City of Fond du Lac
First on the Lake
Website: www.fdl.wi.gov
City-County Government Center
160 S. Macy Street~P.O. Box 150~Fond du Lac, WI 54936-0150

2024-096 Food Hall
8/30/2024
Addendum #1

This addendum is being issued to share all questions that have been received to date and give the answers to all plan holders.

All kitchen equipment and furnishings will be purchased separately by the owner and are not a part of the construction bid.

All roof work will be done on this project by the original roofing contractor as to not void the current roof warranty. See sheet A2.7 included with this addendum.

Remove existing gravel/grass/dirt down 6" and install 6" walkable crushed stone gravel. See sheets A2.2 and A2.5 included with this addendum.

Questions Received by Contractors/Vendors:

- I am working on a bid for the Food Hall kitchen equipment. Can you clarify item 44? It is listed as a reach-in refrigerator, but the Utility model number given is for a freezer. Please advise whether that item should be quoted as a refrigerator or freezer.
    - Please see attached clarification.

- I have a second item in the Food Hall project that I'd like clarification on. In the written specifications, item 51 calls for only one table. However, in drawing FS2.1, item 51 has a quantity of 7. Please clarify which quantity I should use for our bid.
    - Seven (7) tables are required

Sheet S1.1 – Existing walls are shaded except for on detail 3. I assume the footing shown above the elevator pit, furthest to the right, is existing and will need to be underpinned in order to pour the new pit? Is there a detail for this?

a. The condition shown at the first floor in detail 3/S1.1, shows a concrete slab with thickened edge. Sheet S2.1 shows wood framing. Please advise which is correct and if possible, provide a more detailed section cut detail.
    i. This has been revised. See sheets A6.1 and S1.1 included with this addendum.
b. Can you provide a full detail of the structural condition at the second floor where we extend the floor to the elevator shaft? Detail 3/S2.2 only shows partial.
    i. This has been revised. See sheets A6.1 and S2.2 included with this addendum
c. All details on S1.1 seem to show dowels from the stem wall into existing foundation walls. Details 1&2/S2.1 do not show dowels. Please advise if dowels are needed and if so, what type, size, OC spacing.
    i. This has been revised. See sheets S1.1 and S1.2 included with this addendum

- Sheet S2.1 – Can you please provide footing size and required reinforcing for the strip footing and column pad?
    - This has been revised. See sheets S2.1 included with this addendum

- Sheet A2.3 – Note D2 states to remove portion of existing wall for new construction. D2 is used at all existing windows on the second floor. I assume this is an error and we are removing only the existing windows and prepping for new windows?
    - D2 should be D12. Note D2 should be located at the new elevator opening. See sheet A2.3 included with this addendum.

- Will a site plan be issued? Looking for info regarding remove/replace sidewalk, rerouting of site utilities, location of existing utilities, lot lines, etc.
    - The building sits on the North, West and South property lines. Notes have been added for sidewalk replacement for the new service connections. No site plan.

- Has a hazardous materials test been completed?
    - Yes, the owner has completed this and a copy can be provided. Asbestos removal has been completed.

- Will specs be issued?
  - Not for the architectural as we have provided a basis of design products on sheet A8.2 If something more is needed, we will provide as needed.

- **Sheet E4.1 is missing from the bid set plans. This has been added and included with this addendum.**

- There are no Itemized written specs for Division 114000 – Commercial Foodservice Equipment.
  - The specs are on sheets FS3.1, FS3.2, FS3.3, and FS3.4. Foodservice equipment is by owner.

- Will there be a revised bid form with a spot for the base bid number?
  - The Base Bid or Total price should be included on page 12 of the RFB. Unit prices for work found during construction (ex. rotten joists) will be addressed with a change order.

- I am not seeing any sort of spec book and no indication of wood door cut & veneer
  - This has been added and included with this addendum, see sheet A8.2 basis of design

- There are also Textura requirements? Which required a fee to use. First time seeing that in WI big in Colorado.
  - The City is unware of any Textura requirement. If needed, further clarification will be had with the awarded contractor.

- Will the electrical contractor be carrying the Voice/Data and Fire Alarm Scope?
  - Yes.

- Will there need to be any scope to add future generator for Cooler/Freezer back up?
  - Conduit only to future location and capped (No Wire)
  - Docking Station for Mobile Generator?
    - No. There is limited to no space for a permanent generator. A mobile generator will be very difficult to wheel behind the building, nor would it be allowed to sit and run on Division or Main Streets.

- I don't see anywhere in the specs where it says that MC cable above drop ceilings or concealed in walls is not allowed. Is this an acceptable wiring method? Please advise.
    - MC Cable will be allowed for branch circuits within dropped ceilings and concealed walls, after a homerun (branch breaker to first box). MC cable will not be allowed for homeruns, or in open ceiling areas/rooms.

- Elevator floor and base finishes by owner (N.I.C.)
    - This has been revised and included with this addendum, see sheet A8.2 room finish schedule.

- Windows:
    - Do you want the windows all wood or clad wood?
        - All wood, revised sheet A8.2 basis of design
    - May we use Wisconsin manufacturers?
        - Yes
    - Any addition accessories need to be included? I.e. Brick mold, lugs
        - Brick mold will be needed to fill gap of window and existing wall as required.

- What is the fire rating of the building? Is any fire proofing needed for penetrations?
    - The only fire ratings in the building are Stair #1, Elevator Shaft, Elevator Equipment Room, & Mech shafts as shown on Life Safety Plan.

- Confirming that per the plans the sump pumps are to be replaced but the discharge piping is to remain.
    - The sump pumps and piping were replaced by the owner already. No work required.

- Does anything happen with the existing sewage ejector pit and piping?
    - No.

- Is the demo contractor removing all existing piping, appliances and fixtures from the building?
    - No.

- How is the grease trap supposed to be installed in the basement? On a shelf provided by others?
  - Fabricated metal stand by plumbing contractor
  - Does it need a cover through first floor?
    - No
  - Can a detail be provided?
    - Yes
  - There is no spec for the grease trap.
    - Schier GB-75 w/ #PP# 4" suction kit.

- Please verify how far out of the building and where the new storm sewer (2), sanitary sewer and water tie ins are. Please advise on elevations as well (will any floor need to be removed) and what we are tying into as far as size and material. Do we need to consider winter conditions or are you going to push to have this done before winter.
  - Still obtaining information from utility. Will provide in future addendum.

- Is saw cut removal and replacement of concrete in the South basement by the GC?
  - No, plumbing contractor should include in bid, can be subbed out to GC.

- Can the elevator discharge go to the sanitary? I thought it could only go to a combined sanitary storm but not to a sanitary only.
  - No, I thought this code was updated to allow this, upon further review of the code this shall discharge to storm. Drawing will be revised in future addendum.

- Who is responsible for floor safing on the floor drains, cleanouts and floor sinks.
  - Plumbing contractor

- Who is responsible for building boxouts with sand to allow for support and safing.
  - General contractor

- Is all food service equipment provided by the fse contractor?
  - No, provided by owner.

- Who is responsible for any low voltage wiring for flush valves?
  - Will update the fixture schedule to battery operated urinal flush valves in future addendum.

- There isn't a spec for the floor sinks.
  - Zurn Z1749 – KC – 3; or equal.

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- There is no roof drain spec.
  - Zurn Z100F-C; or equal.

- Do you know the floor weight rating? Can one man lifts be used?
  - When the structural steel is installed the floor loading will meet assembly code of 100 PSF.

- Should any of the sanitary pipe and fittings be acid waste cpvc due to high temperatures?
  - Yes, piping to dishwasher hub drain.

- Do sub contractors have to have their bidders proof for the City of Fond du Lac?
  - No.

- No specification for the grease trap GT-1
  - Schier GB-75 w/ #PP# 4" suction kit.

- The Kohler WC-1 and WC-2 do not have models numbers listed.
  - Kohler model K-3999-0 for WC-1 and Kohler K-3999-RA-0 for WC-2.

All bidders are instructed to indicate the addenda acknowledged in their proposal. For example if no other addenda are issued, the proposal envelope shall state "Addenda 1 acknowledged".

Best regards,

Cameron Fails
Deputy Procurement Officer
City of Fond du Lac

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

Pre-Renovation Asbestos and Lead Inspection Report

1 S. Main Street
Fond du Lac, Wisconsin 53935

Project 24-624

April 22, 2024

909 N. 8th Street, Suite 101
Sheboygan, Wisconsin 53081

Ms. Dyann Benson
City of Fond du Lac Redevelopment Authority
160 South Macy Street
Fond du Lac, WI 54935

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Figure

Appendices

1.0 OBJECTIVE

Fehr Graham was retained by the City of Fond du Lac Redevelopment Authority to conduct a pre-renovation asbestos and lead inspection at the building located at 1 S. Main Street in Fond du Lac, Wisconsin (herein referred to as the Subject Property). The inspection was conducted on March 18, 2024, by Dillon Plamann and Cole Lewis of Fehr Graham (certified under the Department of Health Services).

The purpose of this inspection was to identify the presence, extent, and condition of asbestos-containing materials (ACM) and lead-based paint (LBP) that may be impacted during planned renovation for compliance with the Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP), the Wisconsin Department of Natural Resources (DNR) Control of Asbestos Emissions and applicable local, State and Federal Guidelines.

The inspection was limited to sampling of suspect building materials scheduled to be impacted during the upcoming renovation. It is Fehr Graham's understanding that the renovation activities will include all of the Subject Property building.

Terms used in this report are defined in the General Terms section located in Appendix A. Additional information on the classification of ACM for NESHAP is also located in Appendix A. These NESHAP categories help determine the need for asbestos abatement and must be used in the Wisconsin DNR notification of intent to renovate or demolish.

2.0 METHODS AND LIMITATIONS

2.1 Asbestos Inspection Methods

The Subject Property was inspected for suspect ACM unless otherwise noted. Each observed suspect material was assigned a homogeneous area number, described, and measured. Each observed suspect material was either sampled or assumed to be ACM. Samples of suspect ACM were collected using procedures established by the EPA Code of Federal Regulations (CFR) Title 40 Part 763 Subpart E, Asbestos Containing Materials in Schools. Bulk asbestos samples were collected in accordance with Occupational Safety and Health Administration Standard 1926.1101. A total of 49 suspect materials were collected for asbestos analysis. Some of the sampled materials contained multiple layers, therefore, a total of 73 material samples were analyzed for asbestos.

2.2 Lead Inspection Methods

Building materials such as brick, building stone, and concrete can be reused as clean or exempt fill or recycled following a demolition. According to Wisconsin Administrative Code (WAC) Chapter NR 500, building materials painted with LBP cannot be reused as clean or exempt fill or recycled and must be properly disposed of at a Wisconsin DNR licensed landfill.

The U.S. Department of Housing and Urban Development (HUD) in the *Guidelines for the Evaluation and Control of Lead-Based Paint in Housing* (HUD Guidelines) defines LBP as having a surface concentration of lead that is at or greater than 1 milligram of lead per square centimeter of surface of at or greater than 0.5% of lead per weight of a paint chip sample.

The WAC Chapter DHS 163 defines LBP as having a surface concentration of lead that is more than 1.0 milligrams of lead per square centimeter of surface measured by X-Ray Fluorescence analysis or more than 0.5% of lead per weight of a paint chip sample. This inspection follows the protocol of the HUD Guidelines, Chapter 7 (2012 rev.) and DHS 163.

The Subject Property was inspected for painted brick, wood, metal, building stone, and concrete building materials. Each observed suspect painted building material was assigned a homogeneous area number and described.

Each observed suspect painted building material was either sampled or assumed to be painted with LBP. Sampled suspect painted building material was tested using paint chip analysis. This analysis uses the flame atomic absorption (FAA) method of lead detection using guidelines and procedures established in the Test Methods for Evaluating Solid Waste, Physic/Chemical Methods (EPA SW-846-7000B). Results are reported as percent (%) lead by weight. The reportable limit of detection is at or greater than 0.5% lead and are considered LBP. A total of 14 painted surfaces were analyzed for lead.

2.3 Asbestos Laboratory Analysis Methods

The asbestos samples were submitted to The Mannik & Smith Group Analytical Laboratories in Canton, Michigan for analysis. Asbestos analysis was performed using the polarized light microscopy (PLM) method of asbestos detection using guidelines and procedures established in the Method for the Determination of Asbestos in Bulk Building Materials (EPA 600/R-93/116). Results were reported as percent (%) asbestos type by volume. Samples found to contain greater than 1% asbestos were considered positive and listed as ACM.

2.4 Lead Testing Analysis Methods

The paint chip samples were submitted to EMSL Analytical, Inc. in Hillside, Illinois, for analysis. Paint chip analysis was performed using FAA method of lead detection using guidelines and procedures established in the Test Methods for Evaluating Solid Waste, Physic/Chemical Methods (EPA SW-846-7000B). Results are reported as percent lead by weight. Samples found to contain at or greater than 0.5% lead were considered positive and listed as LBP.

2.5 Limitations

This asbestos and lead inspection report has been prepared by Fehr Graham in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made. The intent of this asbestos and lead inspection report is to assist the Owner and/or Client in locating ACM and lead-based painted building materials.

The asbestos and lead inspection was conducted to identify suspect ACM and LBP in accessible areas of the building. If other areas at this location are to be impacted during planned or future renovations, a separate asbestos and lead inspection of these areas will be required. Some ACM and LBP may not have been discovered due to inaccessibility or missing/incomplete plans. Suspect materials discovered after the issue of this inspection report should be sampled and analyzed to determine asbestos or lead content and to initiate appropriate responses.

Analysis was performed using the PLM method. While the most commonly accepted analytical method for detecting asbestos in bulk materials, PLM is known to have limited resolution and may not detect extremely small asbestos fibers. Certain materials, notably vinyl floor tile, may contain extremely fine asbestos fibers beyond the resolution of PLM.

Fehr Graham's interpretations and recommendations are based upon the results of sample collection and laboratory analysis in compliance with environmental regulations, quality control and assurance standards, and the Scope of Work as indicated in Fehr Graham's proposal, dated March 8, 2024. The results, conclusions, and recommendations contained in this report pertain to conditions observed at the time of the inspection. Other conditions elsewhere at the Subject Property may differ from those in the inspected locations. Such conditions are unknown, may change over time and have not been considered.

3.0 RESULTS OF INSPECTION

3.1 Locations and Laboratory Analysis Results

Results of the PLM and FAA of samples collected and tested during the inspections are summarized in the tables included in Appendix B. The original laboratory analysis reports are attached in Appendix C. Photographs of ACM and LBP are included in Appendix D. The site map is displayed in Figure 1.

3.2 ACMs/ Regulated Asbestos Containing Materials (RACM)

Four (4) of the asbestos samples (four (4) material groups) collected and submitted for laboratory analysis are considered ACMs and are described in the following table:

Table A: ACM

Group/Sample Number	Material Description	Location	Asbestos Percent (%)	NESHAP Regulatory Category
1-01 – A, B, C	Gray 9x9 Tile and Mastic	2nd Floor	4%	Category I - nonfriable
1-09 – A, B, C	Black Patterned Vinyl Tile	1st Floor	45%	Category I – nonfriable
1-16 – A, B, C	4” Pipe Wrap	Basement	80%	Friable Asbestos Material
1-17 – A, B, C	2” Pipe Wrap	Basement	75%	Friable Asbestos Material

Per standard conventions before the planned building renovation, we did not sample the existing electrical components (fuse box, electric wiring, etc.), or asphalt roofing materials on all buildings. These materials are presumed to be non-friable ACM.

3.3 Lead-Based Paint (LBP) Painted Materials

Four of the painted surfaces analyzed using the FAA analysis are considered LBP and are described in the following table:

Table B: LBP

Group Number	Description	Location	Color	Lead Content (% Weight)
LBP-1-02	Painted Concrete	2nd Floor stairs	Red	1.2%
LBP-1-04	Metal Ceiling	1st Floor	Green	3.8%
LBP-1-08	Sheetrock	1st Floor	Yellow	13.0%
LBP-1-09	Painted Door	1st Floor	Black	4.5%

4.0 RECOMMENDATIONS

4.1 Recommendations for Asbestos Containing Building Materials

To comply with the EPA and NR 447 regulations, Asbestos Containing Building Materials (ACBM) must be removed prior to demolition and certain renovation activities. According to WAC Chapter NR 447.02, any material containing greater than 1% asbestos is considered ACM. NR 447.02 defines RACM as any ACM that meets any of these four criteria:

(1) Friable;
(2) Category I non-friable in poor condition;
(3) Category I non-friable that will be or has been subject to sanding, cutting, grinding, or abrading; or
(4) Category II non-friable that has a high probability of becoming, or has become, friable due to demolition or renovation activities.

Friable ACM is defined as any material containing more than 1% asbestos and, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

To comply with EPA and NR 447 regulations, RACM must be removed before demolition and certain renovation activities. Based on the laboratory analytical results, **two of the material groups are currently considered RACM (Group 1-16 4" Pipe Wrap, and 1-17 2" Pipe Wrap). Depending on the demolition methods, two (2) material groups have the potential to become RACM (Group 1-01 Gray 9x9 Tile and Mastic, and 1-09 Black Patterned Vinyl Tile), and two (2) of the assumed materials groups have the potential to become RACM (asphalt roofing materials, electrical components).**

The following table identifies friable ACM, that is considered RACM, and must be removed prior to demolition or renovation:

Table C: Friable ACMs

Group/Sample Number	Material Description	Location	Asbestos Percent (%)	Condition	Estimated Quantity
1-16 – A, B, C	4" Pipe Wrap	Basement	80%	Damaged	20 LF
1-17 – A, B, C	2" Pipe Wrap	Basement	75%	Damaged	10 LF

The following table identifies Category I Nonfriable ACMs in the Subject Property building that **do not** need to be removed prior to demolition or renovation, **unless** they are in poor condition; or that will be subject to sanding, cutting, grinding, or abrading:

Table D: Category I Nonfriable ACMs

Group/Sample Number	Material Description	Location	Asbestos Percent (%)	Condition	Estimated Quantity
NA	Asphalt Roofing Materials	Roof	Assumed	Good	1,250 sq. ft.
1-01 – A, B, C	Gray 9x9 Tile and Mastic	2nd Floor	4%	Good	600 sq. ft.
1-09 – A, B, C	Black Patterned Vinyl Floor	1st Floor	45%	Good	100 sq. ft.

The following table identifies Category ILeI Nonfriable ACMs in the Subject Property building that do not need to be removed before demolition or renovation, unless they have a high probability of becoming, or have become, friable due to demolition or renovation activities (Category II Nonfriable ACMs are likely to become friable during demolition):

Table E: Category II Nonfriable Asbestos Containing Materials

Group/Sample Number	Material Description	Location	Asbestos Percent (%)	Condition	Estimated Quantity
Not Applicable	Electrical Components	Throughout	Assumed	Good	Unknown

The Category I and II Nonfriable ACMs will need to be properly discarded at a landfill during the demolition or renovation, but no special handling or disposal requirements apply. However, if the demolition methods cause any of these materials to become friable, they will need to be handled as RACM.

4.2 Recommendations for Lead-Based Paint

Building materials such as wood, metal, brick, building stone, and concrete can be reused as clean or exempt fill or recycled following a demolition or renovation. Demolition or renovation activity beyond the anticipated work scope specified at the time of our site visit may require additional testing before disturbance. According to WAC Chapter NR 500, building materials painted with LBP cannot be reused as clean or exempt fill or recycled and must be properly disposed of at a Wisconsin DNR licensed landfill. **Based on the FAA analyzed results, four (4) of the tested paint surfaces are considered LBP.**

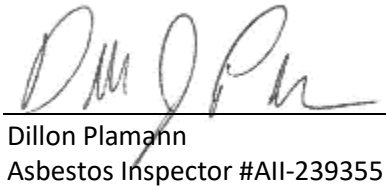
Any of the materials with untested painted surfaces assumed to contain lead paint that are removed from the Subject Property building as part of the renovation will need to be properly discarded at a landfill during the renovation, but no special handling or disposal requirements apply.

4.3 Other Recommendations

- Suspect materials discovered after this inspection should be sampled and analyzed to determine asbestos or lead content and to initiate appropriate responses.
- Demolition activities shall be conducted in accordance with 40 CFR 61 (NESHAP). It is recommended that contractor personnel receive a copy of the EPA guidance document on demolition practices under NESHAP (included in Appendix E).
- The demolition or renovation contractor should be provided the Pre-Renovation Asbestos and Lead Inspection Report and should be mindful of unidentified ACM and/or LBP. Unidentified suspect ACM and/or LBP should be sampled and analyzed before the start of the renovation activities.
- The Wisconsin DNR requires notification of intent to renovate or demolish, regardless of whether ACM is present. The notification must be sent at least 10 working days before the start of demolition activities. The demolition contractor should also keep a copy of the Pre-Renovation Asbestos and Lead Inspection Report at the Subject Property during the entire project as proof of compliance with 40 CFR 61 (NESHAP).

5.0 GENERAL QUALIFICATIONS

This work and report were completed by Cole Lewis and Dillon Plamann, Wisconsin Certified Asbestos Inspectors and Lead Inspectors, working for Fehr Graham. Copies of the company and individual asbestos certifications are included in Appendix F.



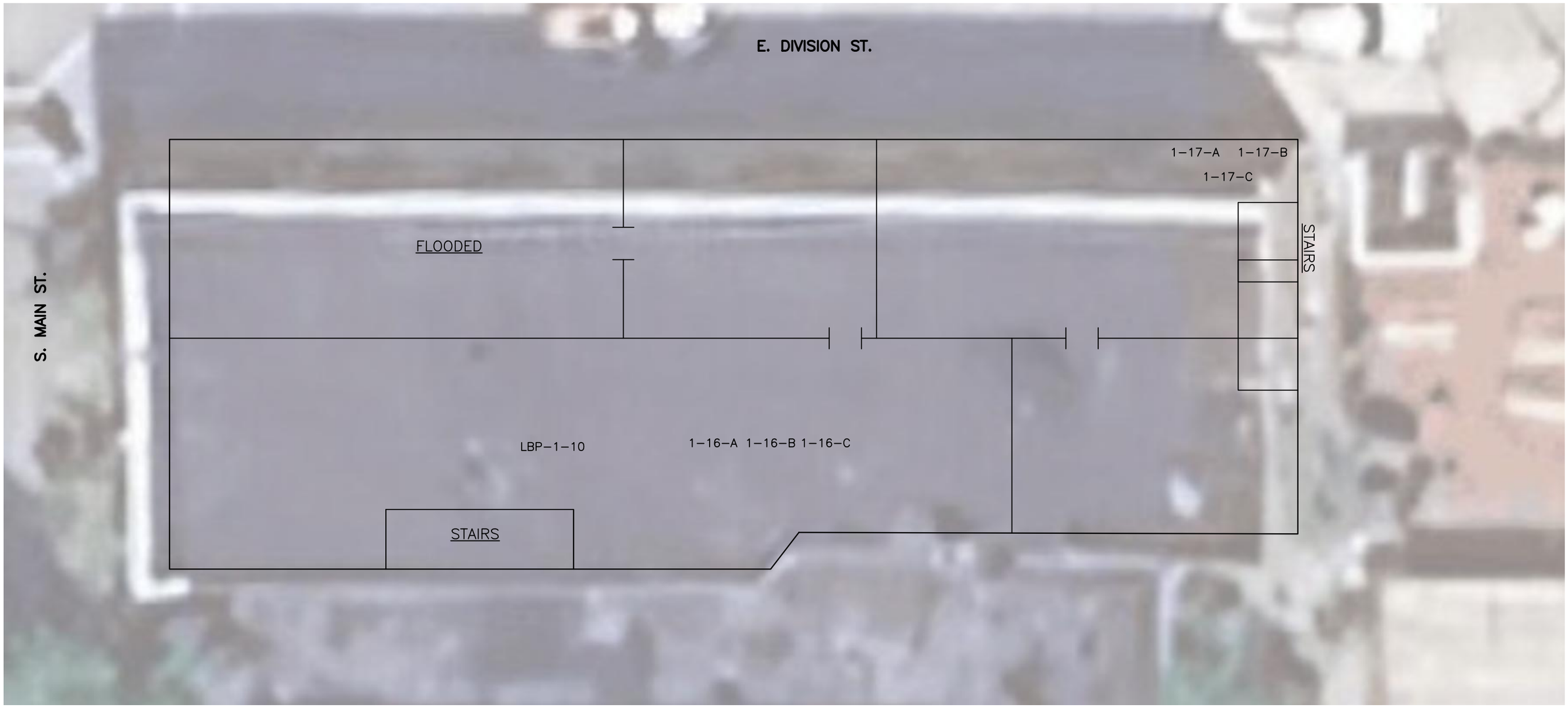
April 22, 2024

Dillon Plamann — Date
Asbestos Inspector #AII-239355
Lead Inspector #LII-239355

April 22, 2024

Cole Lewis — Date
Asbestos Inspector #AII-276164
Lead Inspector #LII-276164

FIGURES



SAMPLE LOCATIONS

BASEMENT
1 SOUTH MAIN ST.
FOND DU LAC, WI 54935

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GRAPHIC SCALE IN FEET

3/28/24

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ILLINOIS
IOWA
WISCONSIN

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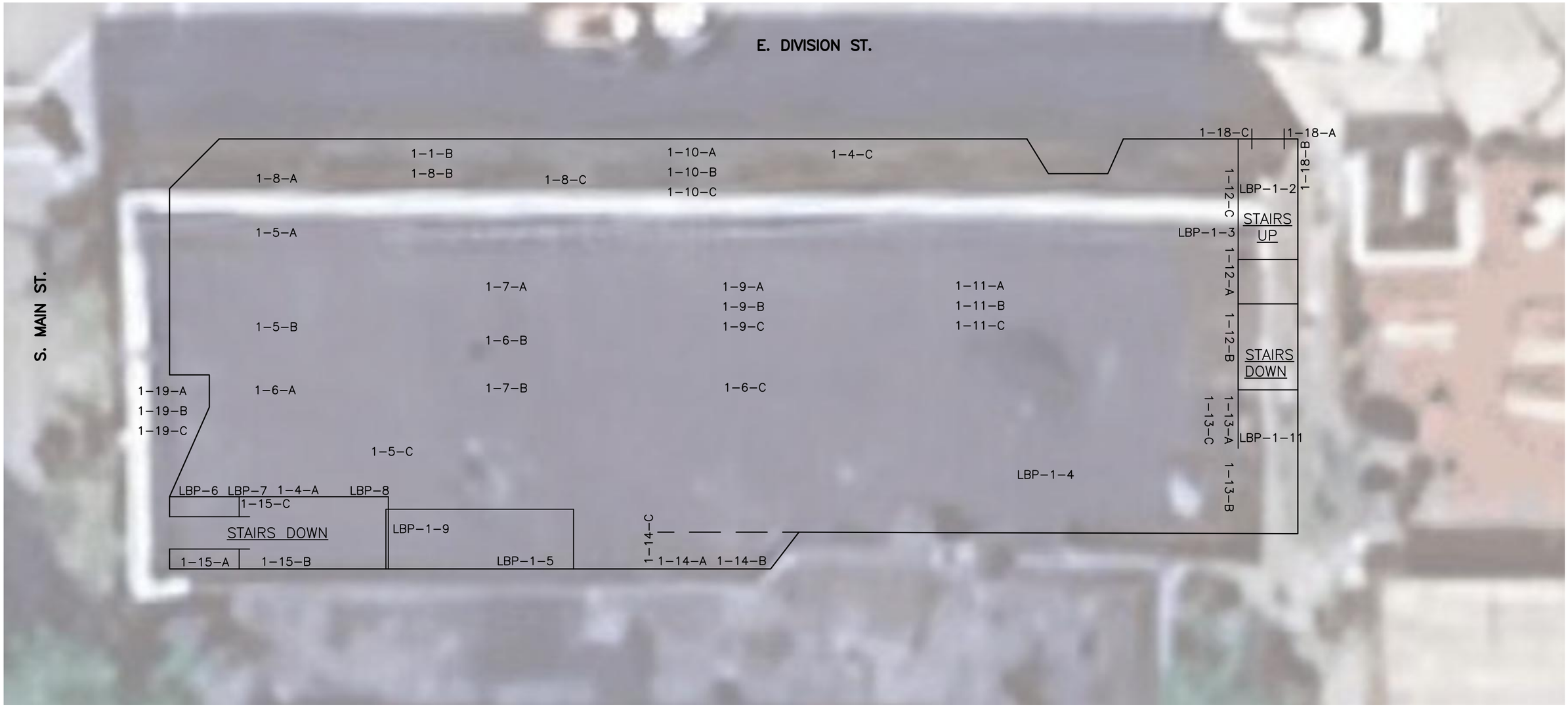
PLOT DATE: 3/28/24



SAMPLE LOCATIONS

FIRST FLOOR
1 SOUTH MAIN ST.
FOND DU LAC, WI 54935

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3/28/24

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ILLINOIS
IOWA
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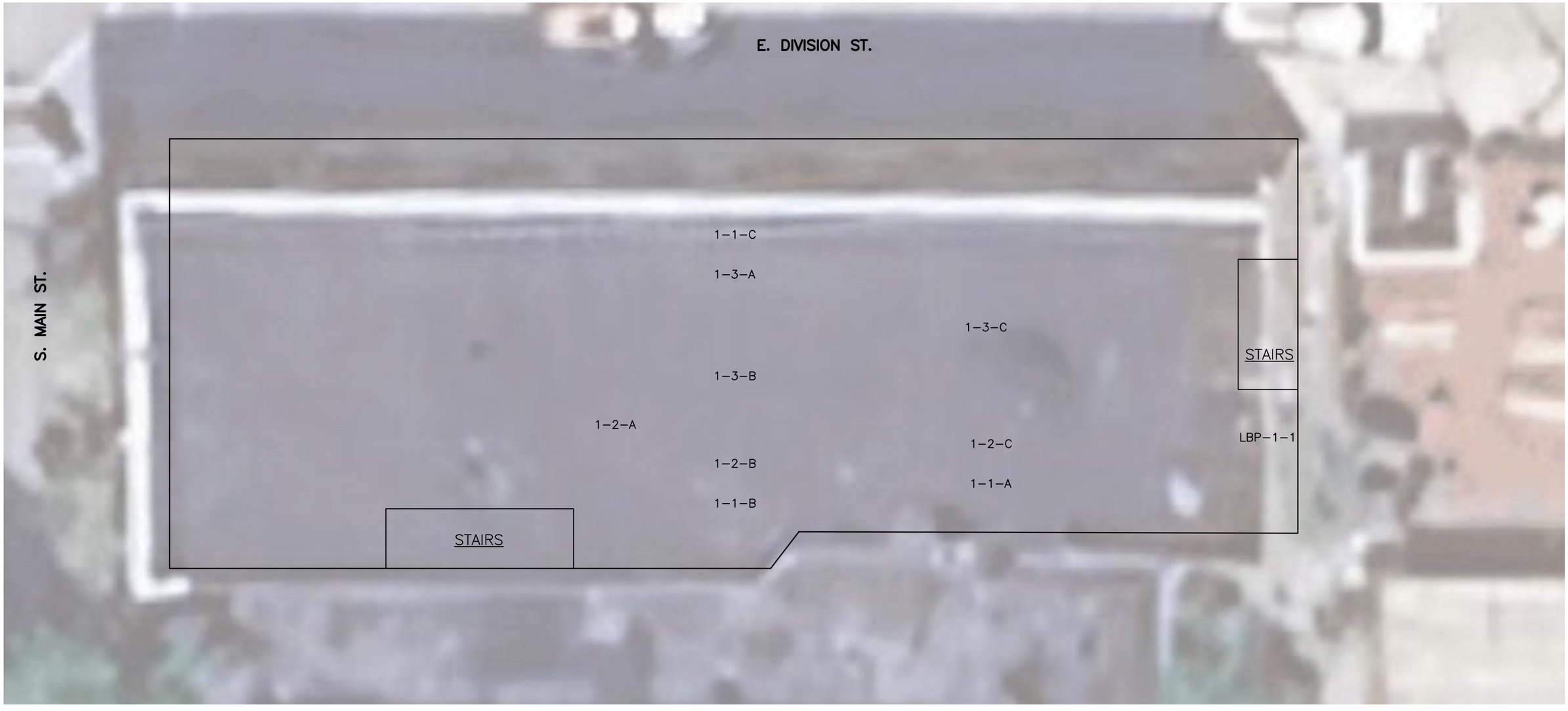
PLOT DATE: 3/28/24



SAMPLE LOCATIONS

SECOND FLOOR
1 SOUTH MAIN ST.
FOND DU LAC, WI 54935

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APPENDICES

APPENDIX A
GENERAL CONDITIONS

GENERAL TERMS

Asbestos Containing Materials (ACM)

Asbestos containing materials, as defined by National Emission Standards for Hazardous Air Pollutants (NESHAP), are materials that have an asbestos content of greater than 1 percent (%).

Friable Material

Material that can be crumbled or reduced to a powder using normal hand pressure. Nonfriable material is too hard to be crumbled or reduced to a powder without the use of tools. Nonfriable materials may become friable if abraded or broken.

Suspect Materials

There are three broad classes that define suspect asbestos containing material. These are: 1) surfacing material, 2) thermal system insulation, and 3) miscellaneous material. Materials that fit the description of these materials (as described below) are suspect to contain asbestos, until sampled and analyzed. In Wisconsin, wood, metal, glass, and fiberglass are not considered suspect ACM.

1. Surfacing Material – Materials applied by spray or trowel are classified as surfacing materials. Asbestos was used in a variety of surfacing materials for fireproofing, acoustic dampening, condensation control, and decorative purposes. Surfacing materials that contain asbestos usually occur as fireproofing on steel-frame members, textured ceilings, or acoustic plaster ceilings.

2. Thermal System Insulation (TSI) Material – Cold water, hot water, and steam-generating mechanical systems are frequently insulated with materials that contain asbestos. Pipes may be insulated with a non-asbestos containing material but have mastic or plastered joints that contain asbestos. Insulation materials that contain asbestos are generally found in boiler rooms and chiller rooms, in pipe chases in walls, in pipe runs above suspended ceiling, or in crawl spaces under buildings. Insulation covered with an undamaged jacket or wrap is classified as nonfriable. Adhesives used to hold insulation in place or provide an airtight seal are also nonfriable materials. Most other types of thermal insulation are considered friable.

