and as applicable, where sample analyses were conducted by an outside laboratory, RPF has relied upon the data provided and has not conducted an independent evaluation of the reliability of this data.

- Observations were made of the designated accessible areas of the site as indicated in the report. While it was the intent of RPF to conduct a survey to the degree indicated, it is important to note that not all suspect ACBM material at the site(s) were specifically assessed. Visibility was limited, as indicated, due to the presence of furnishings, equipment, solid walls, and solid or suspended ceilings throughout the facility. Suspect material may have been used and may be present in areas where detection and assessment is difficult until renovation and/or demolition proceeds.

- Although some assumptions may have been stated regarding the potential presence of inaccessible or hidden ACBM, a full inspection for all ACBM or a destructive inspection for possible inaccessible suspect ACBM was not conducted. This inspection did not include a hazard assessment survey or testing to determine current dust concentrations of asbestos in and around the building. The survey was limited to ACBM as indicated herein and a site assessment for other possible environmental health and safety hazards or subsurface pollution was not performed as part of the scope of this initial site inspection.

- Where access to portions of the surveyed area was unavailable or limited, RPF renders no opinion of the condition and assessment of these areas. The survey results only apply to areas specifically accessed by RPF during the site inspection.

- Interiors of mechanical equipment and other building or process equipment may also have ACBM gaskets or insulation present and were not included in this inspection. Further inspections would likely be required prior to renovation or demolition activity.

- Existing reports, drawings and analytical results provided by the Client to RPF (as applicable), were not verified and, as such, RPF has relied upon the data provided as indicated and has not conducted an independent evaluation of the reliability of this data.

- All hazard communication and notification requirements, as required by 40 CFR Part 763, U.S. OSHA regulation 29 CFR Part 1926, 29 CFR Part 1910, and other applicable rules and regulations, by and between the Client, general contractors, subcontractors, building occupants, employees, and other affected persons were the responsibility of the Client and Client's abatement contractor and are not part of the Scope of Services to be provided by RPF.

- Results presented in the report are limited to the materials and conditions present at the time that the site inspection was actually performed by RPF. The applicability of the observations and recommendations presented in this report to other portions of the site were not determined as part of this scope of work. Many accidents, injuries and exposures, and environmental conditions are a result of individual employee/employer actions and behaviors, which vary from day to day and with operations being conducted. Changes to the site that occur subsequent to the RPF inspection may result in conditions which differ from those present during the survey and presented in the findings of the report. For example, during construction changes it is possible that previously inaccessible suspect material may be encountered. As such, the contractors, employer's OSHA-competent persons, and other affected staff should be advised of the possible presence of inaccessible ACBM and suspect ACBM. In the event that newly identified suspect material is encountered, please contact RPF to arrange for proper inspection, assessment and testing as applicable.

- Typically, hazardous building materials such as asbestos, lead paint, PCB's, mercury, refrigerants, hydraulic fluids and other materials may be present in buildings. The survey performed by RPF only addresses the specific items as indicated in the report. In general, it is recommended that surveys for all accessible hazardous building material be performed. Notify RPF to arrange for additional survey work as needed.