3. Miscellaneous Material – Miscellaneous building materials are materials that are used for finishing of interior spaces, and do not fall under either of the other classes, surfacing or TSI. These materials have been manufactured with asbestos for strength enhancement, fire retardation, condensation control, acoustical dampening, or corrosion resistance. The most common type of friable miscellaneous material is ceiling tile. Most other miscellaneous materials are nonfriable materials such as vinyl floor tile, grout, adhesives, and cementitious panels.

Regulated ACM (RACM)

ACM that is friable or likely to become friable during renovation or demolition activities is considered to be RACM. These materials must be removed from buildings prior to renovation or demolition activities that will disturb them.

Category I Nonfriable ACM

Resilient flooring, such as vinyl floor tile and rolled vinyl sheeting, valve packings and gaskets, and asphalt (bituminous roofing materials are classified as Category I Nonfriable ACM). If these materials are in good condition, they are not likely to become friable during demolition, and therefore, may remain in place for demolition. However, these materials must be removed prior to renovations if the renovation involves alteration that would render them friable.

Category II Nonfriable ACM

Any other nonfriable materials that are not classified as Category I Nonfriable ACM. Asbestos cement products, adhesives, and plaster are the most common types of Category II Nonfriable ACM. Most Category II Nonfriable ACM are likely to become friable during demolition and, therefore, must be removed prior to demolition. These materials must be removed prior to renovations if the renovation involves alteration that would render them friable.

ACM Conditions

There are three broad classes that define the condition of asbestos containing material. These are: 1) damaged, 2) significantly damaged, and 3) good. ACMs are assessed for condition (as described below) to determine material handling requirements during a renovation or demolition.

1. Damaged - Damaged miscellaneous/surfacing ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicate damage.

2. Significantly Damaged - Damaged or significantly damaged thermal system insulation ACM means thermal system insulation ACM on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, water stained, gouged, punctured, missing, or not intact such that it is not able to contain fibers. Damage may be further illustrated by occasional punctures, gouges or other signs of physical injury to ACM; occasional water damage on the protective coverings/jackets; or exposed ACM ends or joints. Asbestos debris originating from the ACBM in question may also indicate damage.

3. Good - ACM which does not appear to have deteriorated or sustained physical injury since the time of installation and continues to demonstrate and retain its structural integrity.

APPENDIX B
SAMPLE RESULTS

TABLE 1
Asbestos Inspection Results
<Project Name and Location>

Group Number	Sample Number	Material Description	Location	Asbestos Percent (%)	Estimated Quantity of ACM	NESHAP Regulatory Category
1 - 01	A , B , C	Gray 9x9 Tile and Mastic	2nd floor	**4%**	**600 sq. ft.**	**Cat I - Nonfriable**
1 - 02	A , B , C	Light gray insulation	2nd floor	0		
1 - 03	A , B , C	1/2" x 1/2" tile walkway gray and white	2nd floor	0		
1 - 04	A , B , C	Red Brown brick and mortar	1st floor	0		
1 - 05	A , B , C	Red Brown cermaic tile planks	1st floor	0		
1 - 06	A , B , C	1/2" x 1/2" tile walkway gray and white	1st floor	0		
1 - 07	A , B , C	2' x 2' brown vinyl tile	1st floor	0		
1 - 08	A , B , C	12"x12" white vinyl tile	1st floor	0		
1 - 09	A , B , C	Black patterned vinyl tile	1st floor	**45%**	**100 sq. ft.**	**Cat I - Nonfriable**
1 - 10	A , B , C	12"x12" blue gray vinyl tile	1st floor	0		
1 - 11	A , B , C	6"x6" brown ceramic tile	1st floor	0		
1 - 12	A , B , C	White sheetrock	1st floor	0		
1 - 13	A , B , C	White Ceramic wall tile	1st floor	0		
1 - 14	A , B , C	White concrete block and mortar	1st floor	0		
1 - 15	A , B , C	Gray wall/ceiling tile	Basement Stairs	0		
1 - 16	A , B , C	4" pipe wrap	Basement	**80%**	**20 LF**	**Friable Asbestos Material**
1 - 17	A , B , C	2" pipe wrap	Basement	**75%**	**10 LF**	**Friable Asbestos Material**
1 - 18	A , B , C	Cream ceramic brick	Exterior	0		
1 - 19	A , B , C	Brown ceramic brick	Exterior	0		

TABLE 2
Lead Paint Inspection Results
<Project Name and Location>

Group Number	Paint Description	Location	Lead content (% weight)
LBP -1 - 01	Yellow painted window sill	2nd Floor	0.750%
LBP-1 - 02	Red painted concrete	2nd Floor stairs	**1.2000%**
LBP-1 - 03	Green sheetrock	1st Floor	0.2200%
LBP-1 - 04	Green metal ceiling	1st Floor	**3.8000%**
LBP-1 - 05	White concrete block	1st Floor	0.0130%
LBP-1 - 06	Dark blue sheetrock	1st Floor	0.0099%
LBP-1 - 07	Light blue sheetrock	1st Floor	0.0330%
LBP-1 - 08	Yellow sheetrock	1st Floor	**13.0000%**
LBP-1 - 09	Black painted door	1st Floor	**4.5000%**
LBP-1 - 10	White painted ceiling wood	Basement	0.0087%
LBP-1 - 11	White painted sheetrock	1st Floor	0.0360%
LBP-1 - 12	Red painted wood	Exterior	0.0330%
LBP-1 - 13	Green painted door	Exterior	0.0100%
LBP-1 - 14	Tan painted wood	Exterior	0.0890%

APPENDIX C
LABORATORY RESULTS

EMSL Analytical, Inc.
4140 Litt Drive, Hillside, IL 60162
Phone/Fax: (773) 313-0099 / (773) 313-0139
http://www.EMSL.com chicagolab@emsl.com

EMSL Order:	262402669
CustomerID:	ALPH56
CustomerPO:	
ProjectID:	

Attn: **Dillon Plamann**
Fehr-Graham & Associates
909 North 8th Street
Suite 101
Sheboygan, WI 53081

Phone: (920) 892-2444
Fax: (920) 892-2620
Received: 3/20/2024 09:00 AM
Collected:

Project: **FOND DU LAC REDEVELOPMENT 24-624**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
LBP-1-01 *262402669-0001*		3/26/2024 Site: 2ND FLOOR Desc: YELLOW PAINTED WINDOW SILL	0.2523 g	0.080 % wt	0.75 % wt
LBP-1-02 *262402669-0002*		3/26/2024 Site: 2ND FLOOR STAIRS Desc: RED PAINTED CONCRETE	0.2519 g	0.080 % wt	1.2 % wt
LBP-1-03 *262402669-0003*		3/26/2024 Site: 1ST FLOOR Desc: GREEN SHEETROCK	0.2505 g	0.0080 % wt	0.22 % wt
LBP-1-04 *262402669-0004*		3/26/2024 Site: 1ST FLOOR Desc: WHITE CONCRETE BLOCK	0.2520 g	0.16 % wt	3.8 % wt
LBP-1-05 *262402669-0005*		3/26/2024 Site: 1ST FLOOR Desc: WHITE CONCRETE BLOCK	0.2526 g	0.0080 % wt	0.013 % wt
LBP-1-06 *262402669-0006*		3/26/2024 Site: 1ST FLOOR Desc: DARK BLUE SHEETROCK	0.2502 g	0.0080 % wt	0.0099 % wt
LBP-1-07 *262402669-0007*		3/26/2024 Site: 1ST FLOOR Desc: LIGHT BLUE SHEETROCK	0.2558 g	0.0080 % wt	0.033 % wt
LBP-1-08 *262402669-0008*		3/26/2024 Site: 1ST FLOOR Desc: YELLOW SHEETROCK	0.2540 g	0.80 % wt	13 % wt
LBP-1-09 *262402669-0009*		3/26/2024 Site: 1ST FLOOR Desc: BLACK PAINTED DOOR	0.2501 g	0.40 % wt	4.5 % wt

Lisa M. Odeshoo

Lisa Odeshoo, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA LAP, LLC-ELLAP Accredited #102992

Initial report from 03/27/2024 10:41:25

EMSL Analytical, Inc.
4140 Litt Drive, Hillside, IL 60162
Phone/Fax: (773) 313-0099 / (773) 313-0139
http://www.EMSL.com chicagolab@emsl.com

EMSL Order: 262402669
CustomerID: ALPH56
CustomerPO:
ProjectID:

Attn: **Dillon Plamann**
Fehr-Graham & Associates
909 North 8th Street
Suite 101
Sheboygan, WI 53081

Phone: (920) 892-2444
Fax: (920) 892-2620
Received: 3/20/2024 09:00 AM
Collected:

Project: **FOND DU LAC REDEVELOPMENT 24-624**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
LBP-1-10 *262402669-0010*	Site: BASEMENT Desc: WHITE PAINTED CEILING WOOD	3/26/2024	0.2527 g	0.0080 % wt	0.0087 % wt
LBP-1-11 *262402669-0011*	Site: 1ST FLOOR Desc: WHITE PAINTED SHEETROCK	3/26/2024	0.2556 g	0.0080 % wt	0.036 % wt
LBP-1-12 *262402669-0012*	Site: EXTERIOR Desc: RED PAINTED WOOD	3/26/2024	0.2528 g	0.0080 % wt	0.033 % wt
LBP-1-13 *262402669-0013*	Site: EXTERIOR Desc: GREEN PAINTED DOOR	3/26/2024	0.2511 g	0.0080 % wt	0.010 % wt
LBP-1-14 *262402669-0014*	Site: EXTERIOR Desc: TAN PAINTED WOOD	3/26/2024	0.2516 g	0.0080 % wt	0.089 % wt

Lisa M. Odeshoo

Lisa Odeshoo, Laboratory Manager
or other approved signatory

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* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA LAP, LLC-ELLAP Accredited #102992

Initial report from 03/27/2024 10:41:25

Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

2365 S Haggerty Rd, Canton, MI 48188

Attention: Dillon Plamann

Fehr Graham

909 N 8th Street

Sheboygan, WI, 53081

Email: dplamann@fehrgraham.com

Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-01 A | **Lab ID 24-0389-1** | **Location 2nd floor**

Layer 1		Layer 2	
Gray 9x9 Tile		Mastic	
Type	Chrysotile 4.00%	Type	Chrysotile 3.00%
Grey, nonfibrous, homogeneous		Black, nonfibrous, homogeneous	
96% non-asbestos		97% non-asbestos	

Client ID 1-01 B | Lab ID 24-0389-2 | Location 2nd floor

Layer 1		Layer 2	
Gray 9x9 Tile		Mastic	
Type	Not Analyzed -	Type	Not Analyzed -

Client ID 1-01 C | Lab ID 24-0389-3 | Location 2nd floor

Layer 1		Layer 2	
Gray 9x9 Tile		Mastic	
Type	Not Analyzed -	Type	Not Analyzed -

Client ID 1-02 A | Lab ID 24-0389-4 | Location 1st floor

Layer 1	
Light gray insulation	
Type	Non Detect 0.00%
Gray, fibrous, homogeneous	
100% non-asbestos	

Client ID 1-02 B | Lab ID 24-0389-5 | Location 1st floor

Layer 1	
Light gray insulation	
Type	Non Detect 0.00%
Gray, fibrous, homogeneous	
100% non-asbestos	

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

The results herein relate only to the samples as received and tested by The Mannik & Smith Analytical Laboratories. This report can not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other agency of the Federal Government. Please see the Sample Protocol before submitting samples for analysis in order to ensure laboratory staff safety and analysis accuracy.

Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

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Fehr Graham

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Sheboygan, WI, 53081

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-02 C | **Lab ID 24-0389-6** | **Location 1st floor**

Layer 1

Light gray insulation

Type Non Detect 0.00%

Gray, fibrous, homogeneous

100% non-asbestos

Client ID 1-03 A | **Lab ID 24-0389-7** | **Location 1st floor**

Layer 1

1/2"x1/2" tile walkway gray and white

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-03 B | **Lab ID 24-0389-8** | **Location 1st floor**

Layer 1

1/2"x1/2" tile walkway gray and white

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-03 C | **Lab ID 24-0389-9** | **Location 1st floor**

Layer 1

1/2"x1/2" tile walkway gray and white

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-04 A | **Lab ID 24-0389-10** | **Location 1st floor**

Layer 1

Brick

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Mortar

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous.

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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24-0389

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-04 B — Lab ID 24-0389-11 — Location 1st floor

Layer 1	Layer 2
Brick	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Tan, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-04 C — Lab ID 24-0389-12 — Location 1st floor

Layer 1	Layer 2
Brick	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Tan, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-05 A — Lab ID 24-0389-13 — Location 1st floor

Layer 1

Red Brown cermaic tile planks

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-05 B — Lab ID 24-0389-14 — Location 1st floor

Layer 1

Red Brown cermaic tile planks

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-05 C — Lab ID 24-0389-15 — Location 1st floor

Layer 1

Red Brown cermaic tile planks

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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24-0389

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-06 A | **Lab ID 24-0389-16** | **Location 1st floor**

Layer 1

1/2" x 1/2" tile walkway gray and white

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-06 B | **Lab ID 24-0389-17** | **Location 1st floor**

Layer 1

1/2" x 1/2" tile walkway gray and white

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-06 C | **Lab ID 24-0389-18** | **Location 1st floor**

Layer 1

1/2" x 1/2" tile walkway gray and white

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-07 A | **Lab ID 24-0389-19** | **Location 1st floor**

Layer 1

2' x 2' brown vinyl tile

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-07 B | **Lab ID 24-0389-20** | **Location 1st floor**

Layer 1

2' x 2' brown vinyl tile

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-07 C | Lab ID 24-0389-21 | Location 1st floor

Layer 1

2' x 2' brown vinyl tile

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-08 A | Lab ID 24-0389-22 | Location 1st floor

Layer 1

12"x12" white vinyl tile

Type Non Detect 0.00%

White, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Adhesive

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-08 B | Lab ID 24-0389-23 | Location 1st floor

Layer 1

12"x12" white vinyl tile

Type Non Detect 0.00%

White, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Adhesive

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-08 C | Lab ID 24-0389-24 | Location 1st floor

Layer 1

12"x12" white vinyl tile

Type Non Detect 0.00%

White, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Adhesive

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-09 A | Lab ID 24-0389-25 | Location 1st floor

Layer 1

Black paterned vinyl tile

Type Chrysotile 45.00%

White, nonfibrous, heterogeneous

55% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

The results herein relate only to the samples as received and tested by The Mannik & Smith Analytical Laboratories. This report can not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other agency of the Federal Government. Please see the Sample Protocol before submitting samples for analysis in order to ensure laboratory staff safety and analysis accuracy.

Mannik Smith GROUP ANALYTICAL LABORATORIES

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-09 B | **Lab ID 24-0389-26** | **Location 1st floor**

Layer 1

Black paterned vinyl tile

Type Not Analyzed -

Client ID 1-09 C | **Lab ID 24-0389-27** | **Location 1st floor**

Layer 1

Black paterned vinyl tile

Type Not Analyzed -

Client ID 1-10 A | **Lab ID 24-0389-28** | **Location 1st floor**

Layer 1	Layer 2
12"x12" blue gray vinyl tile	Adhesive
Type Non Detect 0.00%	Type Non Detect 0.00%
Grey, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-10 B | **Lab ID 24-0389-29** | **Location 1st floor**

Layer 1	Layer 2
12"x12" blue gray vinyl tile	Adhesive
Type Non Detect 0.00%	Type Non Detect 0.00%
Grey, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-10 C | **Lab ID 24-0389-30** | **Location 1st floor**

Layer 1	Layer 2	Layer 3
12"x12" blue gray vinyl tile	Adhesive A	Adhesive B
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
Grey, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda, Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson, *Laboratory Director*

Accreditations: NIST-NVLAP No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

The results herein relate only to the samples as received and tested by The Mannik & Smith Analytical Laboratories. This report can not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other agency of the Federal Government. Please see the Sample Protocol before submitting samples for analysis in order to ensure laboratory staff safety and analysis accuracy.

Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-11 A — Lab ID 24-0389-31 — Location 1st floor

Layer 1	Layer 2
6"x6" brown ceramic tile	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Red, nonfibrous, homogeneous	Grey, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-11 B — Lab ID 24-0389-32 — Location 1st floor

Layer 1	Layer 2
6"x6" brown ceramic tile	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Red, nonfibrous, homogeneous	Grey, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-11 C — Lab ID 24-0389-33 — Location 1st floor

Layer 1	Layer 2
6"x6" brown ceramic tile	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Red, nonfibrous, homogeneous	Grey, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-12 A — Lab ID 24-0389-34 — Location Basement Stairs

Layer 1	Layer 2
White sheetrock	Plaster
Type Non Detect 0.00%	Type Non Detect 0.00%
Beige, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-12 B — Lab ID 24-0389-35 — Location Basement Stairs

Layer 1	Layer 2
White sheetrock	Plaster
Type Non Detect 0.00%	Type Non Detect 0.00%
Beige, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

The results herein relate only to the samples as received and tested by The Mannik & Smith Analytical Laboratories. This report can not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other agency of the Federal Government. Please see the Sample Protocol before submitting samples for analysis in order to ensure laboratory staff safety and analysis accuracy.

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24-0389

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-12 C — Lab ID 24-0389-36 — Location Basement Stairs

Layer 1	Layer 2
White sheetrock	Plaster
Type Non Detect 0.00%	Type Non Detect 0.00%
Beige, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-13 A — Lab ID 24-0389-37 — Location Basement

Layer 1	Layer 2	Layer 3
Ceramic tile	Adhesive	Joint compound
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
White, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	White, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Client ID 1-13 B — Lab ID 24-0389-38 — Location Basement

Layer 1	Layer 2	Layer 3
Ceramic tile	Adhesive	Joint compound
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
White, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	White, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Client ID 1-13 C — Lab ID 24-0389-39 — Location Basement

Layer 1	Layer 2	Layer 3
Ceramic tile	Adhesive	Joint compound
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
White, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	White, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Client ID 1-14 A — Lab ID 24-0389-40 — Location Basement

Layer 1
White concrete block and mortar
Type Non Detect 0.00%
Grey, nonfibrous, homogeneous
100% non-asbestos
See comments

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project: Fond du Lac Redevelopment Authority
Order #: 24-0389
Project #: 24-624

Received: 3/25/2024
Analyzed: 4/1/2024
Reported: 4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-14 B | **Lab ID 24-0389-41** | **Location Basement**

Layer 1

White concrete block and mortar

Type Non Detect 0.00%
Grey, nonfibrous, homogeneous
100% non-asbestos
See comments

Client ID 1-14 C | **Lab ID 24-0389-42** | **Location Basement**

Layer 1

Concrete

Type Non Detect 0.00%
Grey, nonfibrous, homogeneous
100% non-asbestos

Layer 2

Caulk

Type Non Detect 0.00%
White, nonfibrous, homogeneous
100% non-asbestos

Client ID 1-15 A | **Lab ID 24-0389-43** | **Location Exterior**

Layer 1

Gray wall/ceiling tile

Type Non Detect 0.00%
Tan, fibrous, homogeneous
100% non-asbestos

Client ID 1-15 B | **Lab ID 24-0389-44** | **Location Exterior**

Layer 1

Gray wall/ceiling tile

Type Non Detect 0.00%
Tan, fibrous, homogeneous
100% non-asbestos

Client ID 1-15 C | **Lab ID 24-0389-45** | **Location Exterior**

Layer 1

Gray wall/ceiling tile

Type Non Detect 0.00%
Tan, fibrous, homogeneous
100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-16 A | **Lab ID 24-0389-46** | **Location Basement**

Layer 1

4" pipe wrap

Type **Chrysotile 80.00%**

Beige, fibrous, homogeneous

20% non-asbestos

Client ID 1-16 B | Lab ID 24-0389-47 | Location Basement

Layer 1

4" pipe wrap

Type Not Analyzed -

Client ID 1-16 C | Lab ID 24-0389-48 | Location Basement

Layer 1

4" pipe wrap

Type Not Analyzed -

Client ID 1-17 A | **Lab ID 24-0389-49** | **Location Basement**

Layer 1

2" pipe wrap

Type **Chrysotile 75.00%**

Grey, fibrous, homogeneous

25% non-asbestos

Client ID 1-17 B | Lab ID 24-0389-50 | Location Basement

Layer 1

2" pipe wrap

Type Not Analyzed -

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-17 C | **Lab ID 24-0389-51** | **Location Basement**

Layer 1

2" pipe wrap

Type Not Analyzed -

Client ID 1-18 A | **Lab ID 24-0389-52** | **Location Exterior**

Layer 1

Cream ceramic brick

Type Non Detect 0.00%

Beige, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-18 B | **Lab ID 24-0389-53** | **Location Exterior**

Layer 1

Cream ceramic brick

Type Non Detect 0.00%

Beige, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-18 C | **Lab ID 24-0389-54** | **Location Exterior**

Layer 1

Cream ceramic brick

Type Non Detect 0.00%

Beige, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-19 A | **Lab ID 24-0389-55** | **Location Exterior**

Layer 1

Brown ceramic brick

Type Non Detect 0.00%

Brown, nonfibrous, homogeneous

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project: Fond du Lac Redevelopment Authority
Order #: 24-0389
Project #: 24-624

Received: 3/25/2024
Analyzed: 4/1/2024
Reported: 4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-19 B | Lab ID 24-0389-56 | Location Exterior

Layer 1

Brown ceramic brick

Type Non Detect 0.00%
Brown, nonfibrous, homogeneous
100% non-asbestos

Client ID 1-19 C | Lab ID 24-0389-57 | Location Exterior

Layer 1

Brown ceramic brick

Type Non Detect 0.00%
Brown, nonfibrous, homogeneous
100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	3/29/2024
Project #	24-624	Reported	3/29/2024

SAMPLE COMMENTS/DISCREPENCIES

- Samples 1-14A and 1-14B only has block.

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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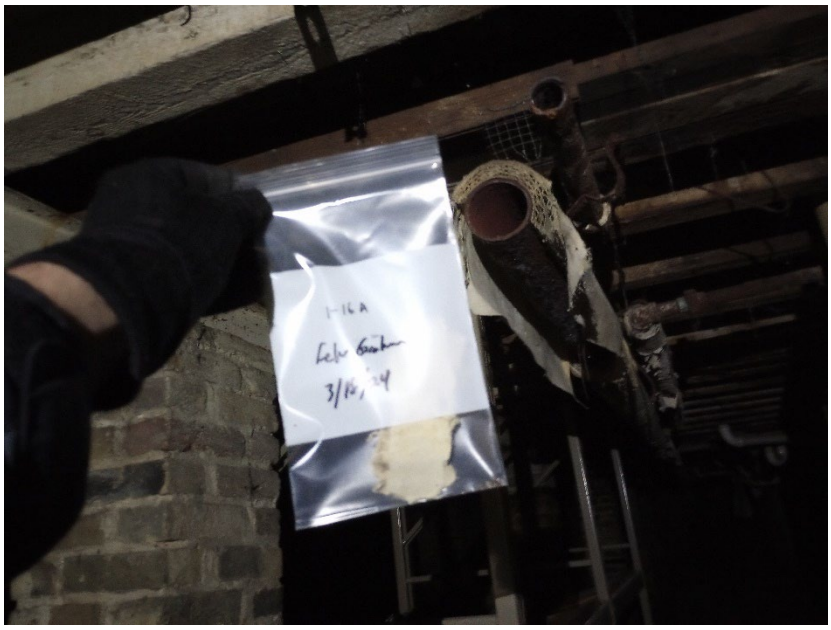
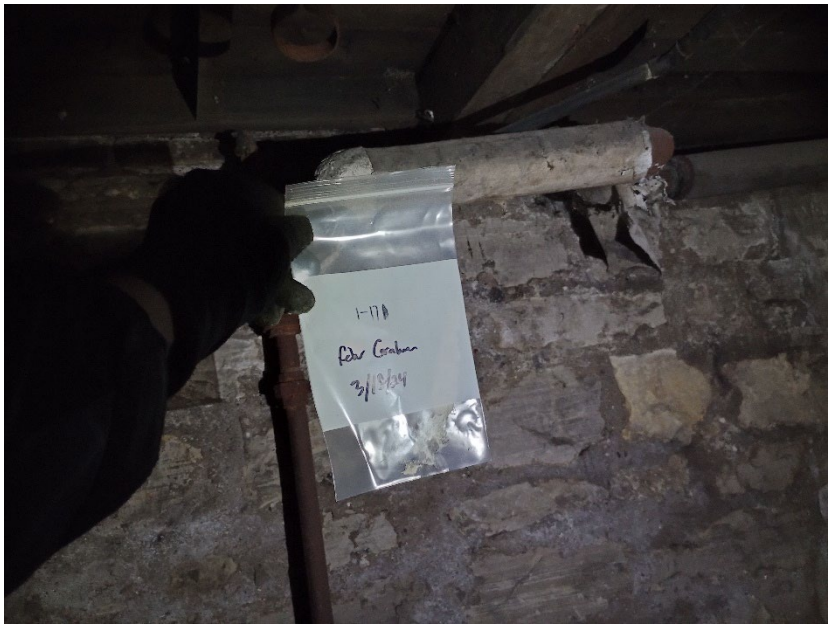
APPENDIX D
PHOTOGRAPHS

1. Sample 1-01 A, B, C – Gray 9x9 Tile and mastic on the second floor.

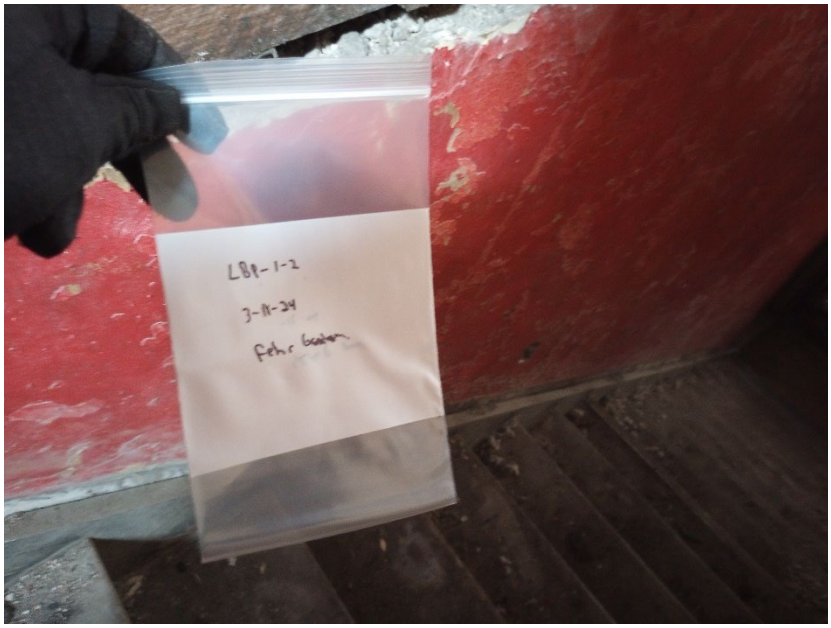
2. Sample 1-09 A, B, C – Black patterned vinyl tile on the first floor.



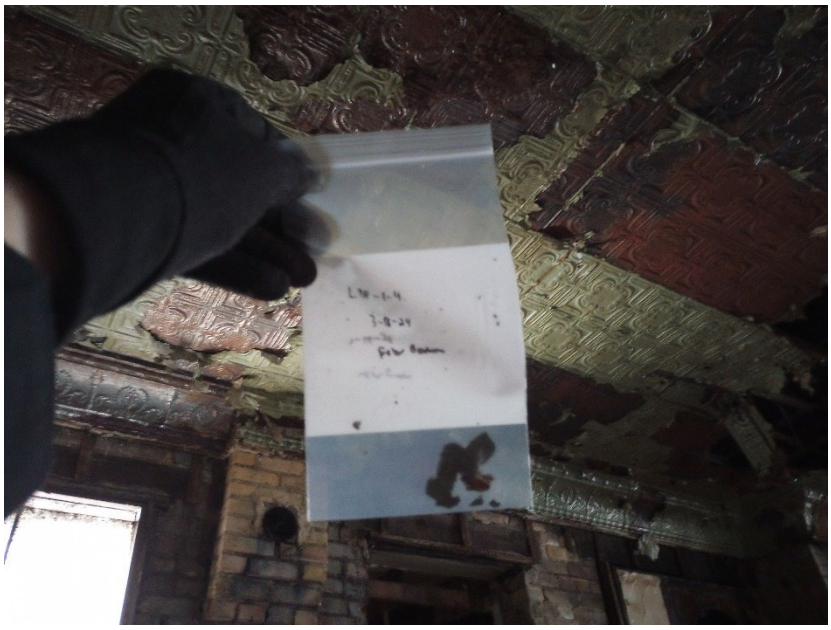
3. Sample 1-16 A, B, C – 4” pipe wrap in the basement.



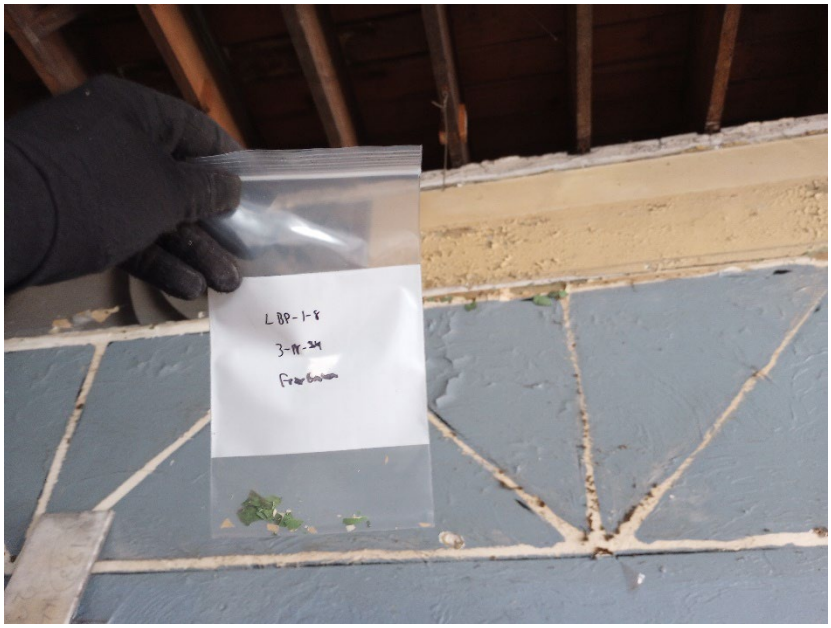
4. Sample 1-17 A, B, C – 2” pipe wrap in the basement.



5. Sample LBP – 1-02 – Red painted concrete on the 2nd floor stairs.



6. Sample LBP – 1-04 – Green metal ceiling on the first floor.



7. Sample LBP – 1-08 – Yellow sheetrock on the first floor.

8. Sample LBP – 1-09 – Black painted door on the first floor.

APPENDIX E
A GUIDE TO NORMAL DEMOLITION PRACTICES UNDER THE ASBESTOS NESHAP (EPA-340/1-92-013)

B/C-3B

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Washington, DC 20460

EPA - 340/1-92-013
September 1992

Stationary Source Compliance Series

EPA

A Guide to Normal Demolition Practices Under the Asbestos NESHAP

NESHAP

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EPA - 340/1-92-013

A Guide to Normal Demolition Practices Under the Asbestos NESHAP

(TRC Ref. No. 1-456-019)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planing and Standards
Stationary Source Compliance Division
Washington, DC 20460

September 1992

DISCLAIMER

This manual was prepared by TRC Environmental Corporation for the Stationary Source Compliance Division of the U.S. Environmental Protection Agency. It has been completed in accordance with EPA Contract No. 68D20059, Work Assignment No. IA2-19. This document is intended for information purposes ONLY, and may not in any way be interpreted to alter or replace the coverage or requirements of the asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M. Any mention of product names does not constitute endorsement by the U.S. Environmental Protection Agency.

TABLE OF CONTENTS

TRC

SECTION 1

DEMOLITION PRACTICES AND NONFRIABLE MATERIALS

INTRODUCTION

EPA revised the asbestos NESHAP regulations on November 20, 1990 (see 40 CFR Part 61 Subpart M). Although the NESHAP has not been revised to alter its applicability to friable and nonfriable asbestos-containing materials (ACM), nonfriable asbestos materials are now classified as either Category I or Category II material.

Category I material is defined as asbestos-containing resilient floor covering, asphalt roofing products, packings and gaskets. Asbestos-containing mastic is also considered a Category I material (EPA determination - April 9, 1991). Category II material is defined as all remaining types of non-friable ACM not included in Category I that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable asbestos-cement products such as transite are an example of Category II material.

The asbestos NESHAP specifies that Category I materials which are not in poor condition and not friable prior to demolition do not have to be removed, except where demolition will be by intentional burning. However, regulated asbestos-containing materials (RACM) and Category II materials that have a high probability of being crumbled, pulverized, or reduced to powder as part of demolition must be removed before demolition begins.

PURPOSE

EPA has identified a need to address how specific demolition practices affect Category I and II nonfriable ACM. The purpose of this manual is to provide asbestos NESHAP inspectors with such information.

This manual is intended to apply primarily to demolition and cleanup activities for buildings that contain Category I nonfriable ACM. Although references will be made to Category II nonfriable ACM, for the purposes of this document, it and all other RACM will be assumed to have been removed prior to the start of actual demolition activities. Work practices associated solely with building renovations will not be addressed.

This manual is designed to assist the asbestos NESHAP inspector in identifying practices that normally do or do not make Category I nonfriable ACM become regulated asbestos-containing material (RACM). Applicability determinations (both formal and informal) provided by the Regional NESHAP Coordinators have been incorporated into the appropriate sections of this document in an effort to promote nationwide consistency in applying the asbestos NESHAP to these demolition practices.

Activities associated with site cleanup such as segregation, reduction, and on and offsite disposal of ACM are discussed because they may take place during or after the major demolition activities at a site and consequently may influence a demolition contractor's choice of methods.

DEFINITIONS

The following definitions taken from the November 20, 1990 revision of the asbestos NESHAP regulation are provided for ease of reference.

Adequately wet means sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

Asbestos-containing waste materials means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovations operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than one percent asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Cutting means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.

Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

Facility means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

Facility component means any part of a facility including equipment.

Friable asbestos material means any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763 section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Grinding means to reduce to powder or small fragments and includes mechanical chipping or drilling.

In poor condition means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

Inactive waste disposal site means any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.

Installation means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

Nonfriable asbestos-containing material means any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Owner or operator of a demolition or renovation activity means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

Planned renovation operations means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

TRC

Remove means to take out RACM or facility components that contain or are covered with RACM from any facility.

Renovation means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

Resilient floor covering means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than one percent asbestos as determined using polarized light microscopy according to the method specified in appendix A, subpart F, 40 CFR part 763, Section 1, Polarized Light Microscopy.

Strip means to take off RACM from any part of a facility or facility components.

Visible emissions means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

Waste generator means any owner or operator of a source covered by this subpart whose act or process produces asbestos-containing waste material.

Waste shipment record means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

SECTION 2

PRE-DEMOLITION BUILDING STATUS

This section discusses several factors that can affect the approach to demolition taken by a demolition contractor. It is being included because events that have taken place prior to the start of actual demolition work can influence the methodology(ies) chosen by demolition contractors. These events can be evaluated by an inspector, allowing for prediction of "hidden" potential problem areas. Reinforcement and clarification of applicable components of the asbestos NESHAP regulations are also included in this section.

STATE AND LOCAL REGULATIONS

State and local asbestos regulations are sometimes more stringent than the asbestos NESHAP regulations. This does not imply, however, that Category I nonfriable ACM is necessarily removed from a building prior to demolition. Contractors surveyed during research conducted in the preparation of this manual indicated that they typically treated Category I nonfriable ACM as RACM only when the owner or operator of the building being demolished was a state or local government agency or when project specifications explicitly specified that one or more of the Category I nonfriable ACM materials be removed prior to the start of demolition.

UNSAFE BUILDING DECLARATIONS

Several contractors surveyed utilized state or local mechanisms to have buildings declared unsafe as a means to avoid NESHAP requirements during and after demolition activities. However, a State or local agency should not issue a demolition order unless the facility is structurally unsound and in danger of imminent collapse. These conditions should be confirmed independently, and a demolition order should not be based solely on the representation of the contractor or the contractor's agent. Although issuance of a demolition order may have an effect on notification requirements under the asbestos NESHAP (see §61.145(a)(3)), it has no effect on requirements for disposal procedures for RACM after demolition activities. Also, waste segregation/reduction activities, addressed in Section 5 of this manual, are subject to the asbestos NESHAP provisions whether or not a building has been declared unsafe.

ABATEMENT PRIOR TO DEMOLITION

Demolition contractors typically require that a building owner/operator accept responsibility for the removal of all asbestos-containing materials found during the building inspection prior to the start of demolition activities. Several contractors indicated that if suspect ACM became exposed during demolition activities, and there was no prior knowledge of its existence at the start of demolition activities, that potential asbestos NESHAP requirements would be disregarded unless a change order was immediately processed by the owner/operator

requesting the time and materials necessary to achieve compliance with the asbestos NESHAP. Such practices are in direct violation of the asbestos NESHAP.

INTENTIONAL BURNING

As stated in the November 1990 asbestos NESHAP revision (see §61.145(c)(10)):

> *"If a facility is demolished by intentional burning, all RACM, including Category I and Category II nonfriable ACM, must be removed in accordance with the NESHAP before burning."*

Abandoned buildings utilized by fire departments for practice exercises involving partial burning are subject to this requirement.

For buildings which are still structurally sound but which have previously been subjected to partial or total, intentional or unintentional burning, an inspection for the condition of all ACM should be conducted. Category I ACM should be examined for friability and condition. Friable materials or Category I materials that are friable and in poor condition must be removed prior to any further demolition activity.

SECTION 3

DEMOLITION PRACTICES BY TYPE OF ACM

INTRODUCTION

For many years now the applicability of the asbestos NESHAP to demolitions involving Category I nonfriable ACMs (packings, gaskets, resilient floor coverings and mastic, and asphaltic roofing materials) has been the topic of much debate. Since significant amounts of airborne asbestos fibers are not believed to be produced from such materials during normal demolition activities, however, the asbestos NESHAP, in most cases, does not require their removal prior to demolition.

Category I materials are considered RACM only when they "will be or have been subjected to sanding, grinding, cutting, or abrading", they are in "poor condition" and "friable", or the structure in which they are located will be demolished by burning. (Definitions for these terms and additional information concerning Category I nonfriable ACM can be found in the preamble to the November 1990 revised asbestos NESHAP (SUPPLEMENTARY INFORMATION, Section IV - Significant Comments..., *Demolition and Renovation*, Nonfriable ACM and Broken ACM).

The following information details specific pre-demolition and demolition practices and their impact on Category I nonfriable ACM. The information has been compiled from telephone surveys of demolition contractors, the viewing of activities at a number of demolition sites, and formal and informal EPA applicability determinations. The effects of various demolition practices on asbestos-cement products are also discussed. Since the applicability of the asbestos NESHAP to Category II nonfriable materials is determined on a case-by-case basis, it is hoped that this additional information will help foster nationwide consistency in the application of the regulation to these materials.

As you will see, many of the various demolition techniques described do not, by themselves, cause Category I nonfriable ACM to become RACM. However, in many cases, post-demolition waste consolidation, cleanup, and recycling efforts can cause both Category I nonfriable ACM and Category II nonfriable ACM to become RACM. If that is likely to happen, such materials must be considered RACM and be treated as such. Post-demolition activities which can affect Category I and II materials will be detailed later in this manual.

RESILIENT FLOOR COVERING (TILES)

Depending on the types of activities occurring at a demolition site, floor tiles (and mastic) may or may not become subject to the provisions of the asbestos NESHAP.

Pre-demolition Floor Tile Removal

Although not usually required by the asbestos NESHAP, removal of asbestos-containing resilient floor tiles may occur prior to demolition. Such removal may be required when the substrate to which the floor covering is attached (particle board, wood, concrete) is to be recycled or salvaged.

Since the presence of mastic is not desirable on materials intended for resale or recycling, contractors use a variety of methods to remove this material as well.

A wide variety of floor tile removal methods exists, some of which cause the floor tiles and mastic to become RACM and subject to the provisions of the asbestos NESHAP. The following describes various removal methods and the applicability of the asbestos NESHAP to them.

Water/Amended Water/Solvents

Water, amended water, or solvents may be spread onto floor tiles in order to loosen them. After a period of soaking, the tiles may be removed using long-handled scrapers (ice chippers), or gas- or electrically-powered mechanical chisels. In cases where tile breakage is minimal, the floor tiles are not considered RACM. However, where breakage is extensive, the tiles are RACM and are subject to the provisions of the asbestos NESHAP.

Dry Ice

Although rarely used for this purpose nowadays, dry ice (frozen carbon dioxide) can be used to remove floor tiles. When dry ice is applied to the tiles, the intense cold causes the tiles to contract and detach from the substrate. As long as the tiles are not extensively damaged, they are not considered RACM.

Infrared Machines

Infrared machines may be used in the removal of floor tiles. These machines heat the flooring, thereby softening the tiles and adhesive, and allow for its easy removal. Since most tiles detach intact, they are not friable, and therefore are not considered RACM.

Shot-blasters

Shot-blasters are sometimes used in the removal of floor tiles. These machines direct a barrage of small pellets (shot) against the tiles and continually vacuum up and separate the mixture of pulverized tile and pellets. The pellets are reused immediately and the pulverized materials are segregated for disposal. EPA allows the use of shot-blasters only on wetted floor tiles. Floor tiles and mastic removed by shot-blasters are considered RACM and are therefore subject to the asbestos NESHAP.

Demolition with Floor Tiles in Place

Since ordinary demolition activities do not include the sanding, grinding, cutting and abrading of floor tiles, floor tiles and associated mastic that are not in poor condition and not friable are not considered RACM and are allowed to remain in place during demolition.

ASPHALT ROOFING PRODUCTS

The pre-demolition terms and conditions (governmental regulations, contract specifications) discussed in Section 2 also influence the handling of asbestos-containing roofing materials.

Pre-demolition Roof Removal

If preliminary assessment has determined that roofing materials contain asbestos, and regulations or contract specifications dictate removal of such material prior to demolition, licensed abatement contractors may be required to do the removal. Alternatively, the demolition contractor may undertake the operation.

Roofs may be removed in a variety of ways. Demolition personnel may use sledge hammers, pry bars, axes, adzes, shovels, ice chippers and roof-cutting saws to remove the roofing materials. They also may use tractor-mounted rotating blade cutters, power plows and power slicers. Use of roof-cutting saws, either hand- or power-driven, or tractor-mounted, are of great concern, since they can generate asbestos-containing dust from roofing materials. The sawing of Category I nonfriable ACM roofing material and the debris created by the sawing are regulated by the asbestos NESHAP. Since power plows and power slicers do not sand, grind, cut or abrade the roofing materials, their use and resultant debris are not subject to the asbestos NESHAP regulation. Category I nonfriable ACM roofing squares that have been decontaminated may be disposed of with other demolition debris or at an asbestos landfill.

Demolition with Roofing Materials in Place

Since demolition activities do not include sanding, grinding, cutting, or abrading, Category I asbestos-containing roofing materials not in poor condition and not friable are not considered RACM and are allowed to remain in place during demolition.

ASBESTOS-CEMENT PRODUCTS

Asbestos-cement products (such as transite) are commonly used for duct insulation, pipes, and siding. Being a Category II nonfriable ACM, asbestos-cement products need to be removed prior to demolition if they have a high probability of becoming crumbled, pulverized, or reduced to powder during demolition activities. EPA believes that most demolition activities will subject such Category II nonfriable ACM to the regulation.

Whether asbestos-cement products are subject to the asbestos NESHAP should be determined by the owner or operator on a case-by-case basis based on the demolition techniques to be used.

In general, if contractors carefully remove asbestos-cement materials using tools that do not cause significant damage, the materials are not considered RACM and can be disposed of with other construction debris.

However, if demolition is accomplished through the use of cranes (equipped with wrecking balls, clamshells or buckets), hydraulic excavators, or implosion/explosion techniques, asbestos-cement products will be crumbled, pulverized or reduced to powder, and are subject to the provisions of the asbestos NESHAP.

Some demolition contractors do not treat significantly damaged asbestos-cement products as RACM; they mix it with other demolition debris and dispose of it in direct violation of the waste-disposal provisions of the asbestos NESHAP.

SECTION 4

DEMOLITION PRACTICES BY METHOD

Methods of destruction employed at demolition sites include the use of heavy machines, explosions/implosions, and hand methods. All of these methods cause Category II nonfriable ACM to become RACM; however, Category I nonfriable ACM (packings, gaskets, resilient floor coverings, asphaltic roofing materials, mastic) that is not in poor condition and not friable prior to the demolition operation may be subjected to most of these techniques without becoming RACM. The following describes various demolition techniques and their effects on nonfriable materials. All Category I nonfriable ACM referenced is presumed not to be in poor condition and not friable prior to the demolition operation.

HEAVY MACHINERY RAZING OPERATIONS

For the purposes of this document heavy machinery (or equipment) includes large motorized vehicles such as bulldozers with rakes, top loaders, backhoes, skid loaders/bobcats, hydraulic excavators, and other similar machinery used for transporting, moving, or dislodging of materials at a demolition site. Cranes equipped with wrecking balls, clamshells, or buckets are also considered heavy machinery.

Heavy machinery is used at demolition sites for both razing operations and post-demolition activities. "Razing", the process which reduces a building's structural skeleton to rubble, typically occurs after the building's interior has been gutted by hand.

Use of heavy machinery during the razing process causes Category II nonfriable ACM, but not Category I nonfriable ACM to become RACM. Use of such equipment during subsequent operations, such as waste consolidation, however, is a major concern which will be addressed in Section 5 of this document.

Bulldozers and Similar Machinery

Included in this grouping of heavy machinery are all types of bulldozers, backhoes, top loaders and skid loaders/bobcats commonly used in conjunction with hand methods to raze buildings. Bulldozers move on tracks whereas backhoes, top loaders, and skid loaders operate on rubber tires.

Only if a great deal of working space exists at a site, and a precisely-controlled demolition is not necessary, can bulldozers such as 977 loaders and D-9s be used to demolish a building. These bulldozers are typically equipped with giant rakes designed to ram building walls and move debris.

977's or D-9s may be used to undermine a building, but hydraulic excavators (discussed later in this section) are usually used for this purpose.

Backhoes and top loaders are mainly used for moving debris and tearing off sections of walls and other building components.

Skid loaders, machines commonly used to load skids or pallets onto trucks, may be specially equipped with a type of ram for use during demolitions and are usually of the "bobcat" type.

The razing of a building using the heavy machinery described above causes Category II nonfriable ACM, but not Category I nonfriable ACM to become RACM.

Hydraulic Excavators

Hydraulic excavators, such as EL-300s, 225s or 215s, resemble a combination bulldozer/backhoe and operate on tracks. They are easier to use and provide greater control during demolition than the bulldozers described above. However, since they too raze buildings by ramming and tearing, like bulldozers, their use in congested areas is limited. Nearby buildings must be protected from the falling debris; plywood may be applied over the windows and rubber tires may be used to cushion and prevent damage to walls of adjacent structures.

On rare occasions, hydraulic excavators may be used to topple one- or two-story buildings by means of an undermining process. The strategy is to undermine the building while controlling the manner and direction in which it falls. The demolition project manager (who in many jurisdictions must be licensed by the city or state) must determine where undermining is necessary so that a building falls in the desired manner and direction. The walls are typically undermined at a building's base, but this is not always the case as building designs may dictate otherwise. Safety and cleanup considerations are also taken into account in determining the methods to be used.

Since the toppling of a building constitutes a safety hazard and generates enormous quantities of dust, many cities and towns will not approve of this method of demolition. Where the practice is allowed, the contractor may be required to keep the structure wet during demolition. Hydrant permits may be required and, because of the wetting restrictions, such demolitions may be impossible to accomplish during the winter.

Hydraulic excavators are also used to conduct cleanup activities such as excavation, fill burial, material reduction, and material load-out.

The use of hydraulic excavators during the razing process causes Category II nonfriable ACM, but not Category I nonfriable ACM to become RACM.

Cranes (Wrecking Ball, Clamshell, Bucket)

Although often employed in the past, particularly during demolitions of high-rise structures, cranes are now rarely used. They are expensive to operate and usually not necessary, since renovation has displaced demolition as the method of choice in dealing with many out-of-date

structures. Cranes are currently used only in situations where other equipment cannot be employed.

Cranes may be equipped with wrecking balls, clamshells or buckets, which are used in a variety of ways. All three may be dropped or swung against the structure to demolish it. When employed in this manner, clamshells provide the greatest force of the three and result in the fastest, most efficient demolition projects.

Buckets and clamshells allow a greater degree of control than wrecking balls. Buckets may be raised to the level where internal demolition of the building is taking place and be used merely to transport and segregate hand-loaded demolition materials collected from within. Clamshells can take big bites out of the structure and facilitate the segregation of demolition debris.

When demolition is accomplished by crane, the process can begin at the roof and progress continually downward, or alternate up and down. Materials are segregated to the greatest degree possible as the demolition progresses so that the need for post-demolition handling is minimized. In the case of high-rise structures, the interiors are usually gutted by hand prior to razing.

Effect on Category I Materials

The use of cranes during the razing process does not cause Category I nonfriable ACM to become RACM; therefore, Category I materials which are not in poor condition and not friable may remain in the building during such demolition.

Effect on Category II Materials

The use of wrecking balls on asbestos-cement (A/C) siding (a Category II nonfriable ACM) on buildings is specifically addressed in the November 1990 asbestos NESHAP revision (see SUPPLEMENTARY INFORMATION, Section IV - Significant Comments..., *Demolition and Renovation*, Nonfriable ACM):

> *"...the A/C siding on a building that is to be demolished using a wrecking ball is very likely to be crumbled, or pulverized with increased potential for the release of significant levels of asbestos fibers. Such material in this instance should be removed prior to demolition."*

Therefore, A/C siding, although a nonfriable material, is considered RACM when a wrecking ball is being used to demolish the structure. Whenever buckets and clamshells are to be swung like wrecking balls, A/C materials should also be considered RACM.

EXPLOSIONS/IMPLOSIONS

Building implosions utilizing explosive devices constitute a rarely-used demolition technique. In simplest form, this method is accomplished through the use of explosive charges placed

strategically throughout a building so that the building collapses in on itself and debris does not radiate outward to any appreciable distance. Relatively large quantities of dust are created, however, and the direction and magnitude of transport are matters of concern.

Effect on Category I Materials

The asbestos NESHAP does not require the removal of Category I nonfriable ACM that is not in poor condition and not friable prior to building implosions. Normal implosion techniques do not cause nonfriable materials to become RACM. The destruction of buildings during military target practice is considered to be another form of explosive demolition. Category I materials may remain in place during target practice. However, if it can be expected that the building and ACM will burn as a result of explosive demolition, the ACM must be removed prior to demolition.

Recent examination of asbestos-containing floor tiles and roofing materials contained in a large building demolished by implosion revealed that the floor tile was in fair to good condition and had not become friable. Tiles had been broken up into small quantities of large pieces as the individual floors collapsed upon each other. The roofing materials were similarly affected; they too remained nonfriable following demolition by implosion.

EPA does not consider Category I material to be RACM as a result of building implosions. If, however, Category I materials are to be subjected to sanding, grinding, cutting, or abrading after demolition, they must be treated as RACM and be removed from the building before demolition.

Effect on Category II Materials

Category II materials, such as transite, found in or on buildings scheduled for implosion/explosion destruction must be removed before such demolition. Such materials are considered RACM because they have "a high probability of becoming crumbled, pulverized or reduced to powder" during such activities.

HAND METHODS OF DEMOLITION

This section of the manual addresses hand methods employed during demolition and includes segregation activities which take place during demolition (as opposed to cleanup) and their effects on Category I materials. "Hand methods", for the purposes of this manual, refer to the use of motorized and non-motorized tools that can be operated by hand and are not used for transportation. The methods discussed include not only those used in the gutting of building interiors prior to razing, but also those used during razing itself. Unless otherwise noted, "hand methods" refers to those methods that do not significantly damage the ACM and therefore do not cause Category I nonfriable ACM to become RACM.

Most buildings of ten floors or less are currently razed at least partially, if not fully, by hand. Hand methods allow much greater control over a building's collapse than other methods and permit easier segregation of demolition materials for resale or recycling than other demolition methods. In addition, hand methods may be required because of workspace limitations.

Depending on the size of the job and demolition schedule, the size of a demolition crew may vary from as few as five individuals to 30 or more. As a general rule, workers use relatively inexpensive tools such as pry bars, hand-held saws, power saws, sledge hammers, axes, bolt cutters, and acetylene torches during gutting and razing operations.

As the gutting/salvage activities progress, demolition debris is typically deposited into a trailer or dumpster strategically placed outside a window of the building being demolished. The window frame is removed and materials are loaded into the storage containers by hand, or, where possible, by bobcats operating within the building. Many jobs require the use of dust-tight chutes for the transport of such debris.

On the rare occasion where onsite burial of demolition debris is allowed, the first activity to take place in the building is the removal of the first story's flooring. This is done so that as waste materials accumulate on upper floors, they can be sent down into the basement through the center of the building, typically through elevator shafts, for disposal. Chutes may be used if elevator shafts are not available. Such onsite disposal typically is allowed only for noncombustible materials such as cement and brick. Waste consolidation activities which occur in the basement area are of great concern to EPA and are discussed in Section 5 of this manual.

Excess demolition wastes are loaded out for transport to a landfill that accepts construction debris. If no basement area exists, or if materials cannot be sent into dumpsters or trailers immediately as previously described, debris may be stored in piles scattered around the site. These materials may subsequently be moved by hand or through the use of light or heavy machinery. Section 5 of this manual details such operations.

Floor Removal and Disposition

The techniques used in removing flooring depend upon its ultimate fate. Where it is in poor condition and incapable of being reused or recycled, the flooring is typically ripped out using pry bars and sledge hammers and sent offsite for disposal. Sometimes wood flooring and other debris is burned to reduce the volume of waste. In this case, the asbestos must be removed prior to burning the wood debris. Since demolition debris disposal costs are so high ($100 - $500 per 60-100 cubic yard load) as much salvage/recycling of materials is done as possible.

Wood or particle board flooring is sometimes segregated and sold to recycling centers where it is chipped up and sold as filler or mulch (composting, gardening, etc.). If resilient asbestos-containing floor covering is attached to such flooring it is considered RACM and must be removed prior to recycling. Tiles are often chipped or scraped off the substrate using the methods described in Section 3.

Large planks and joists, and beams (both wooden and steel) may also be saved if they are in good condition. Wooden planks are usually lifted with pry bars, whereas the larger joists and beams are segregated for reuse following the razing of the structure.

Where demolition debris will be recycled, any asbestos remaining on the debris must be removed prior to any recycling that will sand, grind, cut, or abrade the asbestos or otherwise cause it to become RACM.

Roof Removal and Disposition

On occasion one may find that the roof of a building being demolished is removed before the building is razed. Such removal may be required when buildings are very close to one another, or when the roofing contains asbestos-containing materials.

There are two major types of roofing: "built-up roofing" and "sheet goods". Built-up roofing contains multiple layers of felt and asphalt. Sheet goods typically consist of a single layer of material.

Roofs are often taken out by hand, typically by using pry bars, sledge hammers, axes, adzes, bolt cutters, ice chippers, shovels and roof-cutting saws. If the roof contains asbestos materials (felt, cork, etc.), an asbestos removal contractor may be employed to remove it. Some abatement contractors wet the roof with plain or amended water and then use shrouded power saws whose exhaust is HEPA-filtered to cut the roofing into manageable (often 2' x 3') pieces. After the pieces are lifted, the edges may be encapsulated. Other abatement contractors may build a full containment and establish a reduced pressure environment prior to removing the roofing materials.

Depending upon the contractors involved and the condition of the asbestos-containing roof debris, the debris may or may not be segregated from other demolition debris. Abatement contractors may store roof debris in lined dumpsters onsite and dispose of it at an asbestos landfill; if the asbestos-containing roofing material is not in poor condition and is not friable however, it may be disposed of in a landfill which accepts ordinary demolition waste.

Asbestos-containing roofing material may not be ground up for recycling into other products.

Work Progression

Demolition crews typically work downward, floor by floor. Materials such as doors, windows, electrical and other fixtures which can be salvaged are removed first. Interior partitions are then ripped, cut, or knocked out using various hand-held tools including sledge hammers, axes, adzes and pry bars. Brick is generally segregated immediately after being knocked out of walls so it can be examined at the site by potential buyers. Ceilings are also ripped out using pry bars, axes and sledge hammers. Steel and other metal materials are typically placed in separate debris piles from other materials. Work proceeds in a similar floor/wall, floor/wall pattern until the first floor is once again reached.

Sawing/Cutting Operations

In order to raze a building by hand, load-bearing members must be cut. Based upon the composition, thickness, and condition of the structural member being cut, saws selected range

from hand saws to Sawz-alls™ and gas-driven carbide blade hand saws. Large bolt cutters are also used to cut steel members. Category I materials subjected to sawing or cutting are subject to the provisions of the asbestos NESHAP; however, typical demolition sawing/cutting operations rarely involve such materials.

Grinding Operations

Grinding operations are not common occurrences at most demolition sites. On occasion, however, asbestos-containing mastic and remaining pieces of floor tile may be ground off concrete destined for recycling. Category I material so treated is RACM and is subject to the provisions of the asbestos NESHAP.

Pulverizing Operations

On occasion, asbestos-containing floor tiles are removed from their substrate by hand, using either hand-held ice choppers or electrically- or gas-powered mechanical chippers. If use of such methods pulverizes, crumbles or reduces the floor tiles to powder, the tiles must be considered RACM and must be handled in accordance with the requirements of the asbestos NESHAP.

Summary

On rare occasions Category I nonfriable ACM may be subjected to hand methods involving the uncontrolled drilling, cutting, sawing, grinding or abrading of such materials; under these circumstances Category I materials are considered RACM.

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SECTION 5

ONSITE WASTE HANDLING PROCEDURES

INTRODUCTION

At the present time it is not demolition operations and ordinary cleanup activities but the post-demolition activities involving waste consolidation and recycling of Category I and II materials which are of greater concern. If such activities subject either Category I or II nonfriable ACM to sanding, grinding, cutting or abrading, the materials become RACM and are then subject to the provisions of the asbestos NESHAP.

In general, since cleanup activities such as loading waste debris onto trucks for disposal do not subject nonfriable materials to sanding, grinding, cutting or abrading, such materials are not considered asbestos-containing waste materials and are not regulated by the asbestos NESHAP.

However, waste consolidation efforts which involve the use of jack hammers or other mechanical devices such as grinders to break up asbestos-containing concrete or other materials covered or coated with Category I nonfriable ACM, are subject to the regulation.

In addition, operations such as waste recycling which sand, grind, cut, or abrade Category I or II nonfriable ACM are subject to the asbestos NESHAP. When these types of activities are performed, Category I and II nonfriable ACM become RACM.

The following details the post-demolition activities of waste consolidation (segregation and reduction), waste load-out and onsite waste disposal and their effects on nonfriable ACM.

WASTE CONSOLIDATION

Waste consolidation operations involve segregation and reduction activities that have as their ultimate goal the resale, recycling, and disposal of demolition debris.

Segregation of Demolition Debris

Demolition contractors segregate demolition debris primarily to maximize their profits. As much material as possible is collected for resale and recycling (e.g., wood, brick, steel and concrete); the remaining debris is most often transported offsite for disposal.

Segregation may involve cutting and grinding operations, the breaking and tearing apart of materials to separate them by material type, and the transport of materials within the demolition site boundaries.

TRC

Since segregation activities may be accomplished using hand methods and heavy equipment, nonfriable ACM may or may not become friable in the process. The following text details various segregation activities and describes their effects on nonfriable materials.

Segregation by Hand

Materials such as wood, brick and steel are generally separated from other demolition debris using equipment such as sledgehammers, prybars, adzes and axes. If any hand equipment is used to cut, sand, grind, or abrade Category I or II materials, RACM is thus created and the provisions of the asbestos NESHAP apply.

Material Transport

Since heavy equipment is often used to move and segregate demolition debris, questions have been raised concerning the effect of such transport particularly on Category I nonfriable ACM.

If Category I nonfriable ACM is transported across a demolition site in the bucket of a top loader, backhoe, hydraulic excavator or other similar vehicle, it is not considered RACM since it is not subjected to sanding, grinding, cutting or abrading during this activity.

Use of bulldozers, on the other hand, is expected to have a greater impact on Category I materials. However, EPA has stated that "...if the bulldozer is moving the debris or picking it up to be put in a vehicle and inadvertently runs over Category I material, then it is not subject to the NESHAP standard" (see Appendix I). Consequently, the moving of debris by bulldozers, whether by carrying it in a bucket or pushing it along the ground does not in itself cause Category I nonfriable ACM to become RACM.

Category II nonfriable ACM subjected to sanding, grinding, cutting or abrading during collection and transport is considered RACM and thus subject to the asbestos NESHAP.

Vehicular Traffic Impact

Rubber-tired Vehicles

If nonfriable ACM is intentionally run over by rubber-tired vehicles as a means of segregation, it does not automatically become RACM but must be examined for damage. If it has become extensively damaged, i.e., it was sanded, ground, cut or abraded during segregation, it becomes RACM and is subject to the NESHAP regulation.

Tracked Vehicles

Although tractor treads present greater risks of causing extensive damage to nonfriable ACM, limiting their use at demolition sites is not considered practical. Intentionally running over nonfriable ACM with tractor treads as a means of segregation is considered grinding; material thus treated becomes RACM.

Intentional segregation in this manner is addressed in the preamble to the revised asbestos NESHAP (SUPPLEMENTARY INFORMATION, Section IV, Significant Comments and Changes to the Proposed Revisions, Demolition and Renovation, Nonfriable ACM):

> *"Examples of practices...included the breaking of nonfriable insulation from steel beams by repeatedly running over the beams with a crawler tractor...these and other similar practices involving nonfriable asbestos material were considered to render nonfriable ACM into dust capable of becoming airborne."*

Reduction of Demolition Debris

Reduction activities are of the greatest concern to EPA, since they are most likely to cause both Category I and Category II nonfriable ACM to become RACM.

Category I Reduction

The use of bulldozers to reduce the volume of Category I materials causes them to become RACM as discussed elsewhere in this manual and in the following EPA correspondence:

> *"If, after a demolition, material left in the facility... is intentionally ground up (such as repeatedly running over the debris with a bulldozer to compact the material), then 61.150(a)(3) applies. The material must be adequately wetted and kept adequately wet during collection and transport to a site or facility operated in accordance with 61.154 or 61.155."* (See Appendix I).

Reduction by the use of sledgehammers does not normally cause Category I nonfriable ACM to become RACM. The use of pneumatic hammers, however, whether hand-operated or attached to heavy machinery, does cause these materials to become RACM. The use of cranes with clamshells or other heavy machinery with rakes or buckets to partially reduce Category I nonfriable ACM is permissible if the material is left recognizable in its original form. Extensively damaged Category I ACM (that which has been sanded, ground, cut, or abraded) becomes RACM. Consolidating waste materials containing Category I nonfriable ACM in the hole (basement) of a building and subsequently grinding or crushing it via bulldozer subjects the operation to the asbestos NESHAP.

For wood/tile debris, demolition crews sometimes use tree chippers to grind the material up. Any Category I nonfriable ACM subjected to this treatment becomes RACM.

Category II Reduction

Reduction of Category II materials such as asbestos-cement pipe and concrete following demolition is also a matter of concern.

TRC

Asbestos-Cement Pipe

EPA considers asbestos-cement pipe to be a "facility component" (as defined in 40 CFR §61.141) of the facility which owns or utilizes the pipe. In addition, EPA considers asbestos-cement pipe to be Category II nonfriable asbestos containing material. This material becomes "regulated asbestos containing material" (RACM), as defined in 40 CFR §61.141, when it becomes "friable asbestos material" or when it "has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material during the course of demolition or renovation operations regulated by [40 CFR Part 61 Subpart M]." Consequently, the crushing of asbestos-cement pipe with mechanical equipment will cause this material to become RACM. The demolition and renovation provisions in 40 CFR §61.145 and the waste disposal provisions in 40 CFR §61.150 apply to asbestos-cement pipe where the pipe is considered RACM, and the amount of pipe being removed and crushed is at least 260 linear feet for a single renovation project or during a calendar year for individual nonscheduled operations.

Concrete

At certain demolition sites demolition contractors may rent and operate large concrete-pulverizing machines called PC-400s. Since the asbestos content of concrete is rarely known, use of such machines is a matter of concern to EPA. Under no circumstances should asbestos-containing concrete, or concrete to which asbestos-containing resilient flooring is attached, be subjected to such treatment.

Onsite Waste Disposal

As mentioned in other sections of this manual, using heavy machinery to crush demolition debris containing Category I or II nonfriable ACM in place prior to or during burial, can cause the ACM to become RACM subject to the provisions of sections §61.150 (waste disposal) and §61.151 (inactive waste disposal sites) or §61.154 (active waste disposal sites). If Category I or II materials are not rendered friable, they are not subject to the asbestos NESHAP.

EPA has recently responded to a question regarding the onsite disposal of crushed asbestos-cement pipe, a Category II material. The response is applicable as well to the burying of Category I material which has been sanded, ground, cut or abraded. In its correspondence EPA stated that the practice of backfilling and burying crushed asbestos-cement pipe in place causes these locations to become active waste disposal sites subject to the requirements of §61.154. Furthermore, if no additional asbestos-containing waste material is buried at that location for a year, the site becomes an inactive waste disposal site subject to the requirements of §61.151(e) and §61.154(h).

Consequently, the owner of the land would be required to comply with the requirements for active and inactive waste disposal sites.

In order to avoid the creation of a waste disposal site which is subject to the Asbestos NESHAP, it was suggested that the owners or operators of the pipe consider other options for dealing with it. If the pipe is left in-place or removed in such a way that it is not crumbled, pulverized or reduced to power, it would not be subject to the NESHAP. If the pipe must be crushed, the creation of an active waste disposal site can be avoided by removing the pipe from the site and transporting it to a landfill which accepts asbestos waste material.

An alternative method suggested involved the pumping of grout into the buried lines which are no longer in service.

Waste Load Out

As mentioned previously, waste load out activities generally do not cause Category I nonfriable ACM to become RACM. Top loaders are typically used to deposit demolition debris containing Category I nonfriable ACM into trucks for hauling to landfills that accept construction debris.

Recent EPA correspondence discusses the hauling and ultimate disposal of both Category I and Category II ACM as follows:

> *It is required under §61.150(a)(3) that asbestos-containing waste material be kept adequately wet. Asbestos-containing waste material as applied to demolitions and renovations includes RACM waste and materials contaminated with asbestos including disposable equipment and clothing. Category I or Category II nonfriable ACM that has been contaminated by RACM, and cannot be decontaminated (e.g., building debris in a pile contaminated with RACM) must be treated as asbestos-containing waste material. Category I or Category II ACM that does not meet the definition of RACM after a demolition or renovation, and is not contaminated with RACM, is not asbestos-containing waste material and is not subject to the wetting requirement of §61.150(a)(3).*
>
> *Category I or II nonfriable ACM that is not subject to §61.150(a)(3) would still have to be disposed of in a landfill that accepts building debris, in a landfill that operates in accordance with §61.154, or at a facility that operates in accordance with §61.155. This waste material would not be allowed to go to any facility that would sand, grind, cut or abrade the non-RACM waste or otherwise turn it into RACM waste (such as a cement recycling facility). In addition, if Category I or II nonfriable ACM is sanded, ground, cut or abraded during disposal at a landfill, before it is buried, it is subject to the NESHAP.* (See Appendix I).

TRC

SECTION 6

OFFSITE WASTE HANDLING PROCEDURES

The issues discussed in this section include landfills, recycling centers, conversion facilities, and renovation activities. Since EPA has taken a "cradle to grave" approach regarding the disposition of ACM, responsibility for the ultimate fate of Category I ACM rests with all individuals involved in handling the material.

Landfills

Category I and II ACM that has become RACM must be disposed of in a landfill that operates in accordance with §§61.150 and 61.154, or in an EPA-approved conversion facility described in §61.155 of the asbestos NESHAP.

Category I and II nonfriable ACM which has not become RACM during demolition may be disposed of in a landfill that normally accepts construction debris. However, if Category I or II nonfriable ACM is sanded, ground, cut or abraded before it is buried at the landfill, it is subject to the asbestos NESHAP.

Recycling Centers

At the present time, EPA does not allow either Category I or II nonfriable demolition debris to go to any facility (e.g., a cement recycling facility) that will sand, grind, cut or abrade it or otherwise turn it into RACM waste. Recycling facilities which cause non-RACM waste to become RACM waste are subject to the provisions of the asbestos NESHAP (See Appendix I).

Conversion Facilities

Conversion facilities are addressed in Section 61.155 of the November 1990 revised asbestos NESHAP. Owners/operators of such facilities must handle ACWM according to the provisions of the asbestos NESHAP.

APPENDIX I

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

MAR 18 1992

OFFICE OF
AIR AND RADIATION

Ms. Ann Bieller, Area Manager
Environmental Management
Southwestern Bell Telephone
Procurement Organization
500 North Broadway, Room 1400
St. Louis, Missouri 63102

Dear Ms. Bieller:

This letter is in response to your January 28, 1992 letter requesting a clarification of 40 CFR §61.150(a)(3) as it relates to §61.145(c)(1)(i) and (iv), of the Asbestos NESHAP Revision; Final Rule, dated November 20, 1990.

In your letter, you present your understanding that there are no special requirements for adequately wetting Category I or Category II nonfriable asbestos-containing material (ACM) during the course of a demolition or renovation if it does not meet the definition of regulated asbestos-containing material (RACM). You also state that this conclusion is further supported by §61.150(a)(5), until §61.150(a)(3) is taken into consideration. Section 61.150(a)(3) requires, "for facilities demolished where RACM is not removed prior to demolition according to §§61.145(c)(1)(i),(ii),(iii) and (iv) or for facilities demolished according to §61.145(c)(9), adequately wet asbestos-containing waste material at all times after demolition and keep wet during handling and loading for transport to a disposal site." You question the correctness of the §61.150(a)(3) reference to §61.145(c)(1)(i) and (iv).

Section 61.150(a)(3) correctly cites §61.145(c)(1)(i),(ii),(iii) and (iv). It is required under §61.150(a)(3) that asbestos-containing waste material be kept adequately wet. Asbestos-containing waste material as applied to demolitions and renovations includes RACM waste and materials contaminated with asbestos including disposable equipment and clothing. Category I or Category II nonfriable ACM that has been contaminated by RACM, and cannot be decontaminated (e.g., building debris in a pile contaminated with RACM) must be treated as asbestos-containing waste material. Category I or Category II ACM that does not meet the definition of RACM after a demolition or renovation, and is not contaminated with RACM, is not asbestos-containing waste material and is not subject to the wetting requirement of §61.150(a)(3).

If, after a demolition, material left in the facility according to §61.145(c)(1)(i) or (iv) is intentionally ground-up (such as by repeatedly running over the debris with a bulldozer to compact the material), then §61.150(a)(3) applies. The material must be adequately wetted and kept adequately wet during collection and transport to a site or facility operated in accordance with §61.154 or §61.155. However, if the bulldozer is moving the debris or picking it up to be put in a vehicle and inadvertently runs over Category I material, then it is not subject to the NESHAP standard.

Category I or II nonfriable ACM that is not subject to §61.150(a)(3) would still have to be disposed of in a landfill that accepts building debris, in a landfill that operates in accordance with §61.154, or at a facility that operates in accordance with §61.155. This waste material would not be allowed to go to any facility that would sand, grind, cut or abrade the non-RACM waste or otherwise turn it into RACM waste (such as a cement recycling facility). In addition, if Category I or II nonfriable ACM is sanded, ground, cut or abraded during disposal at a landfill, before it is buried, it is subject to the NESHAP.

This response has been coordinated with EPA's Office of Enforcement and with the Emission Standards Division of the Office of Air Quality Planning and Standards. If you have any questions, please contact Tom Ripp of my staff at (703)308-8727.

Sincerely,

Richard Biondi

Richard Biondi, Acting Director
Stationary Source Compliance Division
Office of Air Quality Planning and Standards

cc: Sims Roy, ESD (MD-13)
Omayra Salgado, SSCD (EN-341W)
Scott Throwe, SSCD (EN-341W)
Charlie Garlow, OE (LE-134A)
Regional Asbestos NESHAP Coordinators

APPENDIX F
CERTIFICATIONS

FEHR GRAHAM ENGINEERING AND ENVIRONMENTAL

909 N 8TH ST STE 101, SHEBOYGAN, WI 53081-4056 | (920) 453-0700

is a

Certified Asbestos Company
DHS ID 27140

under Wisconsin Admin. Code ch. DHS 159.

Issued Date: September 6, 2023
Expiration Date: September 17, 2025

Miriam Hasan
Supervisor, Lead & Asbestos Certification Unit

Wisconsin Department of Health Services
1 W Wilson Street
Madison, WI 53701
608-261-6876 | dhsasbestoslead@dhs.wisconsin.gov

FEHR GRAHAM ENGINEERING AND ENVIRONMENTAL

909 N 8TH ST STE 101, SHEBOYGAN, WI 53081-4056 | (920) 453-0700

is a

Certified Lead Company
DHS ID 27140

under Wisconsin Admin. Code ch. DHS 163.

Issued Date: September 6, 2023
Expiration Date: October 1, 2025

Miriam Hasan
Supervisor, Lead & Asbestos Certification Unit

Wisconsin Department of Health Services
1 W Wilson Street
Madison, WI 53701
608-261-6876 | dhsasbestoslead@dhs.wisconsin.gov

LEAD(PB) INSPECTOR

Issued By

STATE OF WISCONSIN

Dept. of Health Services

Coleton Wayne Lewis
305 Timberlake Rd
Sheboygan WI 53081-8725

		250 lbs	6' 06"
LII-276164	Exp: 06/23/2025	09/22/1991	

Training due by: 06/23/2025

ASBESTOS INSPECTOR

Issued By

STATE OF WISCONSIN

Dept. of Health Services

Coleton Wayne Lewis
305 Timberlake Rd
Sheboygan WI 53081-8725

		250 lbs	6' 06"
AII-276164	Exp: 04/18/2024	09/22/1991	

Training due by: 04/18/2024

Milwaukee Lead/Asbestos Information Center

A division of Midwest Certified Training, Inc.
3495 North 124th Street, Brookfield, WI 53005 Phone: 414-481-9070

Coleton Lewis

Has successfully completed a course and passed the examination on March 20, 2024 *with a minimum score of 70 percent, that meets all criteria for the State of Wisconsin Recertification as an*

Asbestos Inspector Refresher Course

Date of Course: *March 20, 2024*

Date Issued *March 20, 2024*

Date of Expiration: *March 20, 2025*

Certification Number: *AIR24032070169*

Location: *MidWest Certified Training, 741 Lois Drive, Sun Prairie, WI 53590*

DCQ Course ID #: 9606

Rocky Everly

Rocky Everly, , Director of Milwaukee Lead/Asbestos Information Center, Inc.
3495 North 124th Street
Brookfield, WI 53005
414-481-9070

This training course complies with the requirements of TSCA Title II and is accredited by the State of Wisconsin Department of Health Services under ch. DHS 159, WIs. Admin.Code.

Milwaukee Lead/Asbestos Information Center

A Division of Midwest Certified Training, Inc.
3495 North 124th Street, Brookfield, WI 53005 Phone: 414-481-9070

Coleton Wayne Lewis

has successfully passed the required course test and completed all other requirements for the 16-hour

Lead Inspection Initial Course

on *May 2-3, 2023* ***in*** *Milwaukee Lead/Asbestos Information Center, 3495 North* .

Course Test Date: *May 3, 2023*

Date Course Certificate Issued: *May 3, 2023*

Course Certificate #: *LII23050267608*

DCQ Course ID #: 8822

Rocky Everly

Rocky Everly, Training Manager MLAIC

This training course complies with the requirements of and is accredited by the State of Wisconsin, Department of Health and Family Services under ch. HFS 163, WIs. Admin. Code.

FEHR GRAHAM

ENGINEERING & ENVIRONMENTAL

fehrgraham.com

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April 22, 2024

Dyann Benson
Community Development Director
City of Fond du Lac Redevelopment Authority
160 South Macy Street
Fond du Lac, WI 54935

RE: Hazardous Materials Inventory and Pre-Renovation Asbestos and Lead Inspection Report
1 S. Main Street
Fond du Lac, WI 53935
FG Project No. 24-624

Dear Dyann:

Fehr Graham is pleased to provide the City of Fond du Lac Redevelopment Authority with the results of a hazardous materials inventory and Pre-Renovation Asbestos and Lead Inspection for the buildings located at 1 S. Main Street, Fond du Lac, Wisconsin 53935 (herein referred to as the Subject Property).

HAZARDOUS MATERIALS SURVEY

Cole Lewis and Dillon Plamann of Fehr Graham were on site March 18, 2024, to evaluate the Subject Property buildings for hazardous materials. The survey was conducted within all accessible rooms in the Subject Property buildings.

The following potentially hazardous materials were identified with the Subject Property buildings, including:

- Two (2) fire extinguishers
- Six (6) electric panels
- Four (4) breakers
- One (1) hydraulic door closers
- One (1) electrical transformer
- Three (3) Refrigerator Units
- Four (4) water heaters
- One (1) air conditioner
- One (1) air compressor
- One (1) antifreeze container
- Five (5) mechanical equipment

The material locations and quantities are listed in the attached Hazardous Materials Inventory Table.

PRE-RENOVATION ASBESTOS AND LEAD PAINT INSPECTION

Fehr Graham completed the pre-renovation asbestos and lead inspection on March 18, 2024. The findings are summarized in the attached report, with material handling recommendations during the renovation activities. Detailed room-by-room results are included in the report.

Fehr Graham appreciates the opportunity to provide you with environmental services. If you have any questions regarding the results of this survey or the project in general, please contact Cole Lewis or Dillon Plamann at 920-453-0700.

Sincerely,

Cole Lewis
Asbestos Inspector
Lead Inspector

Dillon Plamann, PG
Asbestos Inspector
Lead Inspector

Attachments:
Hazardous Materials Inventory Table
Pre-Renovation Asbestos and Lead Inspection Report

Hazardous Materials Inventory Table

24-624 - City of Fond du Lac Redevelopment Authority - 1 S. Main St.

Location	2' fluorescent light	4' Fluorescent Light	6' Fluorescent light	8' Fluorescent light	Small Spiral Fluorescent Light	Exit Sign	Fire Alarm	Fire extinguisher	Electric panel	Thermostat	Breakers	Hydraulic Door Closer	Eectrical Transformers	Safe Door	Refridgerator units	Water Heater	Air Conditioner	Air Compressor	Antifreeze Containers	Mechanical Equipment
2nd Floor																1				
1st Floor								1	4			1			3		1		1	
Basement								1			4					3		1		5
Exterior									2				1							
TOTAL	0	0	0	0	0	0	0	2	6	0	4	1	1	0	3	4	1	1	1	5

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

Pre-Demolition Asbestos and Lead Inspection Report

5 S. Main Street
Fond du Lac, Wisconsin 53935

Project 24-625

April 23, 2024

909 N. 8th Street, Suite 101
Sheboygan, Wisconsin 53081

Ms. Dyann Benson
City of Fond du Lac Redevelopment Authority
160 South Macy Street
Fond du Lac, WI 54935

Table of Contents

Figure

Appendices

1.0 OBJECTIVE

Fehr Graham was retained by the City of Fond du Lac Redevelopment Authority to conduct a pre-demolition asbestos and lead inspection at the building located at 5 S. Main Street in Fond du Lac, Wisconsin (herein referred to as the Subject Property). The inspection was conducted on March 18, 2024, by Dillon Plamann and Cole Lewis of Fehr Graham (certified under the Department of Health Services).

The purpose of this inspection was to identify the presence, extent, and condition of asbestos containing materials (ACM) and lead-based paint (LBP) that may be impacted during planned demolition for compliance with the Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP), the Wisconsin Department of Natural Resources (DNR) Control of Asbestos Emissions and applicable local, State and Federal Guidelines.

The inspection was limited to sampling of suspect building materials scheduled to be impacted during the upcoming demolition. It is Fehr Graham's understanding that the demolition activities will include all Subject Property buildings.

Terms used in this report are defined in the General Terms section located in Appendix A. Additional information on the classification of ACM for NESHAP is also located in Appendix A. These NESHAP categories are helpful in determining the need for asbestos abatement and must be used in the Wisconsin DNR notification of intent to renovate or demolish.

2.0 METHODS AND LIMITATIONS

2.1 Asbestos Inspection Methods

The Subject Property was inspected for suspect ACM, unless otherwise noted. Each observed suspect material was assigned a homogeneous area number, described, and measured. Each observed suspect material was either sampled or assumed to be asbestos containing. Samples of suspect ACM were collected using procedures established by the EPA Code of Federal Regulations (CFR) Title 40 Part 763 Subpart E, Asbestos Containing Materials in Schools. Bulk asbestos samples were collected in accordance with Occupational Safety and Health Administration Standard 1926.1101. A total of 42 suspect materials were collected for asbestos analysis. Some of the sampled materials contained multiple layers, therefore, a total of 87 material samples were analyzed for asbestos.

2.2 Lead Inspection Methods

Building materials such as brick, building stone, and concrete can be reused as clean or exempt fill or recycled following a demolition. According to Wisconsin Administrative Code (WAC) Chapter NR 500, building materials painted with LBP cannot be reused as clean or exempt fill or recycled and must be properly disposed of at a WDNR licensed landfill.

The U.S. Department of Housing and Urban Development (HUD) in the *Guidelines for the Evaluation and Control of Lead-Based Paint in Housing* (HUD Guidelines) defines LBP as having a surface concentration of lead that is at or greater than 1 milligram of lead per square centimeter of surface of at or greater than 0.5% of lead per weight of a paint chip sample.

The WAC Chapter DHS 163 defines LBP as having a surface concentration of lead that is more than 1.0 milligrams of lead per square centimeter of surface measured by X-Ray Fluorescence analysis or more than 0.5% of lead per weight of a paint chip sample. This inspection follows the protocol of the HUD Guidelines, Chapter 7 (2012 rev.) and DHS 163.

The Subject Property was inspected for painted brick, wood, metal, building stone, and concrete building materials. Each observed suspect painted building material was assigned a homogeneous area number and described.

Each observed suspect painted building material was either sampled or assumed to be painted with LBP. Sampled suspect painted building material was tested using paint chip analysis. This analysis uses the flame atomic absorption (FAA) method of lead detection using guidelines and procedures established in the Test Methods for Evaluating Solid Waste, Physic/Chemical Methods (EPA SW-846-7000B). Results are reported as percent (%) lead by weight. The reportable limit of detection is at or greater than 0.5% lead and are considered LBP. A total of three (3) painted surfaces were analyzed for lead.

2.3 Asbestos Laboratory Analysis Methods

The asbestos samples were submitted to The Mannik & Smith Group Analytical Laboratories in Canton, Michigan for analysis. Asbestos analysis was performed using the polarized light microscopy (PLM) method of asbestos detection using guidelines and procedures established in the Method for the Determination of Asbestos in Bulk Building Materials (EPA 600/R-93/116). Where necessary, point count was used. Results were reported as percent (%) asbestos type by volume. Samples found to contain greater than 1% asbestos were considered positive and listed as ACM.

2.4 Lead Testing Analysis Methods

The paint chip samples were submitted to EMSL Analytical, Inc. in Hillside, Illinois, for analysis. Paint chip analysis was performed using FAA method of lead detection using guidelines and procedures established in the Test Methods for Evaluating Solid Waste, Physic/Chemical Methods (EPA SW-846-7000B). Results are reported as percent lead by weight. Samples found to contain at or greater than 0.5% lead were considered positive and listed as LBP.

2.5 Limitations

This asbestos and lead inspection report has been prepared by Fehr Graham in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made. The intent of this asbestos and lead inspection report is to assist the Owner and/or Client in locating ACM and lead-based painted building materials.

The asbestos and lead inspection was conducted to identify suspect ACM and LBP in accessible areas of the building. If other areas at this location are to be impacted during planned or future demolitions, a separate asbestos and lead inspection of these areas will be required. Some ACM and LBP may not have been discovered due to inaccessibility or missing/incomplete plans. Suspect materials discovered subsequent to the issue of this inspection report should be sampled and analyzed to determine asbestos or lead content and to initiate appropriate responses.

Analysis was performed using the PLM method. While the most commonly accepted analytical method for detecting asbestos in bulk materials, PLM is known to have limited resolution and may not detect extremely small asbestos fibers. Certain material, notable vinyl floor tile, may contain extremely fine asbestos fibers that are beyond the resolution of PLM. Point count was used when determined necessary.

Fehr Graham's interpretations and recommendations are based upon the results of sample collection and laboratory analysis in compliance with environmental regulations, quality control and assurance standards, and the Scope of Work as indicated in Fehr Graham's proposal, dated March 8, 2024. The results, conclusions, and recommendations contained in this report pertain to conditions observed at the time of the inspection. Other conditions elsewhere at the Subject Property may differ from those in the inspected locations. Such conditions are unknown, may change over time and have not been considered.

3.0 RESULTS OF INSPECTION

3.1 Locations and Laboratory Analysis Results

Results of the PLM, point count, and FAA of samples collected and tested during the inspections are summarized in the tables included in Appendix B. The original laboratory analysis reports are attached in Appendix C. Photographs of ACM and LBP are included in Appendix D. The site map is displayed in Figure 1.

3.2 ACMs/ Regulated Asbestos Containing Materials (RACM)

One (1) of the asbestos samples [One (1) material groups] collected and submitted for laboratory analysis are considered ACMs and are described in the following table:

Table A: ACM

Group/Sample Number	Material Description	Location	Asbestos Percent (%)	NESHAP Regulatory Category
5-13 – A, B, C	Black paneling, caulk, and tile	Exterior	2%	Category I - nonfriable

Per standard conventions prior to planned building demolition, we did not sample the existing electrical components (fuse box, electric wiring, etc.), or asphalt roofing materials on all buildings. These materials are presumed to be non-friable ACM.

3.3 Lead-Based Paint (LBP) Painted Materials

One of the painted surfaces analyzed using the FAA analysis are considered LBP and are described in the following table:

Table B: LBP

Group Number	Description	Location	Color	Lead Content (% Weight)
LBP-5-02	Painted Concrete Block	Exterior	Orange	1.2%

All similar materials with the same paint history are to be categorized in the same manner.

4.0 RECOMMENDATIONS

4.1 Recommendations for Asbestos Containing Building Materials

To comply with the EPA and NR 447 regulations, Asbestos Containing Building Materials (ACBM) must be removed prior to demolition and certain renovation activities. According to WAC Chapter NR 447.02, any material containing greater than 1% asbestos is considered ACM. NR 447.02 defines RACM as any ACM that meets any of these four criteria:

(1) Friable;
(2) Category I non-friable in poor condition;
(3) Category I non-friable that will be or has been subject to sanding, cutting, grinding, or abrading; or
(4) Category II non-friable that has a high probability of becoming, or has become, friable due to demolition or renovation activities.

Friable ACM is defined as any material containing more than 1% asbestos and, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

To comply with EPA and NR 447 regulations, RACM must be removed prior to demolition and certain renovation activities. Based on the laboratory analytical results, **none of the material groups are currently considered RACM. Depending on the demolition methods, one (1) material groups have the potential to become RACM (Group 5-13 Black paneling, caulk, and tile), and two (2) of the assumed materials groups have the potential to become RACM (asphalt roofing materials, electrical components).**

None of the material groups are considered Friable ACM, that is considered RACM, and must be removed prior to demolition.

The following table identifies Category I Nonfriable ACMs in the Subject Property building that **do not** need to be removed prior to demolition or renovation, **unless** they are in poor condition; or that will be subject to sanding, cutting, grinding, or abrading:

Table C: Category I Nonfriable ACMs

Group/Sample Number	Material Description	Location	Asbestos Percent (%)	Condition	Estimated Quantity
NA	Asphalt Roofing Materials	Roof	Assumed	Good	2,040 sq. ft.
5-13 – A, B, C	Black Paneling, Caulk, and Tile	Exterior	2%	Good	150 sq. ft.

The following table identifies Category II Nonfriable ACMs in the Subject Property building that do not need to be removed prior to demolition, unless they have a high probability of becoming, or have become, friable due to demolition activities (Category II Nonfriable ACMs are likely to become friable during demolition):

Table D: Category II Nonfriable Asbestos Containing Materials

Group/Sample Number	Material Description	Location	Asbestos Percent (%)	Condition	Estimated Quantity
Not Applicable	Electrical Components	Throughout	Assumed	Good	Unknown

The Category I and Category II Nonfriable ACMs will need to be properly discarded at a landfill during the demolition, but no special handling or disposal requirements apply. However, if the demolition methods cause any of these materials to become friable, they will need to be handled as RACM.

4.2 Recommendations for Lead-Based Paint

Building materials such as wood, metal, brick, building stone, and concrete can be reused as clean or exempt fill or recycled following a demolition or renovation. Demolition or renovation activity beyond the anticipated work scope specified at the time of our site visit may require additional testing prior to disturbance. According to WAC Chapter NR 500, building materials painted with LBP cannot be reused as clean or exempt fill or recycled and must be properly disposed of at a Wisconsin DNR licensed landfill. **Based on the FAA analyzed results, one of the tested paint surfaces is considered LBP.**

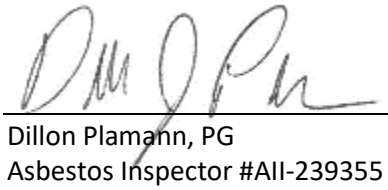
Any of the materials with untested painted surfaces assumed to contain lead-painted that are removed from the Subject Property building as part of the renovation will need to be properly discarded at a landfill during the demolition, but no special handling or disposal requirements apply.

4.3 Other Recommendations

- Suspect materials discovered after this inspection should be sampled and analyzed to determine asbestos or lead content and to initiate appropriate responses.
- Demolition activities shall be conducted in accordance with 40 CFR 61 (NESHAP). It is recommended that contractor personnel receive a copy of the EPA guidance document on demolition practices under NESHAP (included in Appendix E).
- The demolition contractor should be provided the Pre-Demolition Asbestos and Lead Inspection Report and should be mindful of unidentified ACM and/or LBP. Unidentified suspect ACM and/or LBP should be sampled and analyzed prior to the start of the renovation activities.
- The Wisconsin DNR requires notification of intent to renovate or demolish, regardless of whether ACM is present. The notification must be sent at least 10 working days prior to the start of demolition activities. The demolition contractor should also keep a copy of the Pre-Demolition Asbestos and Lead Inspection Report at the Subject Property during the entire project as proof of compliance with 40 CFR 61 (NESHAP).

5.0 GENERAL QUALIFICATIONS

This work and report were completed by Mr. Cole Lewis and Mr. Dillon Plamann, Wisconsin Certified Asbestos Inspectors and Lead (PB) Inspectors, working for Fehr Graham. Copies of the company and individual asbestos certifications are included in Appendix F.



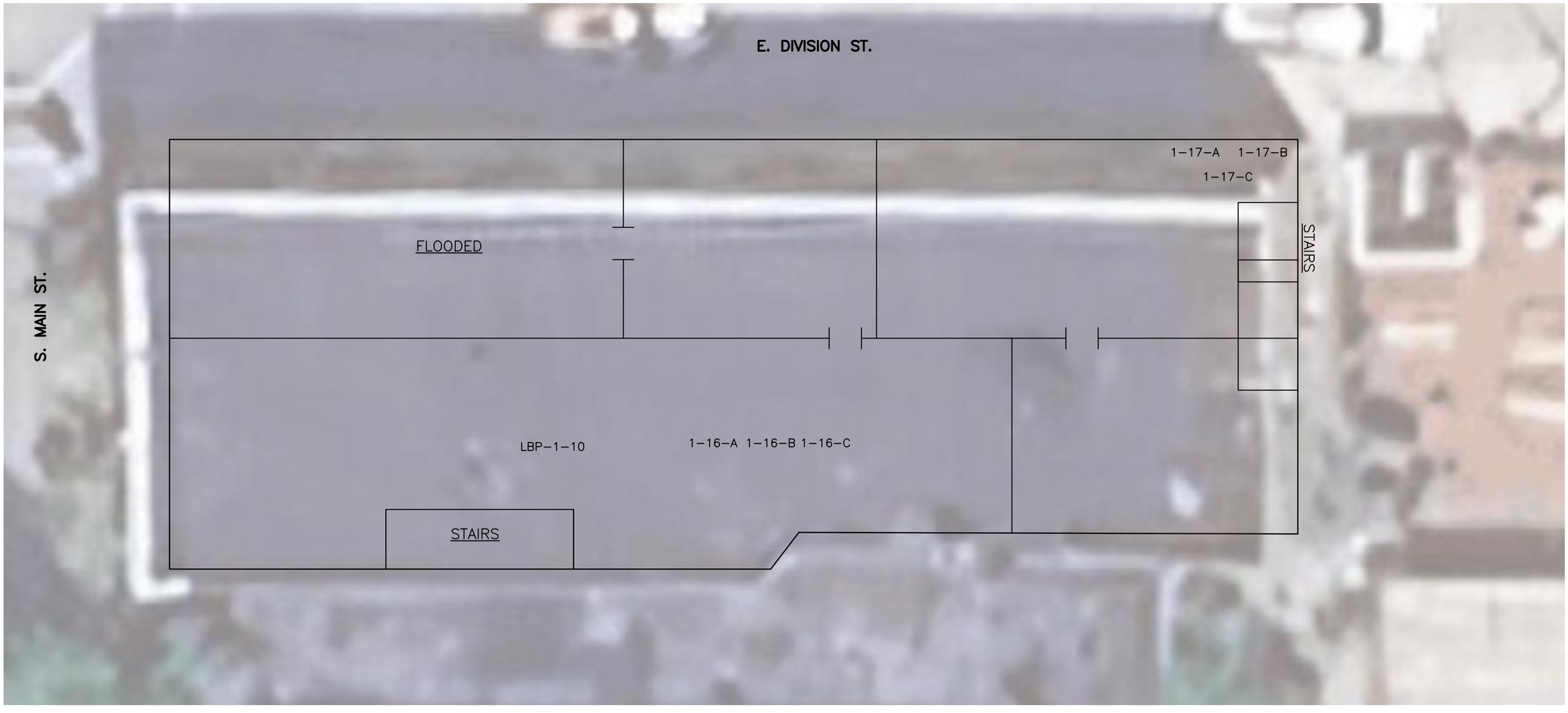
April 23, 2024

Dillon Plamann, PG — Date
Asbestos Inspector #AII-239355
Lead Inspector #LII-239355

April 23, 2024

Cole Lewis — Date
Asbestos Inspector #AII-276164
Lead Inspector #LII-276164

FIGURES



SAMPLE LOCATIONS

BASEMENT
1 SOUTH MAIN ST.
FOND DU LAC, WI 54935

N
W E
S

10 0 10 FEET
GRAPHIC SCALE IN FEET

3/28/24

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 194–003525

ILLINOIS
IOWA
WISCONSIN

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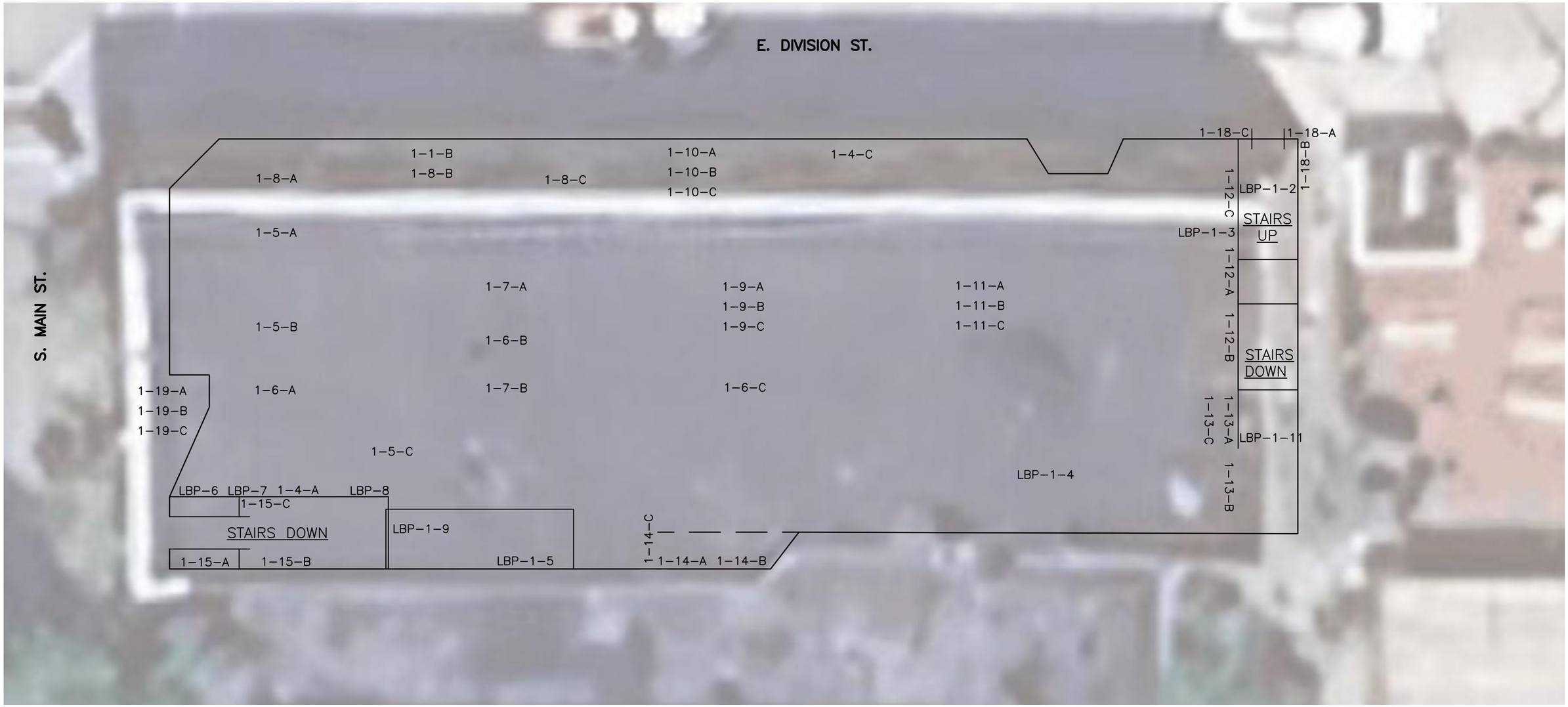
G:\C3D\24\24–624\Exhibits\24–624_ Design.dwg, BASEMENT
PLOT DATE: 3/28/24



SAMPLE LOCATIONS

FIRST FLOOR
1 SOUTH MAIN ST.
FOND DU LAC, WI 54935

N
W E
S

10 0 10 FEET
GRAPHIC SCALE IN FEET

3/28/24

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ILLINOIS
IOWA
WISCONSIN

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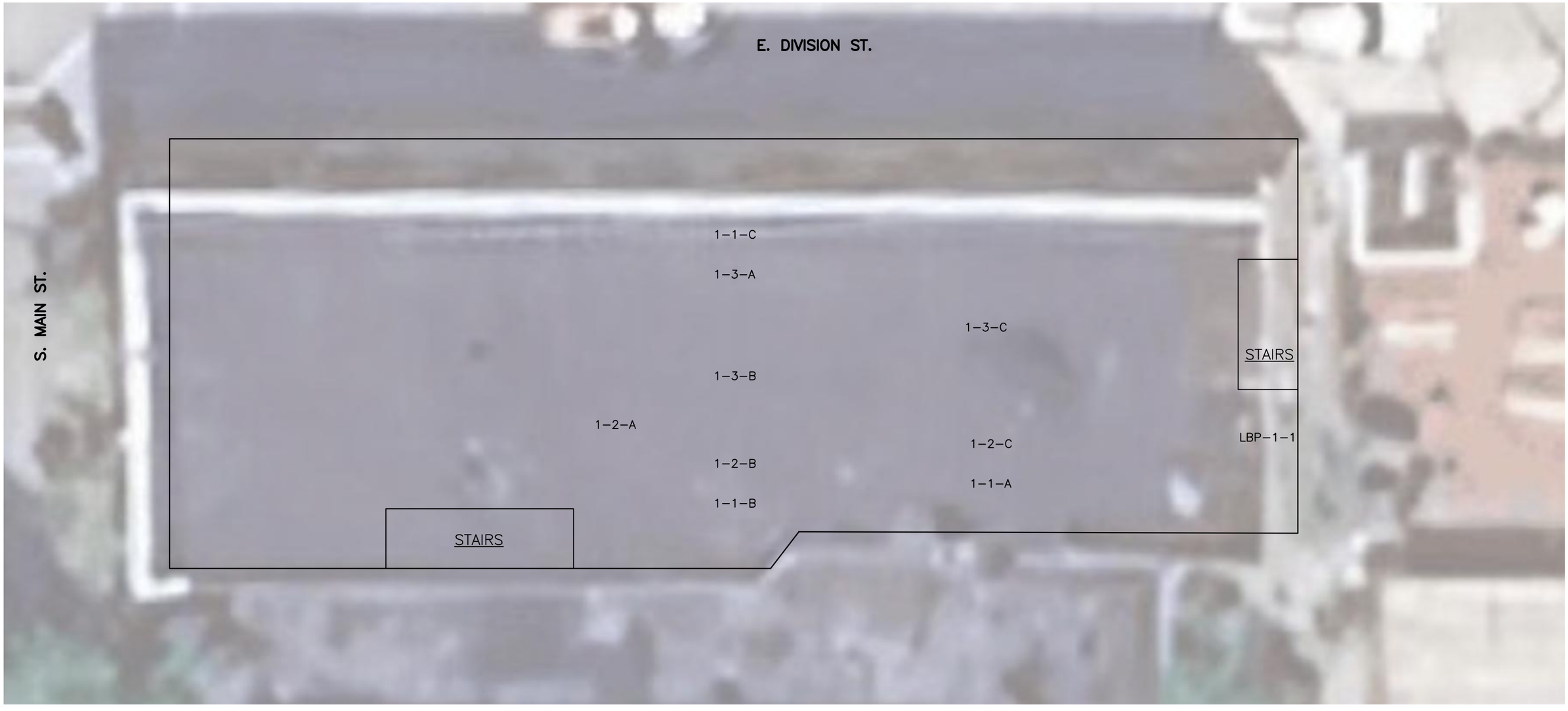
G:\C3D\24\24-624\Exhibits\24-624_ Design.dwg, 1st FLOOR
PLOT DATE: 3/28/24



SAMPLE LOCATIONS

SECOND FLOOR
1 SOUTH MAIN ST.
FOND DU LAC, WI 54935

N
W E
S

10 0 10 FEET
GRAPHIC SCALE IN FEET

2/28/24

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ILLINOIS DESIGN FIRM NO. 194–003525

ILLINOIS
IOWA
WISCONSIN

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G:\C3D\24\24–624\Exhibits\24–624_ Design.dwg, 2nd FLOOR
PLOT DATE: 3/28/24

APPENDICES

APPENDIX A
GENERAL CONDITIONS

GENERAL TERMS

Asbestos Containing Materials (ACM)

Asbestos containing materials, as defined by National Emission Standards for Hazardous Air Pollutants (NESHAP), are materials that have an asbestos content of greater than 1 percent (%).

Friable Material

Material that can be crumbled or reduced to a powder using normal hand pressure. Nonfriable material is too hard to be crumbled or reduced to a powder without the use of tools. Nonfriable materials may become friable if abraded or broken.

Suspect Materials

There are three broad classes that define suspect asbestos containing material. These are: 1) surfacing material, 2) thermal system insulation, and 3) miscellaneous material. Materials that fit the description of these materials (as described below) are suspect to contain asbestos, until sampled and analyzed. In Wisconsin, wood, metal, glass, and fiberglass are not considered suspect ACM.

1. Surfacing Material – Materials applied by spray or trowel are classified as surfacing materials. Asbestos was used in a variety of surfacing materials for fireproofing, acoustic dampening, condensation control, and decorative purposes. Surfacing materials that contain asbestos usually occur as fireproofing on steel-frame members, textured ceilings, or acoustic plaster ceilings.

2. Thermal System Insulation (TSI) Material – Cold water, hot water, and steam-generating mechanical systems are frequently insulated with materials that contain asbestos. Pipes may be insulated with a non-asbestos containing material but have mastic or plastered joints that contain asbestos. Insulation materials that contain asbestos are generally found in boiler rooms and chiller rooms, in pipe chases in walls, in pipe runs above suspended ceiling, or in crawl spaces under buildings. Insulation covered with an undamaged jacket or wrap is classified as nonfriable. Adhesives used to hold insulation in place or provide an airtight seal are also nonfriable materials. Most other types of thermal insulation are considered friable.

3. Miscellaneous Material – Miscellaneous building materials are materials that are used for finishing of interior spaces, and do not fall under either of the other classes, surfacing or TSI. These materials have been manufactured with asbestos for strength enhancement, fire retardation, condensation control, acoustical dampening, or corrosion resistance. The most common type of friable miscellaneous material is ceiling tile. Most other miscellaneous materials are nonfriable materials such as vinyl floor tile, grout, adhesives, and cementitious panels.

Regulated ACM (RACM)

ACM that is friable or likely to become friable during renovation or demolition activities is considered to be RACM. These materials must be removed from buildings prior to renovation or demolition activities that will disturb them.

Category I Nonfriable ACM

Resilient flooring, such as vinyl floor tile and rolled vinyl sheeting, valve packings and gaskets, and asphalt (bituminous roofing materials are classified as Category I Nonfriable ACM). If these materials are in good condition, they are not likely to become friable during demolition, and therefore, may remain in place for demolition. However, these materials must be removed prior to renovations if the renovation involves alteration that would render them friable.

Category II Nonfriable ACM

Any other nonfriable materials that are not classified as Category I Nonfriable ACM. Asbestos cement products, adhesives, and plaster are the most common types of Category II Nonfriable ACM. Most Category II Nonfriable ACM are likely to become friable during demolition and, therefore, must be removed prior to demolition. These materials must be removed prior to renovations if the renovation involves alteration that would render them friable.

ACM Conditions

There are three broad classes that define the condition of asbestos containing material. These are: 1) damaged, 2) significantly damaged, and 3) good. ACMs are assessed for condition (as described below) to determine material handling requirements during a renovation or demolition.

1. Damaged - Damaged miscellaneous/surfacing ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicate damage.

2. Significantly Damaged - Damaged or significantly damaged thermal system insulation ACM means thermal system insulation ACM on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, water stained, gouged, punctured, missing, or not intact such that it is not able to contain fibers. Damage may be further illustrated by occasional punctures, gouges or other signs of physical injury to ACM; occasional water damage on the protective coverings/jackets; or exposed ACM ends or joints. Asbestos debris originating from the ACBM in question may also indicate damage.

3. Good - ACM which does not appear to have deteriorated or sustained physical injury since the time of installation and continues to demonstrate and retain its structural integrity.

APPENDIX B
SAMPLE RESULTS

TABLE 1
Asbestos Inspection Results
<Project Name and Location>

Group Number	Sample Number	Material Description	Location	Asbestos Percent (%)	Estimated Quantity of ACM	NESHAP Regulatory Category
1 - 01	A , B , C	Gray 9x9 Tile and Mastic	2nd floor	**4%**	**600 sq. ft.**	**Cat I - Nonfriable**
1 - 02	A , B , C	Light gray insulation	2nd floor	0		
1 - 03	A , B , C	1/2" x 1/2" tile walkway gray and white	2nd floor	0		
1 - 04	A , B , C	Red Brown brick and mortar	1st floor	0		
1 - 05	A , B , C	Red Brown cermaic tile planks	1st floor	0		
1 - 06	A , B , C	1/2" x 1/2" tile walkway gray and white	1st floor	0		
1 - 07	A , B , C	2' x 2' brown vinyl tile	1st floor	0		
1 - 08	A , B , C	12"x12" white vinyl tile	1st floor	0		
1 - 09	A , B , C	Black patterned vinyl tile	1st floor	**45%**	**100 sq. ft.**	**Cat I - Nonfriable**
1 - 10	A , B , C	12"x12" blue gray vinyl tile	1st floor	0		
1 - 11	A , B , C	6"x6" brown ceramic tile	1st floor	0		
1 - 12	A , B , C	White sheetrock	1st floor	0		
1 - 13	A , B , C	White Ceramic wall tile	1st floor	0		
1 - 14	A , B , C	White concrete block and mortar	1st floor	0		
1 - 15	A , B , C	Gray wall/ceiling tile	Basement Stairs	0		
1 - 16	A , B , C	4" pipe wrap	Basement	**80%**	**20 LF**	**Friable Asbestos Material**
1 - 17	A , B , C	2" pipe wrap	Basement	**75%**	**10 LF**	**Friable Asbestos Material**
1 - 18	A , B , C	Cream ceramic brick	Exterior	0		
1 - 19	A , B , C	Brown ceramic brick	Exterior	0		

TABLE 2
Lead Paint Inspection Results
<Project Name and Location>

Group Number	Paint Description	Location	Lead content (% weight)
LBP -1 - 01	Yellow painted window sill	2nd Floor	0.750%
LBP-1 - 02	Red painted concrete	2nd Floor stairs	**1.2000%**
LBP-1 - 03	Green sheetrock	1st Floor	0.2200%
LBP-1 - 04	Green metal ceiling	1st Floor	**3.8000%**
LBP-1 - 05	White concrete block	1st Floor	0.0130%
LBP-1 - 06	Dark blue sheetrock	1st Floor	0.0099%
LBP-1 - 07	Light blue sheetrock	1st Floor	0.0330%
LBP-1 - 08	Yellow sheetrock	1st Floor	**13.0000%**
LBP-1 - 09	Black painted door	1st Floor	**4.5000%**
LBP-1 - 10	White painted ceiling wood	Basement	0.0087%
LBP-1 - 11	White painted sheetrock	1st Floor	0.0360%
LBP-1 - 12	Red painted wood	Exterior	0.0330%
LBP-1 - 13	Green painted door	Exterior	0.0100%
LBP-1 - 14	Tan painted wood	Exterior	0.0890%

APPENDIX C
LABORATORY RESULTS

EMSL Analytical, Inc.
4140 Litt Drive, Hillside, IL 60162
Phone/Fax: (773) 313-0099 / (773) 313-0139
http://www.EMSL.com chicagolab@emsl.com

EMSL Order:	262402669
CustomerID:	ALPH56
CustomerPO:	
ProjectID:	

Attn: **Dillon Plamann**
Fehr-Graham & Associates
909 North 8th Street
Suite 101
Sheboygan, WI 53081

Phone: (920) 892-2444
Fax: (920) 892-2620
Received: 3/20/2024 09:00 AM
Collected:

Project: **FOND DU LAC REDEVELOPMENT 24-624**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
LBP-1-01 *262402669-0001*		3/26/2024 Site: 2ND FLOOR Desc: YELLOW PAINTED WINDOW SILL	0.2523 g	0.080 % wt	0.75 % wt
LBP-1-02 *262402669-0002*		3/26/2024 Site: 2ND FLOOR STAIRS Desc: RED PAINTED CONCRETE	0.2519 g	0.080 % wt	1.2 % wt
LBP-1-03 *262402669-0003*		3/26/2024 Site: 1ST FLOOR Desc: GREEN SHEETROCK	0.2505 g	0.0080 % wt	0.22 % wt
LBP-1-04 *262402669-0004*		3/26/2024 Site: 1ST FLOOR Desc: WHITE CONCRETE BLOCK	0.2520 g	0.16 % wt	3.8 % wt
LBP-1-05 *262402669-0005*		3/26/2024 Site: 1ST FLOOR Desc: WHITE CONCRETE BLOCK	0.2526 g	0.0080 % wt	0.013 % wt
LBP-1-06 *262402669-0006*		3/26/2024 Site: 1ST FLOOR Desc: DARK BLUE SHEETROCK	0.2502 g	0.0080 % wt	0.0099 % wt
LBP-1-07 *262402669-0007*		3/26/2024 Site: 1ST FLOOR Desc: LIGHT BLUE SHEETROCK	0.2558 g	0.0080 % wt	0.033 % wt
LBP-1-08 *262402669-0008*		3/26/2024 Site: 1ST FLOOR Desc: YELLOW SHEETROCK	0.2540 g	0.80 % wt	13 % wt
LBP-1-09 *262402669-0009*		3/26/2024 Site: 1ST FLOOR Desc: BLACK PAINTED DOOR	0.2501 g	0.40 % wt	4.5 % wt

Lisa M. Odeshoo

Lisa Odeshoo, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA LAP, LLC-ELLAP Accredited #102992

Initial report from 03/27/2024 10:41:25

EMSL Analytical, Inc.
4140 Litt Drive, Hillside, IL 60162
Phone/Fax: (773) 313-0099 / (773) 313-0139
http://www.EMSL.com chicagolab@emsl.com

EMSL Order: 262402669
CustomerID: ALPH56
CustomerPO:
ProjectID:

Attn: **Dillon Plamann**
Fehr-Graham & Associates
909 North 8th Street
Suite 101
Sheboygan, WI 53081

Phone: (920) 892-2444
Fax: (920) 892-2620
Received: 3/20/2024 09:00 AM
Collected:

Project: **FOND DU LAC REDEVELOPMENT 24-624**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
LBP-1-10 *262402669-0010*	Site: BASEMENT Desc: WHITE PAINTED CEILING WOOD	3/26/2024	0.2527 g	0.0080 % wt	0.0087 % wt
LBP-1-11 *262402669-0011*	Site: 1ST FLOOR Desc: WHITE PAINTED SHEETROCK	3/26/2024	0.2556 g	0.0080 % wt	0.036 % wt
LBP-1-12 *262402669-0012*	Site: EXTERIOR Desc: RED PAINTED WOOD	3/26/2024	0.2528 g	0.0080 % wt	0.033 % wt
LBP-1-13 *262402669-0013*	Site: EXTERIOR Desc: GREEN PAINTED DOOR	3/26/2024	0.2511 g	0.0080 % wt	0.010 % wt
LBP-1-14 *262402669-0014*	Site: EXTERIOR Desc: TAN PAINTED WOOD	3/26/2024	0.2516 g	0.0080 % wt	0.089 % wt

Lisa M. Odeshoo

Lisa Odeshoo, Laboratory Manager
or other approved signatory

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* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Analytical, Inc. Hillside, IL AIHA LAP, LLC-ELLAP Accredited #102992

Initial report from 03/27/2024 10:41:25

Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

2365 S Haggerty Rd, Canton, MI 48188

Attention: Dillon Plamann

Fehr Graham

909 N 8th Street

Sheboygan, WI, 53081

Email: dplamann@fehrgraham.com

Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-01 A | **Lab ID 24-0389-1** | **Location 2nd floor**

Layer 1		Layer 2	
Gray 9x9 Tile		Mastic	
Type	Chrysotile 4.00%	Type	Chrysotile 3.00%
Grey, nonfibrous, homogeneous		Black, nonfibrous, homogeneous	
96% non-asbestos		97% non-asbestos	

Client ID 1-01 B | Lab ID 24-0389-2 | Location 2nd floor

Layer 1		Layer 2	
Gray 9x9 Tile		Mastic	
Type	Not Analyzed -	Type	Not Analyzed -

Client ID 1-01 C | Lab ID 24-0389-3 | Location 2nd floor

Layer 1		Layer 2	
Gray 9x9 Tile		Mastic	
Type	Not Analyzed -	Type	Not Analyzed -

Client ID 1-02 A | Lab ID 24-0389-4 | Location 1st floor

Layer 1	
Light gray insulation	
Type	Non Detect 0.00%
Gray, fibrous, homogeneous	
100% non-asbestos	

Client ID 1-02 B | Lab ID 24-0389-5 | Location 1st floor

Layer 1	
Light gray insulation	
Type	Non Detect 0.00%
Gray, fibrous, homogeneous	
100% non-asbestos	

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

The results herein relate only to the samples as received and tested by The Mannik & Smith Analytical Laboratories. This report can not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other agency of the Federal Government. Please see the Sample Protocol before submitting samples for analysis in order to ensure laboratory staff safety and analysis accuracy.

Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

2365 S Haggerty Rd, Canton, MI 48188

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Fehr Graham

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Sheboygan, WI, 53081

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-02 C | **Lab ID 24-0389-6** | **Location 1st floor**

Layer 1

Light gray insulation

Type Non Detect 0.00%

Gray, fibrous, homogeneous

100% non-asbestos

Client ID 1-03 A | **Lab ID 24-0389-7** | **Location 1st floor**

Layer 1

1/2"x1/2" tile walkway gray and white

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-03 B | **Lab ID 24-0389-8** | **Location 1st floor**

Layer 1

1/2"x1/2" tile walkway gray and white

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-03 C | **Lab ID 24-0389-9** | **Location 1st floor**

Layer 1

1/2"x1/2" tile walkway gray and white

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-04 A | **Lab ID 24-0389-10** | **Location 1st floor**

Layer 1

Brick

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Mortar

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous.

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

2365 S Haggerty Rd, Canton, MI 48188

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-04 B — Lab ID 24-0389-11 — Location 1st floor

Layer 1	Layer 2
Brick	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Tan, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-04 C — Lab ID 24-0389-12 — Location 1st floor

Layer 1	Layer 2
Brick	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Tan, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-05 A — Lab ID 24-0389-13 — Location 1st floor

Layer 1

Red Brown cermaic tile planks

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-05 B — Lab ID 24-0389-14 — Location 1st floor

Layer 1

Red Brown cermaic tile planks

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-05 C — Lab ID 24-0389-15 — Location 1st floor

Layer 1

Red Brown cermaic tile planks

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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24-0389

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Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-06 A | **Lab ID 24-0389-16** | **Location 1st floor**

Layer 1

1/2" x 1/2" tile walkway gray and white

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-06 B | **Lab ID 24-0389-17** | **Location 1st floor**

Layer 1

1/2" x 1/2" tile walkway gray and white

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-06 C | **Lab ID 24-0389-18** | **Location 1st floor**

Layer 1

1/2" x 1/2" tile walkway gray and white

Type Non Detect 0.00%

Gray, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-07 A | **Lab ID 24-0389-19** | **Location 1st floor**

Layer 1

2' x 2' brown vinyl tile

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-07 B | **Lab ID 24-0389-20** | **Location 1st floor**

Layer 1

2' x 2' brown vinyl tile

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-07 C | Lab ID 24-0389-21 | Location 1st floor

Layer 1

2' x 2' brown vinyl tile

Type Non Detect 0.00%

Grey, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-08 A | Lab ID 24-0389-22 | Location 1st floor

Layer 1

12"x12" white vinyl tile

Type Non Detect 0.00%

White, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Adhesive

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-08 B | Lab ID 24-0389-23 | Location 1st floor

Layer 1

12"x12" white vinyl tile

Type Non Detect 0.00%

White, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Adhesive

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-08 C | Lab ID 24-0389-24 | Location 1st floor

Layer 1

12"x12" white vinyl tile

Type Non Detect 0.00%

White, nonfibrous, homogeneous

100% non-asbestos

Layer 2

Adhesive

Type Non Detect 0.00%

Tan, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-09 A | Lab ID 24-0389-25 | Location 1st floor

Layer 1

Black paterned vinyl tile

Type Chrysotile 45.00%

White, nonfibrous, heterogeneous

55% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-09 B | **Lab ID 24-0389-26** | **Location 1st floor**

Layer 1

Black paterned vinyl tile

Type Not Analyzed -

Client ID 1-09 C | **Lab ID 24-0389-27** | **Location 1st floor**

Layer 1

Black paterned vinyl tile

Type Not Analyzed -

Client ID 1-10 A | **Lab ID 24-0389-28** | **Location 1st floor**

Layer 1	Layer 2
12"x12" blue gray vinyl tile	Adhesive
Type Non Detect 0.00%	Type Non Detect 0.00%
Grey, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-10 B | **Lab ID 24-0389-29** | **Location 1st floor**

Layer 1	Layer 2
12"x12" blue gray vinyl tile	Adhesive
Type Non Detect 0.00%	Type Non Detect 0.00%
Grey, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-10 C | **Lab ID 24-0389-30** | **Location 1st floor**

Layer 1	Layer 2	Layer 3
12"x12" blue gray vinyl tile	Adhesive A	Adhesive B
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
Grey, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda, Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson, *Laboratory Director*

Accreditations: NIST-NVLAP No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Mannik Smith GROUP ANALYTICAL LABORATORIES

24-0389

2365 S Haggerty Rd, Canton, MI 48188

Attention: Dillon Plamann

Fehr Graham

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Sheboygan, WI, 53081

Email: dplamann@fehrgraham.com

Phone: (920) 453-0700

Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-11 A — Lab ID 24-0389-31 — Location 1st floor

Layer 1	Layer 2
6"x6" brown ceramic tile	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Red, nonfibrous, homogeneous	Grey, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-11 B — Lab ID 24-0389-32 — Location 1st floor

Layer 1	Layer 2
6"x6" brown ceramic tile	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Red, nonfibrous, homogeneous	Grey, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-11 C — Lab ID 24-0389-33 — Location 1st floor

Layer 1	Layer 2
6"x6" brown ceramic tile	Mortar
Type Non Detect 0.00%	Type Non Detect 0.00%
Red, nonfibrous, homogeneous	Grey, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-12 A — Lab ID 24-0389-34 — Location Basement Stairs

Layer 1	Layer 2
White sheetrock	Plaster
Type Non Detect 0.00%	Type Non Detect 0.00%
Beige, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-12 B — Lab ID 24-0389-35 — Location Basement Stairs

Layer 1	Layer 2
White sheetrock	Plaster
Type Non Detect 0.00%	Type Non Detect 0.00%
Beige, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-12 C — Lab ID 24-0389-36 — Location Basement Stairs

Layer 1	Layer 2
White sheetrock	Plaster
Type Non Detect 0.00%	Type Non Detect 0.00%
Beige, nonfibrous, homogeneous	Gray, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos

Client ID 1-13 A — Lab ID 24-0389-37 — Location Basement

Layer 1	Layer 2	Layer 3
Ceramic tile	Adhesive	Joint compound
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
White, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	White, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Client ID 1-13 B — Lab ID 24-0389-38 — Location Basement

Layer 1	Layer 2	Layer 3
Ceramic tile	Adhesive	Joint compound
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
White, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	White, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Client ID 1-13 C — Lab ID 24-0389-39 — Location Basement

Layer 1	Layer 2	Layer 3
Ceramic tile	Adhesive	Joint compound
Type Non Detect 0.00%	Type Non Detect 0.00%	Type Non Detect 0.00%
White, nonfibrous, homogeneous	Tan, nonfibrous, homogeneous	White, nonfibrous, homogeneous
100% non-asbestos	100% non-asbestos	100% non-asbestos

Client ID 1-14 A — Lab ID 24-0389-40 — Location Basement

Layer 1
White concrete block and mortar
Type Non Detect 0.00%
Grey, nonfibrous, homogeneous
100% non-asbestos
See comments

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project: Fond du Lac Redevelopment Authority
Order #: 24-0389
Project #: 24-624

Received: 3/25/2024
Analyzed: 4/1/2024
Reported: 4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-14 B | **Lab ID 24-0389-41** | **Location Basement**

Layer 1

White concrete block and mortar

Type Non Detect 0.00%
Grey, nonfibrous, homogeneous
100% non-asbestos
See comments

Client ID 1-14 C | **Lab ID 24-0389-42** | **Location Basement**

Layer 1

Concrete

Type Non Detect 0.00%
Grey, nonfibrous, homogeneous
100% non-asbestos

Layer 2

Caulk

Type Non Detect 0.00%
White, nonfibrous, homogeneous
100% non-asbestos

Client ID 1-15 A | **Lab ID 24-0389-43** | **Location Exterior**

Layer 1

Gray wall/ceiling tile

Type Non Detect 0.00%
Tan, fibrous, homogeneous
100% non-asbestos

Client ID 1-15 B | **Lab ID 24-0389-44** | **Location Exterior**

Layer 1

Gray wall/ceiling tile

Type Non Detect 0.00%
Tan, fibrous, homogeneous
100% non-asbestos

Client ID 1-15 C | **Lab ID 24-0389-45** | **Location Exterior**

Layer 1

Gray wall/ceiling tile

Type Non Detect 0.00%
Tan, fibrous, homogeneous
100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-16 A | **Lab ID 24-0389-46** | **Location Basement**

Layer 1

4" pipe wrap

Type **Chrysotile 80.00%**

Beige, fibrous, homogeneous

20% non-asbestos

Client ID 1-16 B | Lab ID 24-0389-47 | Location Basement

Layer 1

4" pipe wrap

Type Not Analyzed -

Client ID 1-16 C | Lab ID 24-0389-48 | Location Basement

Layer 1

4" pipe wrap

Type Not Analyzed -

Client ID 1-17 A | **Lab ID 24-0389-49** | **Location Basement**

Layer 1

2" pipe wrap

Type **Chrysotile 75.00%**

Grey, fibrous, homogeneous

25% non-asbestos

Client ID 1-17 B | Lab ID 24-0389-50 | Location Basement

Layer 1

2" pipe wrap

Type Not Analyzed -

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	4/1/2024
Project #	24-624	Reported	4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-17 C | **Lab ID 24-0389-51** | **Location Basement**

Layer 1

2" pipe wrap

Type Not Analyzed -

Client ID 1-18 A | **Lab ID 24-0389-52** | **Location Exterior**

Layer 1

Cream ceramic brick

Type Non Detect 0.00%

Beige, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-18 B | **Lab ID 24-0389-53** | **Location Exterior**

Layer 1

Cream ceramic brick

Type Non Detect 0.00%

Beige, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-18 C | **Lab ID 24-0389-54** | **Location Exterior**

Layer 1

Cream ceramic brick

Type Non Detect 0.00%

Beige, nonfibrous, homogeneous

100% non-asbestos

Client ID 1-19 A | **Lab ID 24-0389-55** | **Location Exterior**

Layer 1

Brown ceramic brick

Type Non Detect 0.00%

Brown, nonfibrous, homogeneous

100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda

Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson

Laboratory Director

Accreditations

NIST-NVLAP

No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project: Fond du Lac Redevelopment Authority
Order #: 24-0389
Project #: 24-624

Received: 3/25/2024
Analyzed: 4/1/2024
Reported: 4/1/2024

BULK SAMPLE ANALYSIS SUMMARY

Client ID 1-19 B | Lab ID 24-0389-56 | Location Exterior

Layer 1

Brown ceramic brick

Type Non Detect 0.00%
Brown, nonfibrous, homogeneous
100% non-asbestos

Client ID 1-19 C | Lab ID 24-0389-57 | Location Exterior

Layer 1

Brown ceramic brick

Type Non Detect 0.00%
Brown, nonfibrous, homogeneous
100% non-asbestos

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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Project	Fond du Lac Redevelopment Authority	Received	3/25/2024
Order #	24-0389	Analyzed	3/29/2024
Project #	24-624	Reported	3/29/2024

SAMPLE COMMENTS/DISCREPENCIES

- Samples 1-14A and 1-14B only has block.

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy

Analyst(s): Lillian C. Sabuda
Waverly K. Ferguson

Reviewer(s): Waverly K. Ferguson
Laboratory Director

Accreditations
NIST-NVLAP
No. 600212-0

Samples: 49 Layers: 24 Point Counts: 0

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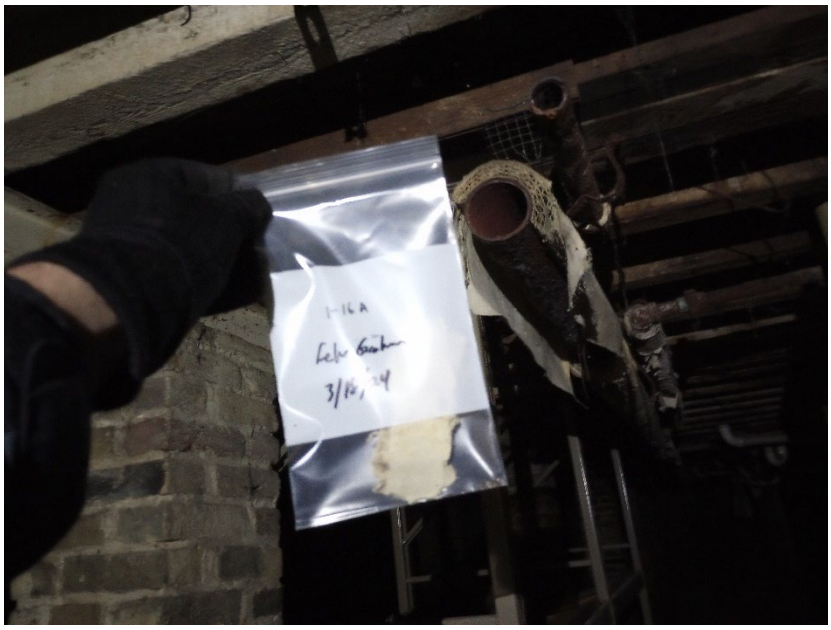
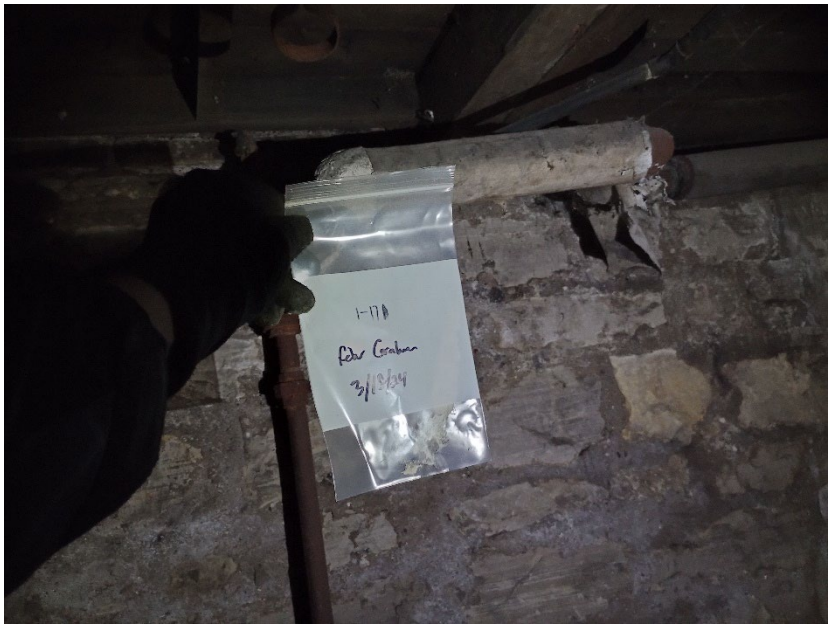
APPENDIX D
PHOTOGRAPHS

1. Sample 1-01 A, B, C – Gray 9x9 Tile and mastic on the second floor.

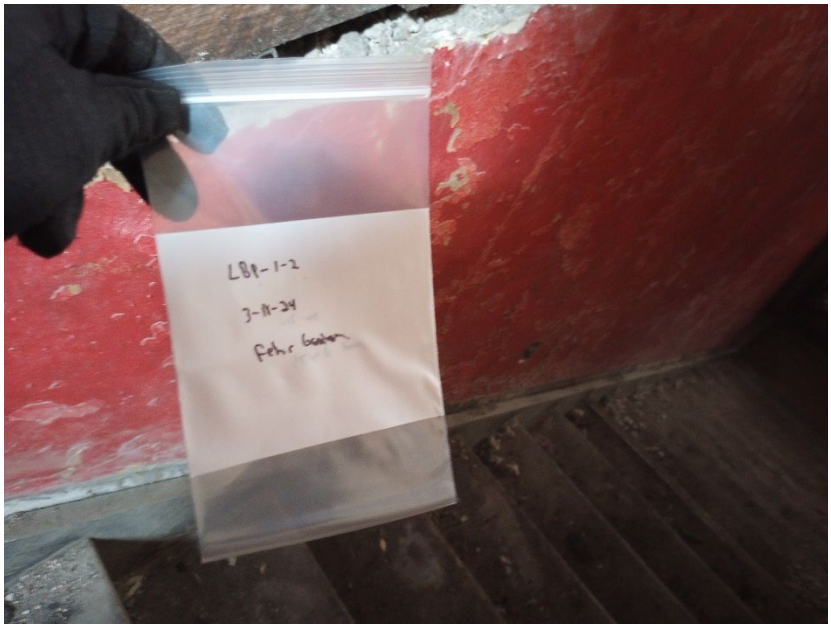
2. Sample 1-09 A, B, C – Black patterned vinyl tile on the first floor.



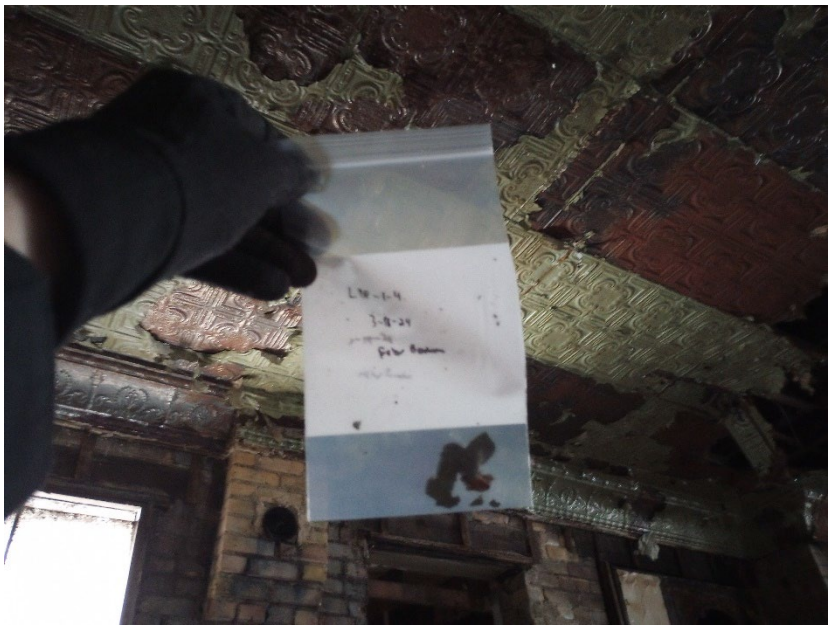
3. Sample 1-16 A, B, C – 4” pipe wrap in the basement.



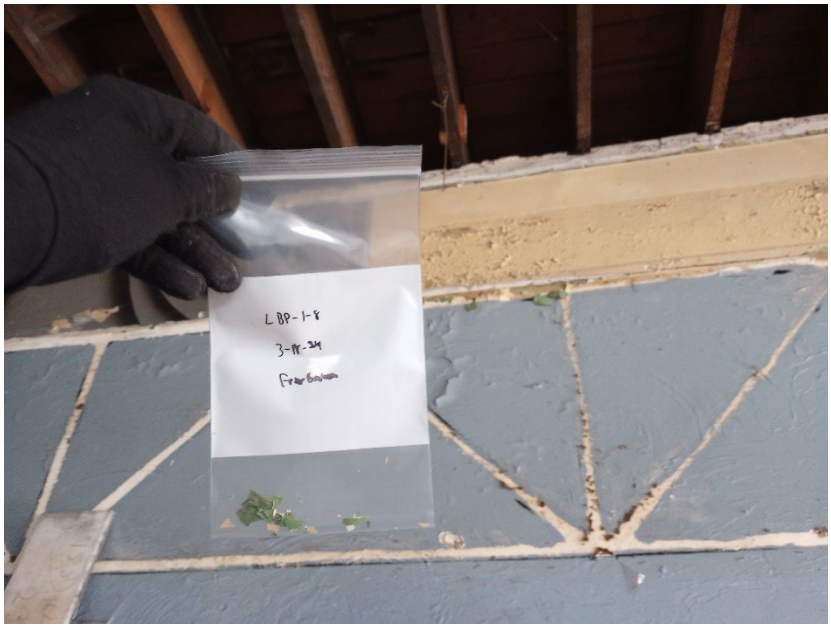
4. Sample 1-17 A, B, C – 2” pipe wrap in the basement.



5. Sample LBP – 1-02 – Red painted concrete on the 2nd floor stairs.



6. Sample LBP – 1-04 – Green metal ceiling on the first floor.



7. Sample LBP – 1-08 – Yellow sheetrock on the first floor.

8. Sample LBP – 1-09 – Black painted door on the first floor.

APPENDIX E
A GUIDE TO NORMAL DEMOLITION PRACTICES UNDER THE ASBESTOS NESHAP (EPA-340/1-92-013)

B/C-3B

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Washington, DC 20460

EPA - 340/1-92-013
September 1992

Stationary Source Compliance Series

EPA

A Guide to Normal Demolition Practices Under the Asbestos NESHAP

NESHAP

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EPA - 340/1-92-013

A Guide to Normal Demolition Practices Under the Asbestos NESHAP

(TRC Ref. No. 1-456-019)

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planing and Standards
Stationary Source Compliance Division
Washington, DC 20460

September 1992

DISCLAIMER

This manual was prepared by TRC Environmental Corporation for the Stationary Source Compliance Division of the U.S. Environmental Protection Agency. It has been completed in accordance with EPA Contract No. 68D20059, Work Assignment No. IA2-19. This document is intended for information purposes ONLY, and may not in any way be interpreted to alter or replace the coverage or requirements of the asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M. Any mention of product names does not constitute endorsement by the U.S. Environmental Protection Agency.

TABLE OF CONTENTS

TRC

SECTION 1

DEMOLITION PRACTICES AND NONFRIABLE MATERIALS

INTRODUCTION

EPA revised the asbestos NESHAP regulations on November 20, 1990 (see 40 CFR Part 61 Subpart M). Although the NESHAP has not been revised to alter its applicability to friable and nonfriable asbestos-containing materials (ACM), nonfriable asbestos materials are now classified as either Category I or Category II material.

Category I material is defined as asbestos-containing resilient floor covering, asphalt roofing products, packings and gaskets. Asbestos-containing mastic is also considered a Category I material (EPA determination - April 9, 1991). Category II material is defined as all remaining types of non-friable ACM not included in Category I that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable asbestos-cement products such as transite are an example of Category II material.

The asbestos NESHAP specifies that Category I materials which are not in poor condition and not friable prior to demolition do not have to be removed, except where demolition will be by intentional burning. However, regulated asbestos-containing materials (RACM) and Category II materials that have a high probability of being crumbled, pulverized, or reduced to powder as part of demolition must be removed before demolition begins.

PURPOSE

EPA has identified a need to address how specific demolition practices affect Category I and II nonfriable ACM. The purpose of this manual is to provide asbestos NESHAP inspectors with such information.

This manual is intended to apply primarily to demolition and cleanup activities for buildings that contain Category I nonfriable ACM. Although references will be made to Category II nonfriable ACM, for the purposes of this document, it and all other RACM will be assumed to have been removed prior to the start of actual demolition activities. Work practices associated solely with building renovations will not be addressed.

This manual is designed to assist the asbestos NESHAP inspector in identifying practices that normally do or do not make Category I nonfriable ACM become regulated asbestos-containing material (RACM). Applicability determinations (both formal and informal) provided by the Regional NESHAP Coordinators have been incorporated into the appropriate sections of this document in an effort to promote nationwide consistency in applying the asbestos NESHAP to these demolition practices.

Activities associated with site cleanup such as segregation, reduction, and on and offsite disposal of ACM are discussed because they may take place during or after the major demolition activities at a site and consequently may influence a demolition contractor's choice of methods.

DEFINITIONS

The following definitions taken from the November 20, 1990 revision of the asbestos NESHAP regulation are provided for ease of reference.

Adequately wet means sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

Asbestos-containing waste materials means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovations operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than one percent asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Cutting means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.

Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

Facility means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

Facility component means any part of a facility including equipment.

Friable asbestos material means any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763 section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Grinding means to reduce to powder or small fragments and includes mechanical chipping or drilling.

In poor condition means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

Inactive waste disposal site means any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.

Installation means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

Nonfriable asbestos-containing material means any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Owner or operator of a demolition or renovation activity means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

Planned renovation operations means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

TRC

Remove means to take out RACM or facility components that contain or are covered with RACM from any facility.

Renovation means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

Resilient floor covering means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than one percent asbestos as determined using polarized light microscopy according to the method specified in appendix A, subpart F, 40 CFR part 763, Section 1, Polarized Light Microscopy.

Strip means to take off RACM from any part of a facility or facility components.

Visible emissions means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

Waste generator means any owner or operator of a source covered by this subpart whose act or process produces asbestos-containing waste material.

Waste shipment record means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

SECTION 2

PRE-DEMOLITION BUILDING STATUS

This section discusses several factors that can affect the approach to demolition taken by a demolition contractor. It is being included because events that have taken place prior to the start of actual demolition work can influence the methodology(ies) chosen by demolition contractors. These events can be evaluated by an inspector, allowing for prediction of "hidden" potential problem areas. Reinforcement and clarification of applicable components of the asbestos NESHAP regulations are also included in this section.

STATE AND LOCAL REGULATIONS

State and local asbestos regulations are sometimes more stringent than the asbestos NESHAP regulations. This does not imply, however, that Category I nonfriable ACM is necessarily removed from a building prior to demolition. Contractors surveyed during research conducted in the preparation of this manual indicated that they typically treated Category I nonfriable ACM as RACM only when the owner or operator of the building being demolished was a state or local government agency or when project specifications explicitly specified that one or more of the Category I nonfriable ACM materials be removed prior to the start of demolition.

UNSAFE BUILDING DECLARATIONS

Several contractors surveyed utilized state or local mechanisms to have buildings declared unsafe as a means to avoid NESHAP requirements during and after demolition activities. However, a State or local agency should not issue a demolition order unless the facility is structurally unsound and in danger of imminent collapse. These conditions should be confirmed independently, and a demolition order should not be based solely on the representation of the contractor or the contractor's agent. Although issuance of a demolition order may have an effect on notification requirements under the asbestos NESHAP (see §61.145(a)(3)), it has no effect on requirements for disposal procedures for RACM after demolition activities. Also, waste segregation/reduction activities, addressed in Section 5 of this manual, are subject to the asbestos NESHAP provisions whether or not a building has been declared unsafe.

ABATEMENT PRIOR TO DEMOLITION

Demolition contractors typically require that a building owner/operator accept responsibility for the removal of all asbestos-containing materials found during the building inspection prior to the start of demolition activities. Several contractors indicated that if suspect ACM became exposed during demolition activities, and there was no prior knowledge of its existence at the start of demolition activities, that potential asbestos NESHAP requirements would be disregarded unless a change order was immediately processed by the owner/operator

requesting the time and materials necessary to achieve compliance with the asbestos NESHAP. Such practices are in direct violation of the asbestos NESHAP.

INTENTIONAL BURNING

As stated in the November 1990 asbestos NESHAP revision (see §61.145(c)(10)):

> *"If a facility is demolished by intentional burning, all RACM, including Category I and Category II nonfriable ACM, must be removed in accordance with the NESHAP before burning."*

Abandoned buildings utilized by fire departments for practice exercises involving partial burning are subject to this requirement.

For buildings which are still structurally sound but which have previously been subjected to partial or total, intentional or unintentional burning, an inspection for the condition of all ACM should be conducted. Category I ACM should be examined for friability and condition. Friable materials or Category I materials that are friable and in poor condition must be removed prior to any further demolition activity.

SECTION 3

DEMOLITION PRACTICES BY TYPE OF ACM

INTRODUCTION

For many years now the applicability of the asbestos NESHAP to demolitions involving Category I nonfriable ACMs (packings, gaskets, resilient floor coverings and mastic, and asphaltic roofing materials) has been the topic of much debate. Since significant amounts of airborne asbestos fibers are not believed to be produced from such materials during normal demolition activities, however, the asbestos NESHAP, in most cases, does not require their removal prior to demolition.

Category I materials are considered RACM only when they "will be or have been subjected to sanding, grinding, cutting, or abrading", they are in "poor condition" and "friable", or the structure in which they are located will be demolished by burning. (Definitions for these terms and additional information concerning Category I nonfriable ACM can be found in the preamble to the November 1990 revised asbestos NESHAP (SUPPLEMENTARY INFORMATION, Section IV - Significant Comments..., *Demolition and Renovation*, Nonfriable ACM and Broken ACM).

The following information details specific pre-demolition and demolition practices and their impact on Category I nonfriable ACM. The information has been compiled from telephone surveys of demolition contractors, the viewing of activities at a number of demolition sites, and formal and informal EPA applicability determinations. The effects of various demolition practices on asbestos-cement products are also discussed. Since the applicability of the asbestos NESHAP to Category II nonfriable materials is determined on a case-by-case basis, it is hoped that this additional information will help foster nationwide consistency in the application of the regulation to these materials.

As you will see, many of the various demolition techniques described do not, by themselves, cause Category I nonfriable ACM to become RACM. However, in many cases, post-demolition waste consolidation, cleanup, and recycling efforts can cause both Category I nonfriable ACM and Category II nonfriable ACM to become RACM. If that is likely to happen, such materials must be considered RACM and be treated as such. Post-demolition activities which can affect Category I and II materials will be detailed later in this manual.

RESILIENT FLOOR COVERING (TILES)

Depending on the types of activities occurring at a demolition site, floor tiles (and mastic) may or may not become subject to the provisions of the asbestos NESHAP.

Pre-demolition Floor Tile Removal

Although not usually required by the asbestos NESHAP, removal of asbestos-containing resilient floor tiles may occur prior to demolition. Such removal may be required when the substrate to which the floor covering is attached (particle board, wood, concrete) is to be recycled or salvaged.

Since the presence of mastic is not desirable on materials intended for resale or recycling, contractors use a variety of methods to remove this material as well.

A wide variety of floor tile removal methods exists, some of which cause the floor tiles and mastic to become RACM and subject to the provisions of the asbestos NESHAP. The following describes various removal methods and the applicability of the asbestos NESHAP to them.

Water/Amended Water/Solvents

Water, amended water, or solvents may be spread onto floor tiles in order to loosen them. After a period of soaking, the tiles may be removed using long-handled scrapers (ice chippers), or gas- or electrically-powered mechanical chisels. In cases where tile breakage is minimal, the floor tiles are not considered RACM. However, where breakage is extensive, the tiles are RACM and are subject to the provisions of the asbestos NESHAP.

Dry Ice

Although rarely used for this purpose nowadays, dry ice (frozen carbon dioxide) can be used to remove floor tiles. When dry ice is applied to the tiles, the intense cold causes the tiles to contract and detach from the substrate. As long as the tiles are not extensively damaged, they are not considered RACM.

Infrared Machines

Infrared machines may be used in the removal of floor tiles. These machines heat the flooring, thereby softening the tiles and adhesive, and allow for its easy removal. Since most tiles detach intact, they are not friable, and therefore are not considered RACM.

Shot-blasters

Shot-blasters are sometimes used in the removal of floor tiles. These machines direct a barrage of small pellets (shot) against the tiles and continually vacuum up and separate the mixture of pulverized tile and pellets. The pellets are reused immediately and the pulverized materials are segregated for disposal. EPA allows the use of shot-blasters only on wetted floor tiles. Floor tiles and mastic removed by shot-blasters are considered RACM and are therefore subject to the asbestos NESHAP.

Demolition with Floor Tiles in Place

Since ordinary demolition activities do not include the sanding, grinding, cutting and abrading of floor tiles, floor tiles and associated mastic that are not in poor condition and not friable are not considered RACM and are allowed to remain in place during demolition.

ASPHALT ROOFING PRODUCTS

The pre-demolition terms and conditions (governmental regulations, contract specifications) discussed in Section 2 also influence the handling of asbestos-containing roofing materials.

Pre-demolition Roof Removal

If preliminary assessment has determined that roofing materials contain asbestos, and regulations or contract specifications dictate removal of such material prior to demolition, licensed abatement contractors may be required to do the removal. Alternatively, the demolition contractor may undertake the operation.

Roofs may be removed in a variety of ways. Demolition personnel may use sledge hammers, pry bars, axes, adzes, shovels, ice chippers and roof-cutting saws to remove the roofing materials. They also may use tractor-mounted rotating blade cutters, power plows and power slicers. Use of roof-cutting saws, either hand- or power-driven, or tractor-mounted, are of great concern, since they can generate asbestos-containing dust from roofing materials. The sawing of Category I nonfriable ACM roofing material and the debris created by the sawing are regulated by the asbestos NESHAP. Since power plows and power slicers do not sand, grind, cut or abrade the roofing materials, their use and resultant debris are not subject to the asbestos NESHAP regulation. Category I nonfriable ACM roofing squares that have been decontaminated may be disposed of with other demolition debris or at an asbestos landfill.

Demolition with Roofing Materials in Place

Since demolition activities do not include sanding, grinding, cutting, or abrading, Category I asbestos-containing roofing materials not in poor condition and not friable are not considered RACM and are allowed to remain in place during demolition.

ASBESTOS-CEMENT PRODUCTS

Asbestos-cement products (such as transite) are commonly used for duct insulation, pipes, and siding. Being a Category II nonfriable ACM, asbestos-cement products need to be removed prior to demolition if they have a high probability of becoming crumbled, pulverized, or reduced to powder during demolition activities. EPA believes that most demolition activities will subject such Category II nonfriable ACM to the regulation.

Whether asbestos-cement products are subject to the asbestos NESHAP should be determined by the owner or operator on a case-by-case basis based on the demolition techniques to be used.

In general, if contractors carefully remove asbestos-cement materials using tools that do not cause significant damage, the materials are not considered RACM and can be disposed of with other construction debris.

However, if demolition is accomplished through the use of cranes (equipped with wrecking balls, clamshells or buckets), hydraulic excavators, or implosion/explosion techniques, asbestos-cement products will be crumbled, pulverized or reduced to powder, and are subject to the provisions of the asbestos NESHAP.

Some demolition contractors do not treat significantly damaged asbestos-cement products as RACM; they mix it with other demolition debris and dispose of it in direct violation of the waste-disposal provisions of the asbestos NESHAP.

SECTION 4

DEMOLITION PRACTICES BY METHOD

Methods of destruction employed at demolition sites include the use of heavy machines, explosions/implosions, and hand methods. All of these methods cause Category II nonfriable ACM to become RACM; however, Category I nonfriable ACM (packings, gaskets, resilient floor coverings, asphaltic roofing materials, mastic) that is not in poor condition and not friable prior to the demolition operation may be subjected to most of these techniques without becoming RACM. The following describes various demolition techniques and their effects on nonfriable materials. All Category I nonfriable ACM referenced is presumed not to be in poor condition and not friable prior to the demolition operation.

HEAVY MACHINERY RAZING OPERATIONS

For the purposes of this document heavy machinery (or equipment) includes large motorized vehicles such as bulldozers with rakes, top loaders, backhoes, skid loaders/bobcats, hydraulic excavators, and other similar machinery used for transporting, moving, or dislodging of materials at a demolition site. Cranes equipped with wrecking balls, clamshells, or buckets are also considered heavy machinery.

Heavy machinery is used at demolition sites for both razing operations and post-demolition activities. "Razing", the process which reduces a building's structural skeleton to rubble, typically occurs after the building's interior has been gutted by hand.

Use of heavy machinery during the razing process causes Category II nonfriable ACM, but not Category I nonfriable ACM to become RACM. Use of such equipment during subsequent operations, such as waste consolidation, however, is a major concern which will be addressed in Section 5 of this document.

Bulldozers and Similar Machinery

Included in this grouping of heavy machinery are all types of bulldozers, backhoes, top loaders and skid loaders/bobcats commonly used in conjunction with hand methods to raze buildings. Bulldozers move on tracks whereas backhoes, top loaders, and skid loaders operate on rubber tires.

Only if a great deal of working space exists at a site, and a precisely-controlled demolition is not necessary, can bulldozers such as 977 loaders and D-9s be used to demolish a building. These bulldozers are typically equipped with giant rakes designed to ram building walls and move debris.

977's or D-9s may be used to undermine a building, but hydraulic excavators (discussed later in this section) are usually used for this purpose.

Backhoes and top loaders are mainly used for moving debris and tearing off sections of walls and other building components.

Skid loaders, machines commonly used to load skids or pallets onto trucks, may be specially equipped with a type of ram for use during demolitions and are usually of the "bobcat" type.

The razing of a building using the heavy machinery described above causes Category II nonfriable ACM, but not Category I nonfriable ACM to become RACM.

Hydraulic Excavators

Hydraulic excavators, such as EL-300s, 225s or 215s, resemble a combination bulldozer/backhoe and operate on tracks. They are easier to use and provide greater control during demolition than the bulldozers described above. However, since they too raze buildings by ramming and tearing, like bulldozers, their use in congested areas is limited. Nearby buildings must be protected from the falling debris; plywood may be applied over the windows and rubber tires may be used to cushion and prevent damage to walls of adjacent structures.

On rare occasions, hydraulic excavators may be used to topple one- or two-story buildings by means of an undermining process. The strategy is to undermine the building while controlling the manner and direction in which it falls. The demolition project manager (who in many jurisdictions must be licensed by the city or state) must determine where undermining is necessary so that a building falls in the desired manner and direction. The walls are typically undermined at a building's base, but this is not always the case as building designs may dictate otherwise. Safety and cleanup considerations are also taken into account in determining the methods to be used.

Since the toppling of a building constitutes a safety hazard and generates enormous quantities of dust, many cities and towns will not approve of this method of demolition. Where the practice is allowed, the contractor may be required to keep the structure wet during demolition. Hydrant permits may be required and, because of the wetting restrictions, such demolitions may be impossible to accomplish during the winter.

Hydraulic excavators are also used to conduct cleanup activities such as excavation, fill burial, material reduction, and material load-out.

The use of hydraulic excavators during the razing process causes Category II nonfriable ACM, but not Category I nonfriable ACM to become RACM.

Cranes (Wrecking Ball, Clamshell, Bucket)

Although often employed in the past, particularly during demolitions of high-rise structures, cranes are now rarely used. They are expensive to operate and usually not necessary, since renovation has displaced demolition as the method of choice in dealing with many out-of-date

structures. Cranes are currently used only in situations where other equipment cannot be employed.

Cranes may be equipped with wrecking balls, clamshells or buckets, which are used in a variety of ways. All three may be dropped or swung against the structure to demolish it. When employed in this manner, clamshells provide the greatest force of the three and result in the fastest, most efficient demolition projects.

Buckets and clamshells allow a greater degree of control than wrecking balls. Buckets may be raised to the level where internal demolition of the building is taking place and be used merely to transport and segregate hand-loaded demolition materials collected from within. Clamshells can take big bites out of the structure and facilitate the segregation of demolition debris.

When demolition is accomplished by crane, the process can begin at the roof and progress continually downward, or alternate up and down. Materials are segregated to the greatest degree possible as the demolition progresses so that the need for post-demolition handling is minimized. In the case of high-rise structures, the interiors are usually gutted by hand prior to razing.

Effect on Category I Materials

The use of cranes during the razing process does not cause Category I nonfriable ACM to become RACM; therefore, Category I materials which are not in poor condition and not friable may remain in the building during such demolition.

Effect on Category II Materials

The use of wrecking balls on asbestos-cement (A/C) siding (a Category II nonfriable ACM) on buildings is specifically addressed in the November 1990 asbestos NESHAP revision (see SUPPLEMENTARY INFORMATION, Section IV - Significant Comments..., *Demolition and Renovation*, Nonfriable ACM):

> *"...the A/C siding on a building that is to be demolished using a wrecking ball is very likely to be crumbled, or pulverized with increased potential for the release of significant levels of asbestos fibers. Such material in this instance should be removed prior to demolition."*

Therefore, A/C siding, although a nonfriable material, is considered RACM when a wrecking ball is being used to demolish the structure. Whenever buckets and clamshells are to be swung like wrecking balls, A/C materials should also be considered RACM.

EXPLOSIONS/IMPLOSIONS

Building implosions utilizing explosive devices constitute a rarely-used demolition technique. In simplest form, this method is accomplished through the use of explosive charges placed

strategically throughout a building so that the building collapses in on itself and debris does not radiate outward to any appreciable distance. Relatively large quantities of dust are created, however, and the direction and magnitude of transport are matters of concern.

Effect on Category I Materials

The asbestos NESHAP does not require the removal of Category I nonfriable ACM that is not in poor condition and not friable prior to building implosions. Normal implosion techniques do not cause nonfriable materials to become RACM. The destruction of buildings during military target practice is considered to be another form of explosive demolition. Category I materials may remain in place during target practice. However, if it can be expected that the building and ACM will burn as a result of explosive demolition, the ACM must be removed prior to demolition.

Recent examination of asbestos-containing floor tiles and roofing materials contained in a large building demolished by implosion revealed that the floor tile was in fair to good condition and had not become friable. Tiles had been broken up into small quantities of large pieces as the individual floors collapsed upon each other. The roofing materials were similarly affected; they too remained nonfriable following demolition by implosion.

EPA does not consider Category I material to be RACM as a result of building implosions. If, however, Category I materials are to be subjected to sanding, grinding, cutting, or abrading after demolition, they must be treated as RACM and be removed from the building before demolition.

Effect on Category II Materials

Category II materials, such as transite, found in or on buildings scheduled for implosion/explosion destruction must be removed before such demolition. Such materials are considered RACM because they have "a high probability of becoming crumbled, pulverized or reduced to powder" during such activities.

HAND METHODS OF DEMOLITION

This section of the manual addresses hand methods employed during demolition and includes segregation activities which take place during demolition (as opposed to cleanup) and their effects on Category I materials. "Hand methods", for the purposes of this manual, refer to the use of motorized and non-motorized tools that can be operated by hand and are not used for transportation. The methods discussed include not only those used in the gutting of building interiors prior to razing, but also those used during razing itself. Unless otherwise noted, "hand methods" refers to those methods that do not significantly damage the ACM and therefore do not cause Category I nonfriable ACM to become RACM.

Most buildings of ten floors or less are currently razed at least partially, if not fully, by hand. Hand methods allow much greater control over a building's collapse than other methods and permit easier segregation of demolition materials for resale or recycling than other demolition methods. In addition, hand methods may be required because of workspace limitations.

Depending on the size of the job and demolition schedule, the size of a demolition crew may vary from as few as five individuals to 30 or more. As a general rule, workers use relatively inexpensive tools such as pry bars, hand-held saws, power saws, sledge hammers, axes, bolt cutters, and acetylene torches during gutting and razing operations.

As the gutting/salvage activities progress, demolition debris is typically deposited into a trailer or dumpster strategically placed outside a window of the building being demolished. The window frame is removed and materials are loaded into the storage containers by hand, or, where possible, by bobcats operating within the building. Many jobs require the use of dust-tight chutes for the transport of such debris.

On the rare occasion where onsite burial of demolition debris is allowed, the first activity to take place in the building is the removal of the first story's flooring. This is done so that as waste materials accumulate on upper floors, they can be sent down into the basement through the center of the building, typically through elevator shafts, for disposal. Chutes may be used if elevator shafts are not available. Such onsite disposal typically is allowed only for noncombustible materials such as cement and brick. Waste consolidation activities which occur in the basement area are of great concern to EPA and are discussed in Section 5 of this manual.

Excess demolition wastes are loaded out for transport to a landfill that accepts construction debris. If no basement area exists, or if materials cannot be sent into dumpsters or trailers immediately as previously described, debris may be stored in piles scattered around the site. These materials may subsequently be moved by hand or through the use of light or heavy machinery. Section 5 of this manual details such operations.

Floor Removal and Disposition

The techniques used in removing flooring depend upon its ultimate fate. Where it is in poor condition and incapable of being reused or recycled, the flooring is typically ripped out using pry bars and sledge hammers and sent offsite for disposal. Sometimes wood flooring and other debris is burned to reduce the volume of waste. In this case, the asbestos must be removed prior to burning the wood debris. Since demolition debris disposal costs are so high ($100 - $500 per 60-100 cubic yard load) as much salvage/recycling of materials is done as possible.

Wood or particle board flooring is sometimes segregated and sold to recycling centers where it is chipped up and sold as filler or mulch (composting, gardening, etc.). If resilient asbestos-containing floor covering is attached to such flooring it is considered RACM and must be removed prior to recycling. Tiles are often chipped or scraped off the substrate using the methods described in Section 3.

Large planks and joists, and beams (both wooden and steel) may also be saved if they are in good condition. Wooden planks are usually lifted with pry bars, whereas the larger joists and beams are segregated for reuse following the razing of the structure.

Where demolition debris will be recycled, any asbestos remaining on the debris must be removed prior to any recycling that will sand, grind, cut, or abrade the asbestos or otherwise cause it to become RACM.

Roof Removal and Disposition

On occasion one may find that the roof of a building being demolished is removed before the building is razed. Such removal may be required when buildings are very close to one another, or when the roofing contains asbestos-containing materials.

There are two major types of roofing: "built-up roofing" and "sheet goods". Built-up roofing contains multiple layers of felt and asphalt. Sheet goods typically consist of a single layer of material.

Roofs are often taken out by hand, typically by using pry bars, sledge hammers, axes, adzes, bolt cutters, ice chippers, shovels and roof-cutting saws. If the roof contains asbestos materials (felt, cork, etc.), an asbestos removal contractor may be employed to remove it. Some abatement contractors wet the roof with plain or amended water and then use shrouded power saws whose exhaust is HEPA-filtered to cut the roofing into manageable (often 2' x 3') pieces. After the pieces are lifted, the edges may be encapsulated. Other abatement contractors may build a full containment and establish a reduced pressure environment prior to removing the roofing materials.

Depending upon the contractors involved and the condition of the asbestos-containing roof debris, the debris may or may not be segregated from other demolition debris. Abatement contractors may store roof debris in lined dumpsters onsite and dispose of it at an asbestos landfill; if the asbestos-containing roofing material is not in poor condition and is not friable however, it may be disposed of in a landfill which accepts ordinary demolition waste.

Asbestos-containing roofing material may not be ground up for recycling into other products.

Work Progression

Demolition crews typically work downward, floor by floor. Materials such as doors, windows, electrical and other fixtures which can be salvaged are removed first. Interior partitions are then ripped, cut, or knocked out using various hand-held tools including sledge hammers, axes, adzes and pry bars. Brick is generally segregated immediately after being knocked out of walls so it can be examined at the site by potential buyers. Ceilings are also ripped out using pry bars, axes and sledge hammers. Steel and other metal materials are typically placed in separate debris piles from other materials. Work proceeds in a similar floor/wall, floor/wall pattern until the first floor is once again reached.

Sawing/Cutting Operations

In order to raze a building by hand, load-bearing members must be cut. Based upon the composition, thickness, and condition of the structural member being cut, saws selected range

from hand saws to Sawz-alls™ and gas-driven carbide blade hand saws. Large bolt cutters are also used to cut steel members. Category I materials subjected to sawing or cutting are subject to the provisions of the asbestos NESHAP; however, typical demolition sawing/cutting operations rarely involve such materials.

Grinding Operations

Grinding operations are not common occurrences at most demolition sites. On occasion, however, asbestos-containing mastic and remaining pieces of floor tile may be ground off concrete destined for recycling. Category I material so treated is RACM and is subject to the provisions of the asbestos NESHAP.

Pulverizing Operations

On occasion, asbestos-containing floor tiles are removed from their substrate by hand, using either hand-held ice choppers or electrically- or gas-powered mechanical chippers. If use of such methods pulverizes, crumbles or reduces the floor tiles to powder, the tiles must be considered RACM and must be handled in accordance with the requirements of the asbestos NESHAP.

Summary

On rare occasions Category I nonfriable ACM may be subjected to hand methods involving the uncontrolled drilling, cutting, sawing, grinding or abrading of such materials; under these circumstances Category I materials are considered RACM.

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SECTION 5

ONSITE WASTE HANDLING PROCEDURES

INTRODUCTION

At the present time it is not demolition operations and ordinary cleanup activities but the post-demolition activities involving waste consolidation and recycling of Category I and II materials which are of greater concern. If such activities subject either Category I or II nonfriable ACM to sanding, grinding, cutting or abrading, the materials become RACM and are then subject to the provisions of the asbestos NESHAP.

In general, since cleanup activities such as loading waste debris onto trucks for disposal do not subject nonfriable materials to sanding, grinding, cutting or abrading, such materials are not considered asbestos-containing waste materials and are not regulated by the asbestos NESHAP.

However, waste consolidation efforts which involve the use of jack hammers or other mechanical devices such as grinders to break up asbestos-containing concrete or other materials covered or coated with Category I nonfriable ACM, are subject to the regulation.

In addition, operations such as waste recycling which sand, grind, cut, or abrade Category I or II nonfriable ACM are subject to the asbestos NESHAP. When these types of activities are performed, Category I and II nonfriable ACM become RACM.

The following details the post-demolition activities of waste consolidation (segregation and reduction), waste load-out and onsite waste disposal and their effects on nonfriable ACM.

WASTE CONSOLIDATION

Waste consolidation operations involve segregation and reduction activities that have as their ultimate goal the resale, recycling, and disposal of demolition debris.

Segregation of Demolition Debris

Demolition contractors segregate demolition debris primarily to maximize their profits. As much material as possible is collected for resale and recycling (e.g., wood, brick, steel and concrete); the remaining debris is most often transported offsite for disposal.

Segregation may involve cutting and grinding operations, the breaking and tearing apart of materials to separate them by material type, and the transport of materials within the demolition site boundaries.

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Since segregation activities may be accomplished using hand methods and heavy equipment, nonfriable ACM may or may not become friable in the process. The following text details various segregation activities and describes their effects on nonfriable materials.

Segregation by Hand

Materials such as wood, brick and steel are generally separated from other demolition debris using equipment such as sledgehammers, prybars, adzes and axes. If any hand equipment is used to cut, sand, grind, or abrade Category I or II materials, RACM is thus created and the provisions of the asbestos NESHAP apply.

Material Transport

Since heavy equipment is often used to move and segregate demolition debris, questions have been raised concerning the effect of such transport particularly on Category I nonfriable ACM.

If Category I nonfriable ACM is transported across a demolition site in the bucket of a top loader, backhoe, hydraulic excavator or other similar vehicle, it is not considered RACM since it is not subjected to sanding, grinding, cutting or abrading during this activity.

Use of bulldozers, on the other hand, is expected to have a greater impact on Category I materials. However, EPA has stated that "...if the bulldozer is moving the debris or picking it up to be put in a vehicle and inadvertently runs over Category I material, then it is not subject to the NESHAP standard" (see Appendix I). Consequently, the moving of debris by bulldozers, whether by carrying it in a bucket or pushing it along the ground does not in itself cause Category I nonfriable ACM to become RACM.

Category II nonfriable ACM subjected to sanding, grinding, cutting or abrading during collection and transport is considered RACM and thus subject to the asbestos NESHAP.

Vehicular Traffic Impact

Rubber-tired Vehicles

If nonfriable ACM is intentionally run over by rubber-tired vehicles as a means of segregation, it does not automatically become RACM but must be examined for damage. If it has become extensively damaged, i.e., it was sanded, ground, cut or abraded during segregation, it becomes RACM and is subject to the NESHAP regulation.

Tracked Vehicles

Although tractor treads present greater risks of causing extensive damage to nonfriable ACM, limiting their use at demolition sites is not considered practical. Intentionally running over nonfriable ACM with tractor treads as a means of segregation is considered grinding; material thus treated becomes RACM.

Intentional segregation in this manner is addressed in the preamble to the revised asbestos NESHAP (SUPPLEMENTARY INFORMATION, Section IV, Significant Comments and Changes to the Proposed Revisions, Demolition and Renovation, Nonfriable ACM):

> *"Examples of practices...included the breaking of nonfriable insulation from steel beams by repeatedly running over the beams with a crawler tractor...these and other similar practices involving nonfriable asbestos material were considered to render nonfriable ACM into dust capable of becoming airborne."*

Reduction of Demolition Debris

Reduction activities are of the greatest concern to EPA, since they are most likely to cause both Category I and Category II nonfriable ACM to become RACM.

Category I Reduction

The use of bulldozers to reduce the volume of Category I materials causes them to become RACM as discussed elsewhere in this manual and in the following EPA correspondence:

> *"If, after a demolition, material left in the facility... is intentionally ground up (such as repeatedly running over the debris with a bulldozer to compact the material), then 61.150(a)(3) applies. The material must be adequately wetted and kept adequately wet during collection and transport to a site or facility operated in accordance with 61.154 or 61.155."* (See Appendix I).

Reduction by the use of sledgehammers does not normally cause Category I nonfriable ACM to become RACM. The use of pneumatic hammers, however, whether hand-operated or attached to heavy machinery, does cause these materials to become RACM. The use of cranes with clamshells or other heavy machinery with rakes or buckets to partially reduce Category I nonfriable ACM is permissible if the material is left recognizable in its original form. Extensively damaged Category I ACM (that which has been sanded, ground, cut, or abraded) becomes RACM. Consolidating waste materials containing Category I nonfriable ACM in the hole (basement) of a building and subsequently grinding or crushing it via bulldozer subjects the operation to the asbestos NESHAP.

For wood/tile debris, demolition crews sometimes use tree chippers to grind the material up. Any Category I nonfriable ACM subjected to this treatment becomes RACM.

Category II Reduction

Reduction of Category II materials such as asbestos-cement pipe and concrete following demolition is also a matter of concern.

TRC

Asbestos-Cement Pipe

EPA considers asbestos-cement pipe to be a "facility component" (as defined in 40 CFR §61.141) of the facility which owns or utilizes the pipe. In addition, EPA considers asbestos-cement pipe to be Category II nonfriable asbestos containing material. This material becomes "regulated asbestos containing material" (RACM), as defined in 40 CFR §61.141, when it becomes "friable asbestos material" or when it "has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material during the course of demolition or renovation operations regulated by [40 CFR Part 61 Subpart M]." Consequently, the crushing of asbestos-cement pipe with mechanical equipment will cause this material to become RACM. The demolition and renovation provisions in 40 CFR §61.145 and the waste disposal provisions in 40 CFR §61.150 apply to asbestos-cement pipe where the pipe is considered RACM, and the amount of pipe being removed and crushed is at least 260 linear feet for a single renovation project or during a calendar year for individual nonscheduled operations.

Concrete

At certain demolition sites demolition contractors may rent and operate large concrete-pulverizing machines called PC-400s. Since the asbestos content of concrete is rarely known, use of such machines is a matter of concern to EPA. Under no circumstances should asbestos-containing concrete, or concrete to which asbestos-containing resilient flooring is attached, be subjected to such treatment.

Onsite Waste Disposal

As mentioned in other sections of this manual, using heavy machinery to crush demolition debris containing Category I or II nonfriable ACM in place prior to or during burial, can cause the ACM to become RACM subject to the provisions of sections §61.150 (waste disposal) and §61.151 (inactive waste disposal sites) or §61.154 (active waste disposal sites). If Category I or II materials are not rendered friable, they are not subject to the asbestos NESHAP.

EPA has recently responded to a question regarding the onsite disposal of crushed asbestos-cement pipe, a Category II material. The response is applicable as well to the burying of Category I material which has been sanded, ground, cut or abraded. In its correspondence EPA stated that the practice of backfilling and burying crushed asbestos-cement pipe in place causes these locations to become active waste disposal sites subject to the requirements of §61.154. Furthermore, if no additional asbestos-containing waste material is buried at that location for a year, the site becomes an inactive waste disposal site subject to the requirements of §61.151(e) and §61.154(h).

Consequently, the owner of the land would be required to comply with the requirements for active and inactive waste disposal sites.

In order to avoid the creation of a waste disposal site which is subject to the Asbestos NESHAP, it was suggested that the owners or operators of the pipe consider other options for dealing with it. If the pipe is left in-place or removed in such a way that it is not crumbled, pulverized or reduced to power, it would not be subject to the NESHAP. If the pipe must be crushed, the creation of an active waste disposal site can be avoided by removing the pipe from the site and transporting it to a landfill which accepts asbestos waste material.

An alternative method suggested involved the pumping of grout into the buried lines which are no longer in service.

Waste Load Out

As mentioned previously, waste load out activities generally do not cause Category I nonfriable ACM to become RACM. Top loaders are typically used to deposit demolition debris containing Category I nonfriable ACM into trucks for hauling to landfills that accept construction debris.

Recent EPA correspondence discusses the hauling and ultimate disposal of both Category I and Category II ACM as follows:

> *It is required under §61.150(a)(3) that asbestos-containing waste material be kept adequately wet. Asbestos-containing waste material as applied to demolitions and renovations includes RACM waste and materials contaminated with asbestos including disposable equipment and clothing. Category I or Category II nonfriable ACM that has been contaminated by RACM, and cannot be decontaminated (e.g., building debris in a pile contaminated with RACM) must be treated as asbestos-containing waste material. Category I or Category II ACM that does not meet the definition of RACM after a demolition or renovation, and is not contaminated with RACM, is not asbestos-containing waste material and is not subject to the wetting requirement of §61.150(a)(3).*
>
> *Category I or II nonfriable ACM that is not subject to §61.150(a)(3) would still have to be disposed of in a landfill that accepts building debris, in a landfill that operates in accordance with §61.154, or at a facility that operates in accordance with §61.155. This waste material would not be allowed to go to any facility that would sand, grind, cut or abrade the non-RACM waste or otherwise turn it into RACM waste (such as a cement recycling facility). In addition, if Category I or II nonfriable ACM is sanded, ground, cut or abraded during disposal at a landfill, before it is buried, it is subject to the NESHAP.* (See Appendix I).

TRC

SECTION 6

OFFSITE WASTE HANDLING PROCEDURES

The issues discussed in this section include landfills, recycling centers, conversion facilities, and renovation activities. Since EPA has taken a "cradle to grave" approach regarding the disposition of ACM, responsibility for the ultimate fate of Category I ACM rests with all individuals involved in handling the material.

Landfills

Category I and II ACM that has become RACM must be disposed of in a landfill that operates in accordance with §§61.150 and 61.154, or in an EPA-approved conversion facility described in §61.155 of the asbestos NESHAP.

Category I and II nonfriable ACM which has not become RACM during demolition may be disposed of in a landfill that normally accepts construction debris. However, if Category I or II nonfriable ACM is sanded, ground, cut or abraded before it is buried at the landfill, it is subject to the asbestos NESHAP.

Recycling Centers

At the present time, EPA does not allow either Category I or II nonfriable demolition debris to go to any facility (e.g., a cement recycling facility) that will sand, grind, cut or abrade it or otherwise turn it into RACM waste. Recycling facilities which cause non-RACM waste to become RACM waste are subject to the provisions of the asbestos NESHAP (See Appendix I).

Conversion Facilities

Conversion facilities are addressed in Section 61.155 of the November 1990 revised asbestos NESHAP. Owners/operators of such facilities must handle ACWM according to the provisions of the asbestos NESHAP.

APPENDIX I

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

MAR 18 1992

OFFICE OF
AIR AND RADIATION

Ms. Ann Bieller, Area Manager
Environmental Management
Southwestern Bell Telephone
Procurement Organization
500 North Broadway, Room 1400
St. Louis, Missouri 63102

Dear Ms. Bieller:

This letter is in response to your January 28, 1992 letter requesting a clarification of 40 CFR §61.150(a)(3) as it relates to §61.145(c)(1)(i) and (iv), of the Asbestos NESHAP Revision; Final Rule, dated November 20, 1990.

In your letter, you present your understanding that there are no special requirements for adequately wetting Category I or Category II nonfriable asbestos-containing material (ACM) during the course of a demolition or renovation if it does not meet the definition of regulated asbestos-containing material (RACM). You also state that this conclusion is further supported by §61.150(a)(5), until §61.150(a)(3) is taken into consideration. Section 61.150(a)(3) requires, "for facilities demolished where RACM is not removed prior to demolition according to §§61.145(c)(1)(i),(ii),(iii) and (iv) or for facilities demolished according to §61.145(c)(9), adequately wet asbestos-containing waste material at all times after demolition and keep wet during handling and loading for transport to a disposal site." You question the correctness of the §61.150(a)(3) reference to §61.145(c)(1)(i) and (iv).

Section 61.150(a)(3) correctly cites §61.145(c)(1)(i),(ii),(iii) and (iv). It is required under §61.150(a)(3) that asbestos-containing waste material be kept adequately wet. Asbestos-containing waste material as applied to demolitions and renovations includes RACM waste and materials contaminated with asbestos including disposable equipment and clothing. Category I or Category II nonfriable ACM that has been contaminated by RACM, and cannot be decontaminated (e.g., building debris in a pile contaminated with RACM) must be treated as asbestos-containing waste material. Category I or Category II ACM that does not meet the definition of RACM after a demolition or renovation, and is not contaminated with RACM, is not asbestos-containing waste material and is not subject to the wetting requirement of §61.150(a)(3).

If, after a demolition, material left in the facility according to §61.145(c)(1)(i) or (iv) is intentionally ground-up (such as by repeatedly running over the debris with a bulldozer to compact the material), then §61.150(a)(3) applies. The material must be adequately wetted and kept adequately wet during collection and transport to a site or facility operated in accordance with §61.154 or §61.155. However, if the bulldozer is moving the debris or picking it up to be put in a vehicle and inadvertently runs over Category I material, then it is not subject to the NESHAP standard.

Category I or II nonfriable ACM that is not subject to §61.150(a)(3) would still have to be disposed of in a landfill that accepts building debris, in a landfill that operates in accordance with §61.154, or at a facility that operates in accordance with §61.155. This waste material would not be allowed to go to any facility that would sand, grind, cut or abrade the non-RACM waste or otherwise turn it into RACM waste (such as a cement recycling facility). In addition, if Category I or II nonfriable ACM is sanded, ground, cut or abraded during disposal at a landfill, before it is buried, it is subject to the NESHAP.

This response has been coordinated with EPA's Office of Enforcement and with the Emission Standards Division of the Office of Air Quality Planning and Standards. If you have any questions, please contact Tom Ripp of my staff at (703)308-8727.

Sincerely,

Richard Biondi

Richard Biondi, Acting Director
Stationary Source Compliance Division
Office of Air Quality Planning and Standards

cc: Sims Roy, ESD (MD-13)
Omayra Salgado, SSCD (EN-341W)
Scott Throwe, SSCD (EN-341W)
Charlie Garlow, OE (LE-134A)
Regional Asbestos NESHAP Coordinators

APPENDIX E
CERTIFICATIONS

FEHR GRAHAM ENGINEERING AND ENVIRONMENTAL

909 N 8TH ST STE 101, SHEBOYGAN, WI 53081-4056 | (920) 453-0700

is a

Certified Asbestos Company
DHS ID 27140

under Wisconsin Admin. Code ch. DHS 159.

Issued Date: September 6, 2023
Expiration Date: September 17, 2025

Miriam Hasan
Supervisor, Lead & Asbestos Certification Unit

Wisconsin Department of Health Services
1 W Wilson Street
Madison, WI 53701
608-261-6876 | dhsasbestoslead@dhs.wisconsin.gov

FEHR GRAHAM ENGINEERING AND ENVIRONMENTAL

909 N 8TH ST STE 101, SHEBOYGAN, WI 53081-4056 | (920) 453-0700

is a

Certified Lead Company
DHS ID 27140

under Wisconsin Admin. Code ch. DHS 163.

Issued Date: September 6, 2023
Expiration Date: October 1, 2025

Miriam Hasan
Supervisor, Lead & Asbestos Certification Unit

Wisconsin Department of Health Services
1 W Wilson Street
Madison, WI 53701
608-261-6876 | dhsasbestoslead@dhs.wisconsin.gov

LEAD(PB) INSPECTOR

Issued By

STATE OF WISCONSIN

Dept. of Health Services

Coleton Wayne Lewis
305 Timberlake Rd
Sheboygan WI 53081-8725

		250 lbs	6' 06"
LII-276164	Exp: 06/23/2025	09/22/1991	

Training due by: 06/23/2025

ASBESTOS INSPECTOR

Issued By

STATE OF WISCONSIN

Dept. of Health Services

Coleton Wayne Lewis
305 Timberlake Rd
Sheboygan WI 53081-8725

		250 lbs	6' 06"
AII-276164	Exp: 04/18/2024	09/22/1991	

Training due by: 04/18/2024

Milwaukee Lead/Asbestos Information Center

A division of Midwest Certified Training, Inc.
3495 North 124th Street, Brookfield, WI 53005 Phone: 414-481-9070

Coleton Lewis

Has successfully completed a course and passed the examination on March 20, 2024 *with a minimum score of 70 percent, that meets all criteria for the State of Wisconsin Recertification as an*

Asbestos Inspector Refresher Course

Date of Course: *March 20, 2024*

Date Issued *March 20, 2024*

Date of Expiration: *March 20, 2025*

Certification Number: *AIR24032070169*

Location: *MidWest Certified Training, 741 Lois Drive, Sun Prairie, WI 53590*

DCQ Course ID #: 9606

Rocky Everly

Rocky Everly, , Director of Milwaukee Lead/Asbestos Information Center, Inc.
3495 North 124th Street
Brookfield, WI 53005
414-481-9070

This training course complies with the requirements of TSCA Title II and is accredited by the State of Wisconsin Department of Health Services under ch. DHS 159, WIs. Admin.Code.

Milwaukee Lead/Asbestos Information Center

A Division of Midwest Certified Training, Inc.
3495 North 124th Street, Brookfield, WI 53005 Phone: 414-481-9070

Coleton Wayne Lewis

has successfully passed the required course test and completed all other requirements for the 16-hour

Lead Inspection Initial Course

on *May 2-3, 2023* ***in*** *Milwaukee Lead/Asbestos Information Center, 3495 North* .

Course Test Date: *May 3, 2023*

Date Course Certificate Issued: *May 3, 2023*

Course Certificate #: *LII23050267608*

DCQ Course ID #: 8822

Rocky Everly

Rocky Everly, Training Manager MLAIC

This training course complies with the requirements of and is accredited by the State of Wisconsin, Department of Health and Family Services under ch. HFS 163, WIs. Admin. Code.

FEHR GRAHAM

ENGINEERING & ENVIRONMENTAL

fehrgraham.com

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

April 23, 2024

Dyann Benson
Community Development Director
City of Fond du Lac Redevelopment Authority
160 South Macy Street
Fond du Lac, WI 54935

RE: Hazardous Materials Inventory and Pre-Demolition Asbestos and Lead Inspection Report
5 S. Main Street
Fond du Lac, WI 53935
FG Project No. 24-624

Dear Dyann:

Fehr Graham is pleased to provide the City of Fond du Lac Redevelopment Authority with results of a hazardous materials inventory and Pre-Demolition Asbestos and Lead Inspection Report for the buildings located at 5 S. Main Street, Fond du Lac, Wisconsin 53935 (herein referred to as the Subject Property).

HAZARDOUS MATERIALS SURVEY

Cole Lewis and Dillon Plamann of Fehr Graham were on site March 18, 2024, to evaluate the Subject Property buildings for hazardous materials. The survey was conducted within all accessible rooms in the Subject Property buildings.

The following potentially hazardous materials were identified with the Subject Property buildings, including:

- Sixty-seven (67) 4" fluorescent lights
- One (1) U shaped fluorescent light
- Three (3) small spiral fluorescent lights
- Three (3) exit signs
- One (1) electric panel
- One (1) thermostat
- Three (3) hydraulic door closers
- Five (5) small containers household cleaners
- One (1) water heater
- One (1) HVAC
- One (1) fuel oil aboveground storage tank
- One (1) 30-gal drum

The material locations and quantities are listed in the attached Hazardous Materials Inventory Table.

PRE-RENOVATION ASBESTOS AND LEAD PAINT INSPECTION

Fehr Graham completed the pre-demolition asbestos and lead inspection on March 18, 2024. The findings are summarized in the attached report, with material handling recommendations during the demolition activities. Detailed room-by-room results are included in the report.

Fehr Graham appreciates the opportunity to provide you with environmental services. If you have any questions regarding the results of this survey or the project in general, please contact Mr. Cole Lewis or Mr. Dillon Plamann at 920-453-0700.

Sincerely,

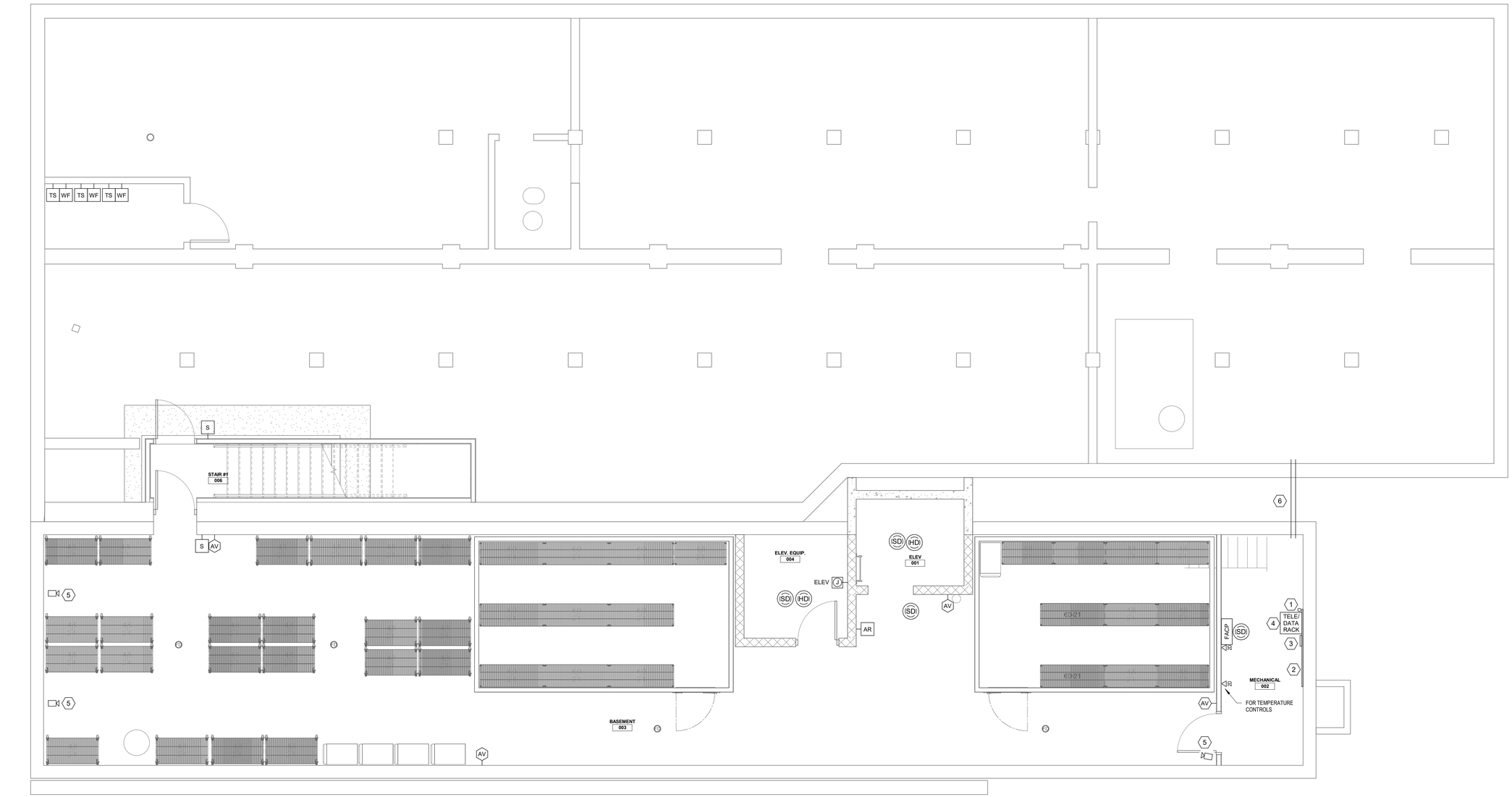
Cole Lewis
Asbestos Inspector
Lead Inspector

Dillon Plamann, PG
Asbestos Inspector
Lead Inspector

Attachments:
Hazardous Materials Inventory Table
Pre-Demolition Asbestos and Lead Inspection Report

Hazardous Materials Inventory Table
24-625 - 5 S. Main Street, Fond du Lac, WI

Location	2' fluorescent light	4' Fluorescent Light	U Shaped Fluorescent light	8' Fluorescent light	Small Spiral Fluorescent Light	Exit Sign	Fire Alarm	Fire extinguisher	Electric panel	Thermostat	Breakers	Hydraulic Door Closer	Household Cleaners	Safe Door	HVAC	Water Heater	Space Heater	Fuel Oil AST	30 Gallon Drum
1st Floor		67	1		3	3			1	1		3	5					1	1
Basement															1	1			
TOTAL	0	67	1	0	3	3	0	0	1	1	0	3	5	0	1	1	0	1	1



1 BASEMENT SPECIAL SYSTEMS PLAN
E4.1 1/4" = 1'-0"

NORTH

GENERAL SHEET NOTES:

1. SEE DRAWING E0.1 FOR THE SPECIAL SYSTEMS AND FIRE ALARM SYMBOLS, ALONG WITH THE GENERAL SPECIAL SYSTEMS AND GENERAL FIRE ALARM NOTES.
2. SEE DRAWING E0.2 FOR THE SPECIAL SYSTEMS AND FIRE ALARM SPECIFICATIONS
3. SURFACE MOUNTED DEVICES ON THE BLOCK WALL, WITHIN NON-CRAWL SPACE AREAS SHALL BE RUN IN WIREMOLD TYPE 700 SERIES OR EQUIVALENT BY OTHERS. COORDINATE FINISH WITH THE ARCHITECT, PRIOR TO PURCHASING.
4. COORDINATE THE EXACT LOCATION OF THE TEMPERATURE CONTROLS PANEL/COMPUTER WITH THE HVAC CONTRACTOR, PRIOR TO ROUGH-IN FOR THE DATA.

SYSTEMS KEYED SHEET NOTES

1. PROVIDE ONE (1) 3" PVC CONDUIT FROM THE NEW FIRE RATED TELE/DATA BOARD TO THE PROPERTY LINE EASEMENT WHERE DIRECTED BY THE OWNERS TELECOMMUNICATION PROVIDER. VERIFY THE EXACT TERMINATION POINTS WITH THE TELECOMMUNICATIONS PROVIDER, PRIOR TO ROUGH-IN.
2. PROVIDE A 6'L X 6'H X 3/4"D FIRE RATED PLYWOOD BACKBOARD, MOUNTED 18" ABOVE THE FLOOR. MOUNT ANY NEW SPECIAL SYSTEMS EQUIPMENT ON THIS BOARD.
3. PROVIDE A COPPER GROUND BAR (SEE DETAIL ON DRAWING E5.2) WITH WALL MOUNTED BRACKETS AND PRE-TAPPED HOLES. PROVIDE A #6 GROUND WIRE, IN A 3/4" CONDUIT, FROM THE GROUND BAR TO THE MAIN BUILDING SERVICE GROUND AND A #6 GROUND WIRE BONDING JUMPER FROM THE GROUND BAR TO THE SPECIAL SYSTEMS EQUIPMENT. MOUNT THE GROUND BAR AT 84" AFF ON THE FIRE RATED BOARD.
4. PROVIDE A RACK PER THE DETAIL ON DRAWING E5.2.
5. CAMERAS AND ASSOCIATED HEAD END EQUIPMENT ARE NOT FURNISHED UNDER THIS PROJECT. THE CONTRACTOR SHALL PROVIDE A RACEWAY SYSTEM, WITH CABLING, FROM EACH CAMERA LOCATION TO THE FIRE RATED PLYWOOD BOARD (SEE KEYED SHEET NOTE 2). THE CAMERA SYSTEM SHALL BE IN A COMPLETE AND SEPARATE RACEWAY SYSTEM. WITHIN ACCESSIBLE GRID CEILINGS, THE CAMERA CABLING MAY BE RUN ACROSS J-HOOKS, BUT SHALL BE RUN IN CONDUIT IN OPEN CEILINGS AND WALLS. THE CAMERAS ARE FURNISHED BY OTHERS, AND THE FINAL TERMINATIONS ARE PROVIDED BY OTHERS. LEAVE SUFFICIENT CABLE SLACK. THE CAMERA LOCATIONS ARE SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATIONS WITH THE OWNERS SECURITY VENDOR, PRIOR TO ROUGH-IN.
6. PROVIDE TWO (2) 3" CONDUITS, WITH THE REQUIRED BUSHINGS ON BOTH ENDS, FOR SPECIAL SYSTEMS CABLING BETWEEN THE BASEMENT AND THE 2-STORY BUILDING CRAWL SPACE.

Architects in Common LLC
N9224 Mengel Hill Road
Fond du Lac, WI 54937
920.933.2611
www.architectsincommon.com

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Consultant
FOX VALLEY MEP, INC.
Mechanical. Electrical. Plumbing.

General Contractor

Project Status
Issued for Bids

Issued

Drawn By: SJV
Checked By: SJV

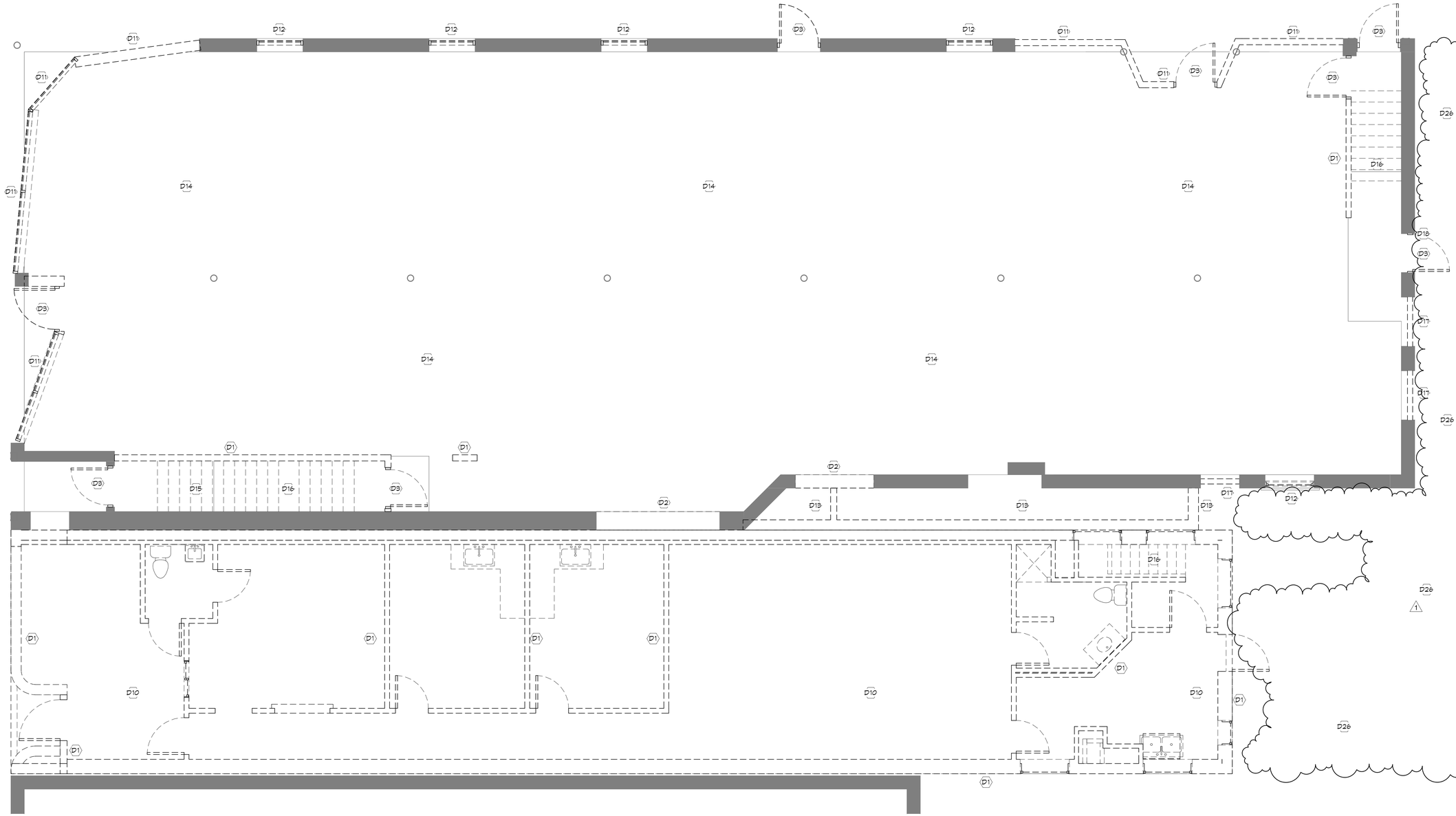
Food Hall
Main & Division Streets

Issue Date: 7-26-2024
Sheet Contents
BASEMENT SPECIAL SYSTEMS PLAN

Project Designed For:
City of Fond du Lac

22-015
Project Number

E4.1
Sheet Number
7/24/2024 8:00:26 AM



NORTH

FIRST FLOOR DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

DEMOLITION PLAN KEYED NOTES:

D1 REMOVE EXISTING WALL IN ITS ENTIRETY AS SHOWN DASHED.

D2 REMOVE PORTION OF EXISTING WALL (SHOWN DASHED) AS REQUIRED. PREP FOR NEW CONSTRUCTION.

D3 REMOVE EXISTING DOOR(S), FRAME INCLUDING ALL HARDWARE AND ACCESSORIES AS SHOWN DASHED. PREP FOR NEW CONSTRUCTION.

D4 SAWCUT EXISTING CONCRETE FLOOR FOR NEW PLUMBING. SEE PLUMBING PLANS.

D5 REMOVE EXISTING PLUMBING FIXTURE.

D6 REMOVE EXISTING CHIMNEY IN ITS ENTIRETY AS SHOWN DASHED.

D7 REMOVE EXISTING CONCRETE AREA WELL IN ITS ENTIRETY AS SHOWN DASHED.

D8 REMOVE ALL EXISTING MECHANICAL EQUIPMENT, PIPING, DUCTWORK AND ALL UNUSED ITEMS AND DISCARD.

D9 REMOVE PORTION OF EXISTING CONCRETE FLOOR FOR NEW WORK.

D10 REMOVE EXISTING ENTIRE FIRST FLOOR, FIRST FLOOR AND ROOF FRAMING AS SHOWN DASHED.

D11 REMOVE EXISTING NON-LOAD BEARING WALL AND WINDOW SYSTEM UP TO EXISTING BEAM.

D12 REMOVE EXISTING WINDOW.

D13 REMOVE EXISTING 1 STORY LEAN-TO STRUCTURE IN ITS ENTIRETY INCLUDING ANY FOUNDATIONS.

D14 REMOVE EXISTING SUBFLOOR AND GYPCRETE DOWN TO JOISTS. PROVIDE UNIT COSTS FOR REMOVAL OF ROTTEN JOISTS AS NEEDED.

D15 REMOVE PORTIONS OF EXISTING FLOOR AS NEEDED FOR NEW STAIRS.

D16 REMOVE EXISTING STAIRS IN ITS ENTIRETY AS SHOWN DASHED.

D17 REMOVE EXISTING WOOD WALL INFILL AS SHOWN DASHED.

D18 REMOVE EXISTING EXHAUST WALL HOOD.

D19 REMOVE EXISTING SUBFLOOR AND DOWN TO JOISTS. PROVIDE UNIT COSTS FOR REMOVAL OF ROTTEN JOISTS AS NEEDED.

D20 REMOVE EXISTING 2x6 FRAMING AND OTHER MISC. FRAMING BELOW ROOF JOISTS.

D21 REMOVE EXISTING GUTTER AND DOWNSPOUT.

D23 REMOVE EXISTING CONDUIT.

D24 REMOVE EXISTING ABANDON ELECTRICAL DEVICE.

D25 REMOVE EXISTING HOIST BEAM.

D26 REMOVE EXISTING GRAVEL/GRASS/DIRT DOWN 6"

Architects in Common LLC
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Consultant

General Contractor

Project Status
Issued for Bid

Issued
9-30-2024 Addendum 01

Drawn By: tkent
Checked By: tkent

Issue Date: 7-26-2024

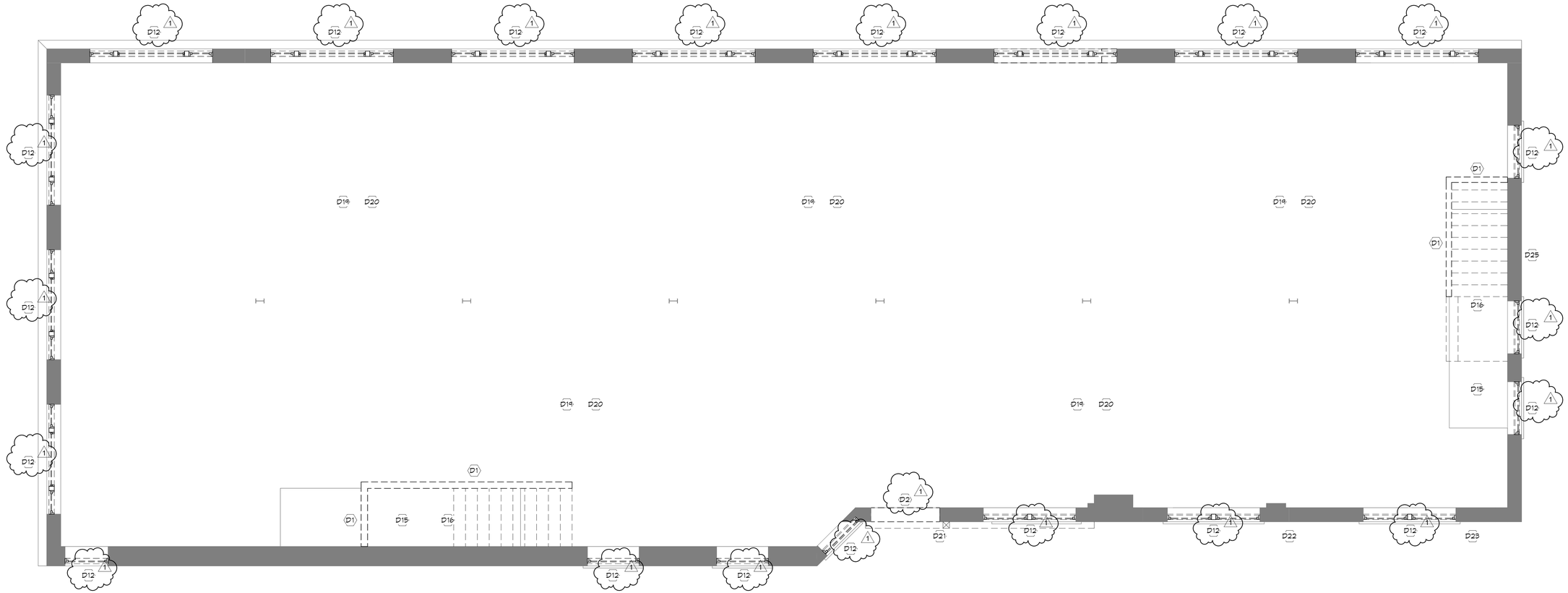
Sheet Contents
FIRST FLOOR DEMOLITION PLAN

Project Designed For:
City of Fond du Lac

22-015
Project Number

A2.2
Sheet Number

8/30/2024 11:40:48 AM



NORTH

SECOND FLOOR DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

DEMOLITION PLAN KEYED NOTES:

D1 REMOVE EXISTING WALL IN ITS ENTIRETY AS SHOWN DASHED.

D2 REMOVE PORTION OF EXISTING WALL (SHOWN DASHED) AS REQUIRED. PREP FOR NEW CONSTRUCTION.

D3 REMOVE EXISTING DOOR(S), FRAME INCLUDING ALL HARDWARE AND ACCESSORIES AS SHOWN DASHED, PREP FOR NEW CONSTRUCTION.

D4 SAWCUT EXISTING CONCRETE FLOOR FOR NEW PLUMBING, SEE PLUMBING PLANS.

D5 REMOVE EXISTING PLUMBING FIXTURE.

D6 REMOVE EXISTING CHIMNEY IN ITS ENTIRETY AS SHOWN DASHED.

D7 REMOVE EXISTING CONCRETE AREA WELL IN ITS ENTIRETY AS SHOWN DASHED.

D8 REMOVE ALL EXISTING MECHANICAL EQUIPMENT, PIPING, DUCTWORK AND ALL UNUSED ITEMS AND DISCARD.

D9 REMOVE PORTION OF EXISTING CONCRETE FLOOR FOR NEW WORK.

D10 REMOVE EXISTING ENTIRE FIRST FLOOR, FIRST FLOOR AND ROOF FRAMING AS SHOWN DASHED.

D11 REMOVE EXISTING NON-LOAD BEARING WALL AND WINDOW SYSTEM UP TO EXISTING BEAM.

D12 REMOVE EXISTING WINDOW.

D13 REMOVE EXISTING 1 STORY LEAN-TO STRUCTURE IN ITS ENTIRETY INCLUDING ANY FOUNDATIONS.

D14 REMOVE EXISTING SUBFLOOR AND GYPCRETE DOWN TO JOISTS. PROVIDE UNIT COSTS FOR REMOVAL OF ROTTEN JOISTS AS NEEDED.

D15 REMOVE PORTIONS OF EXISTING FLOOR AS NEEDED FOR NEW STAIRS.

D16 REMOVE EXISTING STAIRS IN ITS ENTIRETY AS SHOWN DASHED.

D17 REMOVE EXISTING WOOD WALL INFILL AS SHOWN DASHED.

D18 REMOVE EXISTING EXHAUST WALL HOOD.

D19 REMOVE EXISTING SUBFLOOR AND DOWN TO JOISTS. PROVIDE UNIT COSTS FOR REMOVAL OF ROTTEN JOISTS AS NEEDED.

D20 REMOVE EXISTING 2x6 FRAMING AND OTHER MISC. FRAMING BELOW ROOF JOISTS.

D21 REMOVE EXISTING GUTTER AND DOWNSPOUT.

D23 REMOVE EXISTING CONDUIT.

D24 REMOVE EXISTING ABANDON ELECTRICAL DEVICE.

D25 REMOVE EXISTING HOIST BEAM.

D26 REMOVE EXISTING GRAVEL/GRASS/DIRT DOWN 6"

Architects in Common LLC
N9224 Mengel Hill Road
Fond du Lac, WI 54937
920.933.2611
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Consultant

General Contractor

Project Status

Issued for Bid

Issued
8-30-2024 Addendum 01

Drawn By: tkent
Checked By: tkent

Food Hall

Main & Division Streets

Issue Date: 7-26-2024

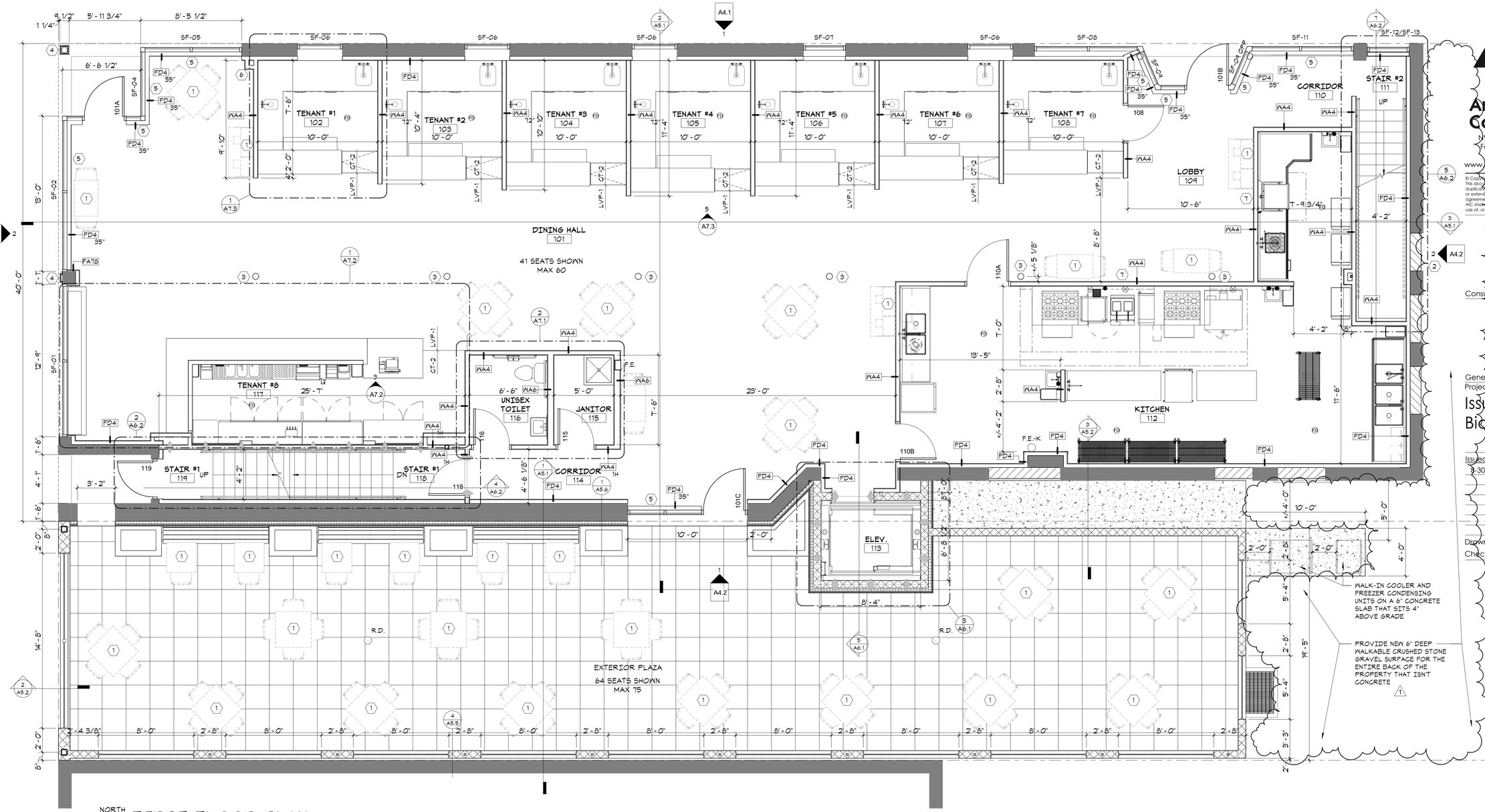
Sheet Contents
SECOND FLOOR DEMOLITION PLAN

Project Designed For:
City of Fond du Lac

22-015
Project Number

A2.3
Sheet Number

8/30/2024 11:40:49 AM



NORTH

FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

FLOOR PLAN KEYED NOTES:

1. FURNITURE BY OWNER AS SHOWN DASHED (NIC) TYP.
2. PATCH OPENING FROM EXHAUST EQUIPMENT W/ FACEBRICK TO MATCH.
3. EXISTING STEEL COLUMNS AND BEAMS TO REMAIN. CLEAN AND PAINT.
4. ALUMINUM COLUMN COVER AND PILASTER.
5. QUARTZ WINDOW STOOL.
6. 4"X4" CHASE FOR FIRE DEPARTMENT CONNECTION.
7. PROVIDE 3 1/2" STEEL STUDS AND DURAROCK BEHIND KITCHEN HOODS IN LIEU OF WOOD STUDS AND GYP. BD.

FLOOR PLAN - GENERAL NOTES:

1. CONTRACTORS MUST FIELD VERIFY ALL FIELD CONDITIONS EFFECTING THEIR WORK PRIOR TO BIDDING.
2. CONTRACTORS SHALL PROTECT ALL EXISTING DOORS, WINDOWS, ROOM FINISHES ETC. DURING DEMOLITION AND CONSTRUCTION. PROVIDE PROPER DUST PROTECTION BETWEEN CONSTRUCTION AREAS AND OCCUPIED AREAS AT ALL TIMES.
3. DO NOT SCALE DRAWINGS. ALL DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC. ALL DIMENSIONS AND CONDITIONS USED FOR QUANTITY TAKE-OFFS MUST BE FIELD VERIFIED PRIOR TO BIDDING.
4. CONTRACTORS ARE RESPONSIBLE FOR PATCHING, DEMOLITION AND HOUSE KEEPING PADS FOR THEIR RESPECTIVE WORK. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR SCOPE OF WORK. REMOVE EQUIPMENT AND PIPING THAT HAS BEEN ABANDONED IN PLACE. PATCHING FLOORS AND WALLS AS REQUIRED.
5. ALL ROOM AND FIXTURE DIMENSIONS ARE TO FINISHED FACE OF WALL.
6. G.C. RESPONSIBLE FOR PROVIDING BLOCKING IN WALLS WHERE WALL MOUNTED EQUIPMENT IS SHOWN ON PLANS OR ELEVATIONS. VERIFY HEIGHT AND LENGTH WITH ACTUAL EQUIPMENT SPECIFICATIONS.
7. PROVIDE FIRE EXTINGUISHERS AS REQUIRED BY ALL CODES AND AUTHORITIES AT ALL TIMES THROUGHOUT CONSTRUCTION AREA.
8. THE 2 BUILDINGS HAVE BEEN TESTED FOR ASBESTOS AND ABATED. NOTICE AND REPORT CAN BE PROVIDED IF REQUESTED.

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Consultant

General Contractor

Project Status
Issued for Bid

Issued	
8-30-2024	Addendum 01

Drawn By: tkent
Checked By: tkent

Issue Date: 7-26-2024

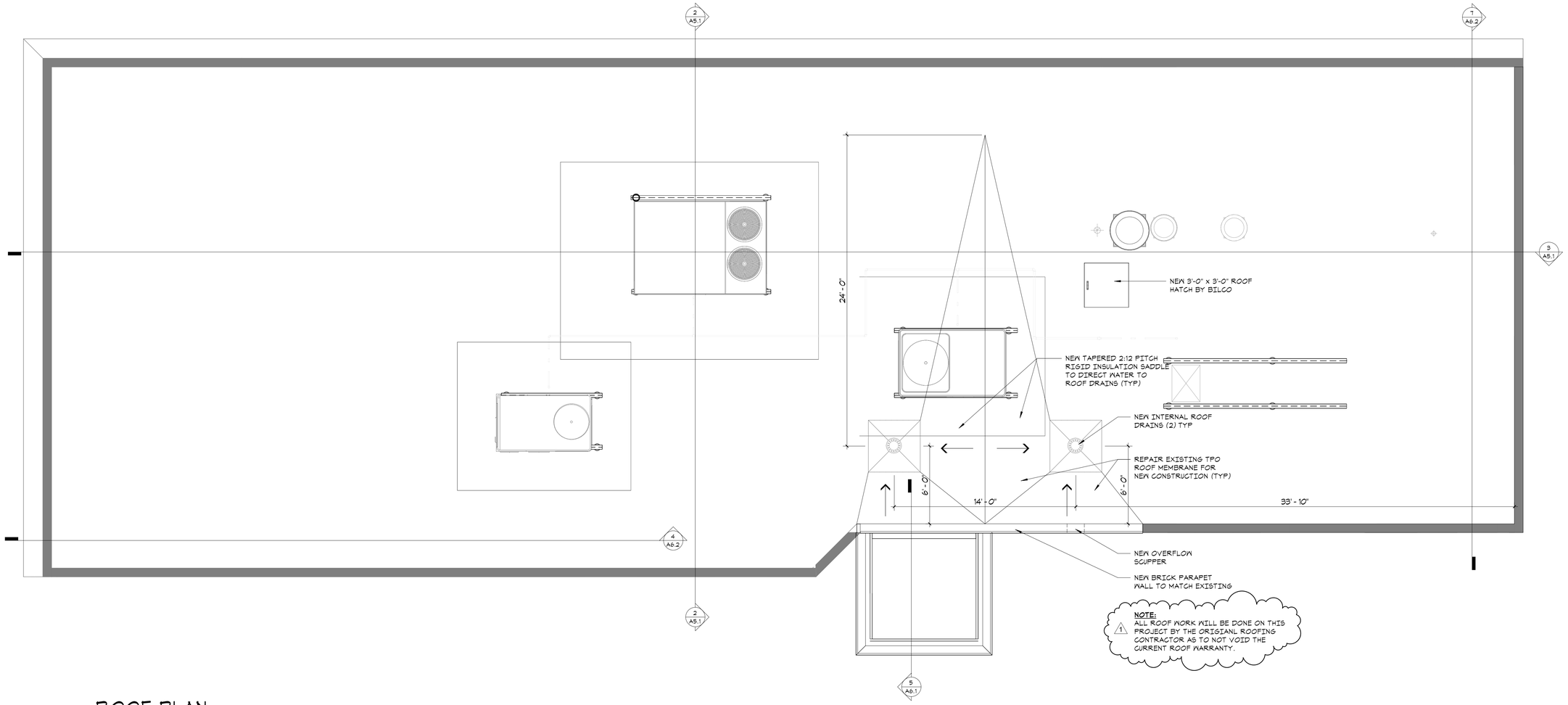
Sheet Contents
FIRST FLOOR PLAN

Project Designed For:
City of Fond du Lac

22-015
Project Number

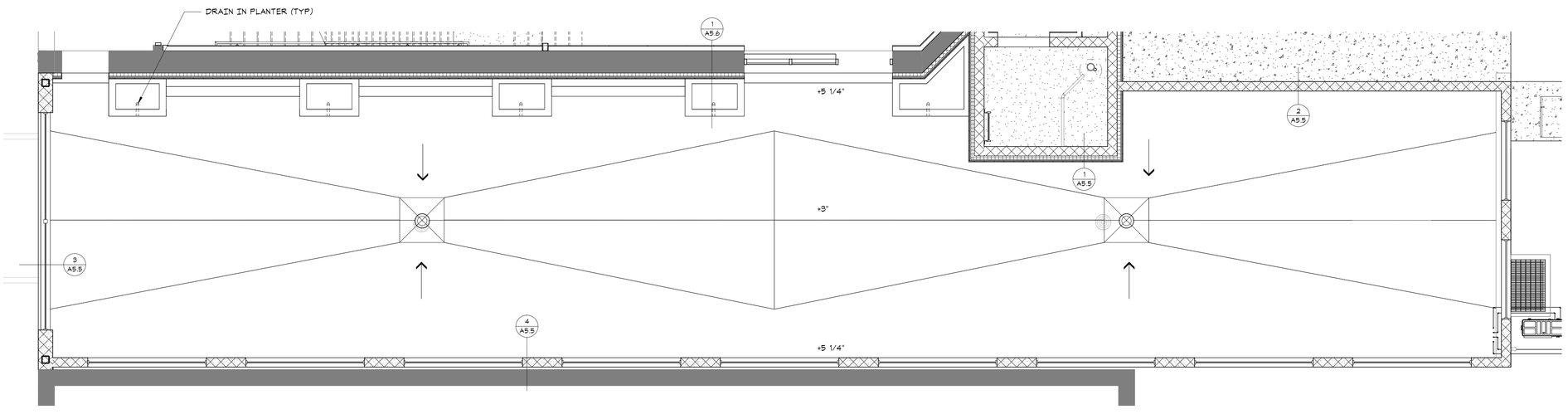
A2.5
Sheet Number

8/30/2024 11:40:53 AM



ROOF PLAN

SCALE: 1/4" = 1'-0"



② PLAZA ROOF PLAN

SCALE: 1/4" = 1'-0"

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Consultant

General Contractor

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Checked By: tkent

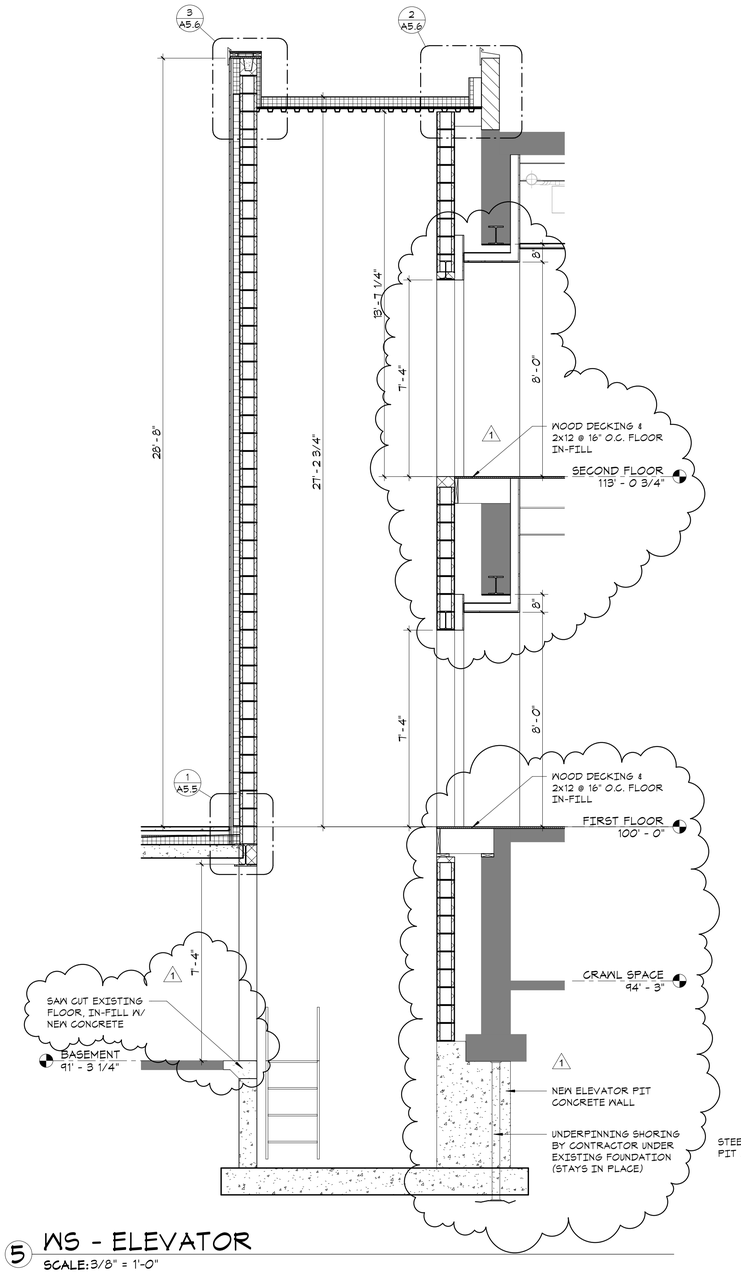
Food Hall
Main & Division Streets

Issue Date: 7-26-2024
Sheet Contents
ROOF PLAN

Project Designed For:
City of Fond du Lac

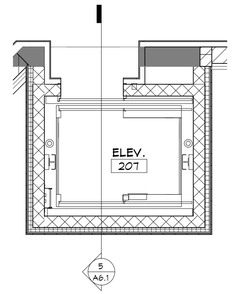
22-015
Project Number

A2.7
Sheet Number
8/30/2024 11:40:55 AM



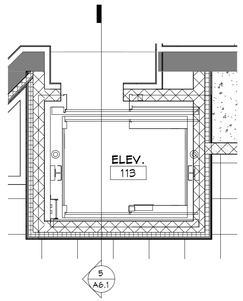
5 WS - ELEVATOR

SCALE: 3/8" = 1'-0"



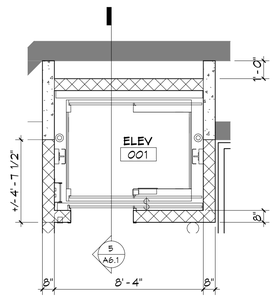
4 ELEVATOR - SECOND FLOOR

SCALE: 1/4" = 1'-0"



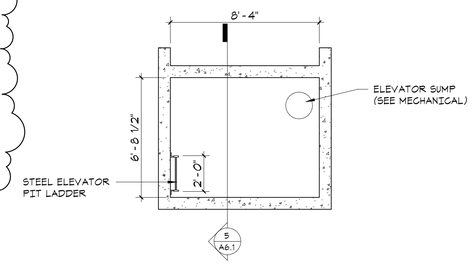
3 ELEVATOR - FIRST FLOOR

SCALE: 1/4" = 1'-0"



2 ELEVATOR - BASEMENT FLOOR

SCALE: 1/4" = 1'-0"



1 ELEVATOR - PIT

SCALE: 1/4" = 1'-0"

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Drawn By: tkent
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Food Hall

Main & Division Streets

Issue Date: 7-26-2024

Sheet Contents
VERTICAL CIRCULATION PLANS

Project Designed For:
City of Fond du Lac

22-015
Project Number

A6.1

Sheet Number
8/30/2024 11:40:55 AM

BASIS OF DESIGN PRODUCTS

DIVISION 3 - CONCRETE

PRECAST CONCRETE COUNTERTOPS
MNFR: STONECAST CONCRETE
PRODUCT: PRECAST CONCRETE COUNTERTOPS

DIVISION 4 - MASONRY

BURNISHED BLOCK
MNFR: COUNTY MATERIALS
PRODUCT: PREMIER ULTRA BURNISHED
SIZE: 8"x16" (BULLNOSE AS NOTED)
COLOR: AS SELECTED FROM MFR STANDARDS

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

FIBER CEMENT SIDING
MNFR: NICHIHA
PRODUCT: ARCHITECTURAL PANELS - VINTAGEWOOD
SIZE: AWP-1818
COLOR: AS SELECTED FROM MNFR STANDARDS

DIVISION 8 - DOORS AND WINDOWS

WOOD WINDOWS
MNFR: MARVIN
PRODUCT: FIXED AND DOUBLE HUNG FIXED
GLASS: INSULATED LOW E2 W/ ARGON
SIZE: SEE PLANS
COLOR: PAINTED WOOD EXTERIOR, STAINED WOOD INTERIOR

STOREFRONT SYSTEMS
MNFR: KAWNEER
PRODUCT: 451T
COLOR: AS SELECTED FROM MNFR STANDARDS

WOOD DOORS
PLAIN SLICED WHITE BIRCH

HOLLOW METAL FRAMES
16 ga.

DIVISION 10 - SPECIALTIES

FIRE EXTINGUISHER
MNFR: LARSEN'S MANUFACTURING COMPANY
RECESSED CABINET: TRIMLESS WITH CONCEALED FLANGE
DOOR STYLE: VERTICLE DUO PANEL WITH FRAME

DIVISION 11 - EQUIPMENT

BAR RAIL
MNFR: KEGWORKS
PRODUCT: BLK-990-XX BAR FOOT RAIL
BLK-200-2 BAR RAIL BRACKET
COLOR: MATTE BLACK

DIVISION 12 - FURNISHINGS

COUNTER BRACKETS
MNFR: RAKKS BRACKETS
PRODUCT: EH-1818 AT 25" COUNTERS
EH-1824 AT 31" COUNTERS
EH-1212FM (CONCELAED BRACKET) AT TRANSACTION COUNTER
COLOR: BLACK POWDER COAT

LIFT ASSIST DAMPER (AT TENANT ACCESS COUNTER)
MNFR: SUGATSUNE
PRODUCT: LADH-50

DRINK RAIL
MNFR: KEGWORKS
PRODUCT: DR-MBHEM-XX DRINK RAIL
DR-MBHEM-DRIP-XX DRIP TRAY
COLOR: MATTE BLACK
NOTES: LENGTHS, CONNECTORS, ENDCAPS, ETC... AS REQUIRED

DIVISION 14 - CONVEYING SYSTEMS

ELEVATOR (DIRECT OWNER PURCHASE N.I.C.)
MNFR: MEI TOTAL ELEVATOR SOLUTION
PRODUCT: TWIN JACK HOLELESS 2 STAGE 2500

DIVISION 32 - EXTERIOR IMPROVEMENTS

ROOF PAVER SYSTEM
MNFR: NAUSAU TILE
PRODUCT: H-SERIES - ESTATE
SIZE: 24"X24"X2"
COLORS: AS SELECTED FROM MNFR STANDARD
(2 COLOR: 75% - 25% MIX)

ROOF PAVER PEDESTOOL SYSTEM
MNFR: NAUSAU TILE
PRODUCT: AP TERRA SYSTEM
NOTES: PADS AND PEDESTOOLS AS REQUIRED FOR ROOF SLOPE

ALUMINUM SCREEN PANELS
MNFR: LAVANTE ALUMINUM
PRODUCT: BOARDS, TRIM AND POSTS
SIZE: SEE DRAWINGS
COLOR: AS SELECTED FROM MNFR STANDARDS

ALUMINUM COLUMN COVERS
MNFR: PACIFIC COLUMNS
PRODUCT: ENDURA-LUM - WELLINGTON
SIZE: 9" SQUARE
COLORS: BLACK TEXTURED

ROOM FINISH SCHEDULE

ROOM NO.	NAME	FLOOR	BASE	NORTH WALL MATERIAL	NORTH WALL FINISH	EAST WALL MATERIAL	EAST WALL FINISH	SOUTH WALL MATERIAL	SOUTH WALL FINISH	WEST WALL MATERIAL	WEST WALL FINISH	CEILING	REMARKS
001	ELEV	--	--	CMU	--	CMU	--	CMU	--	CMU	--	--	
002	MECHANICAL	SC	--	EX	PT-5	EX	PT-5	EX	PT-5	GYP	PT-5	EXP/PT-1	
003	BASEMENT	SC	--	EX/CMU	PT-5	GYP	PT-5	EX	PT-5	EX	PT-5	EXP/PT-1	
004	ELEV. EQUIP.	SC	--	EX	PT-5	CMU	PT-5	CMU	PT-5	CMU	PT-5	EXP/PT-1	
006	STAIR #1	SC/RUB-1	VB-1	GYP	PT-5	--	--	GYP	PT-5	GYP	PT-5	EXP/PT-1	
101	DINING HALL	LVP-1	VB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	EXP/PT-1	
102	TENANT #1	CT-1	--	GYP	CT-3/PT-1	GYP	CT-3/PT-1	GYP	PT-1	GYP	CT-3/PT-1	GYP/PT-1	CT-3 UP TO 6'-0" A.F.F.
103	TENANT #2	CT-1	--	GYP	CT-3/PT-1	GYP	CT-3/PT-1	GYP	PT-1	GYP	CT-3/PT-1	GYP/PT-1	CT-3 UP TO 6'-0" A.F.F.
104	TENANT #3	CT-1	--	GYP	CT-3/PT-1	GYP	CT-3/PT-1	GYP	PT-1	GYP	CT-3/PT-1	GYP/PT-1	CT-3 UP TO 6'-0" A.F.F.
105	TENANT #4	CT-1	--	GYP	CT-3/PT-1	GYP	CT-3/PT-1	GYP	PT-1	GYP	CT-3/PT-1	GYP/PT-1	CT-3 UP TO 6'-0" A.F.F.
106	TENANT #5	CT-1	--	GYP	CT-3/PT-1	GYP	CT-3/PT-1	GYP	PT-1	GYP	CT-3/PT-1	GYP/PT-1	CT-3 UP TO 6'-0" A.F.F.
107	TENANT #6	CT-1	--	GYP	CT-3/PT-1	GYP	CT-3/PT-1	GYP	PT-1	GYP	CT-3/PT-1	GYP/PT-1	CT-3 UP TO 6'-0" A.F.F.
108	TENANT #7	CT-1	--	GYP	CT-3/PT-1	GYP	CT-3/PT-1	GYP	PT-1	GYP	CT-3/PT-1	GYP/PT-1	CT-3 UP TO 6'-0" A.F.F.
109	LOBBY	LVP-1	VB-1	EXP/GYP	--/PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	EXP/PT-1	
110	CORRIDOR	LVP-1	VB-1	EXP/GYP	--/PT-1	GYP	PT-1	GYP	PT-1	EXP/GYP	--/PT-1	EXP/PT-1	
111	STAIR #2	LVP-1/RUB-1	VB-1	GYP	PT-1	GYP	PT-1	--	--	GYP	PT-1	EXP/PT-1	
112	KITCHEN	LVP-1	VB-1	GYP	EP-1	GYP	EP-1	GYP	EP-1	GYP	EP-1	AT-2	
113	ELEV.	1	--	--	--	--	--	--	--	--	--	EXP/PT-1	
114	CORRIDOR	LVP-1	VB-1	GYP	PT-1	--	--	GYP	PT-1	GYP	PT-1	AT-1	
115	JANITOR	VCT-1	VB-1	GYP	PT-5	GYP	PT-5	GYP	PT-5	GYP	PT-5	AT-2	
116	UNISEX TOILET	CT-1	CT-2	GYP	CT-4	GYP	CT-4	GYP	CT-4	GYP	CT-4	AT-2	
117	TENANT #8	CT-1	CT-2	--	--	GYP	PT-1	GYP	PT-1	--	--	GYP/PT-1	
118	STAIR #1	RUB-1	VB-1	GYP	PT-5	GYP	PT-5	GYP	PT-5	GYP	PT-5	GYP/PT-1	
119	STAIR #1	RUB-1	VB-1	GYP	PT-5	GYP	PT-5	GYP	PT-5	GYP	PT-5	GYP/PT-1	
201	DINING	LVP-1	VB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	AT-1	
202	JAN./ROOF ACCESS	VCT-1	VB-1	GYP	PT-5	GYP	PT-5	GYP	PT-5	GYP	PT-5	EXP/PT-1	
203	WOMEN'S	CT-1	CT-2	GYP	CT-4	GYP	PT-1	GYP	PT-1/CT-5	GYP	PT-1	AT-2	
204	MEN'S	CT-1	CT-2	GYP	CT-4	GYP	PT-1	GYP	PT-1/CT-5	GYP	PT-1	AT-2	
205	STAIR #2	RUB-1	VB-1	GYP	PT-1	GYP	PT-1	--	--	GYP	PT-1	AT-1	
206	CORRIDOR	LVP-1	VB-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	GYP	PT-1	AT-1	
207	ELEV.	1	--	--	--	--	--	--	--	--	--	EXP/PT-1	
208	STAIR #1	LVP-1/RUB-1	VB-1	GYP	PT-5	GYP	PT-5	GYP	PT-5	GYP	PT-5	AT-1	

ROOM FINISH NOTES

ABBREVIATIONS:
CMU = CONCRETE MASONRY UNIT
EX = EXISTING
EXP = EXPOSED
GYP = GYPSUM BOARD
WD = WOOD

ROOM FINISH MATERIALS:

FLOOR FINISHES:
CPT-1 = CARPET TILE
MNFR: J+J FLOORING
STYLE: KINETEX FOUNDRY 1829 24"X24"
INSTALL: QUARTER TURN
COLOR: CO-OP 2084

CT-1 = CERAMIC TILE
MNFR: DALTILE
STYLE: AFFINITY 12"X24"
INSTALL: 1/3 STAGGERED
COLOR: GRAY AF03

RUB-1 = RUBBER (ALLOWANCE $8.00/sq.ft.)

SC = SEALED CONCRETE

LVP-1 = LUXURY VINYL PLANK 7"X47"
MNFR: DALTILE
STYLE: ELIXEN
COLOR: DRIFTWOOD EX34

VCT-1 = VINYL COMPOSITION TILE 12"X12"
MNFR: ARMSTRONG
STYLE: IMPERIAL TEXTURES
INSTALL: QUARTER TURN
COLOR: 51234 SILK

BASE FINISHES:
CT-2 = CERAMIC TILE
MNFR: DALTILE
STYLE: AFFINITY 3"X12"
COLOR: GRAY AF03

VB-1 = JOHNSONITE 1/8" x 4" COVED VINYL BASE OR EQUAL COLOR AS SELECTED FROM MNFR STANDARDS

WALL FINISHES:
CT-3 = CERAMIC TILE
MNFR: DALTILE
STYLE: 4"X12"
INSTALL: STACK BOND
COLOR: WHITE

CT-4 = CERAMIC TILE
MNFR: DALTILE
STYLE: AFFINITY 12"X24"
INSTALL: 1/3 STAGGERED
COLOR: GRAY AF03

CT-5 = CERAMIC TILE (PATTERN A)
MNFR: DALTILE
STYLE: 4"X12"
INSTALL: RUNNING BOND
COLOR: 2 COLOR 50% EACH AS SELECTED FROM MNFR STANDARDS

CT-6 = PORCELAIN TILE (PATTERN B)
MNFR: CLASSICO
STYLE: BARDIGLIO HEX FLOWER
INSTALL: AS SHOWN ON PLANS
COLOR: AS SELECTED FROM MNFR STANDARDS

CT-7 = CERAMIC TILE (PATTERN C)
MNFR: DALTILE
STYLE: 8"X8"
INSTALL: AS SHOWN ON PLANS
COLOR: 3 COLOR 33.3% EACH AS SELECTED FROM MNFR STANDARDS

EP-1 = COLOR AS SELECTED BY OWNER FROM MNFR STANDARD COLORS (PRIMER & 2 COATS EPOXY PAINT)

PT-1 = COLOR AS SELECTED BY OWNER FROM MNFR STANDARD COLORS THIS INCLUDES UP TO 4 COLOR CHOICES (PRIMER & 2 COATS PAINT)

PT-5 = COLOR AS SELECTED BY OWNER FROM MNFR STANDARD COLORS (PRIMER & 2 COATS PAINT)

CEILING FINISHES:
AT-1 = 2x2 ACOUSTICAL CEILING TILE OPTIMA 32515 SQUARE TEGULAR 9/16 SUPRAFINE GRID BY ARMSTRONG
AT-2 = 2x2 ACOUSTICAL CEILING TILE VINYL COVERED GYPSUM BOARD
EP-2 = COLOR AS SELECTED BY OWNER FROM MNFR. STANDARD COLORS (PRIMER & 2 COATS EPOXY PAINT)
PT-6 = COLOR AS SELECTED BY OWNER FROM MNFR. STANDARD COLORS (PRIMER & 2 COATS PAINT)

CABINET FINISHES:
PLAM-1 = WILSONART HIGH PRESSURE LAMINATE OR EQUAL COLOR AS SELECTED FROM MNFR STANDARDS

DOOR FRAME FINISHES:
PT-6 = COLOR AS SELECTED FROM MNFR STANDARDS (PRIMER & 2 COATS PAINT)

DOOR STAIN FINISHES:
ST-1 = STAIN AS SELECTED FROM MNFR STANDARDS (PRE-STAIN, STAIN AND SEALER)

MAP CAP FINISHES:
SS-1 = QUARTZ COMMERCIAL GRADE COLOR AS SELECTED FROM MNFR STANDARDS GROUP 1

WINDOW STOOL FINISHES:
SS-2 = QUARTZ COMMERCIAL GRADE COLOR AS SELECTED FROM MNFR STANDARDS GROUP 1 AT STOREFRONT SYSTEM ONLY

ST-1 = STAIN AS SELECTED FROM MNFR STANDARDS (PRE-STAIN, STAIN AND SEALER) AT WOOD WINDOWS ONLY

COUNTERTOP FINISHES: (TENANTS)
SS-3 = QUARTZ COMMERCIAL GRADE COLOR AS SELECTED FROM MNFR STANDARDS GROUP 1

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Drawn By: tkent
Checked By: tkent

Food Hall
Main & Division Streets

Issue Date: 7-26-2024
Sheet Contents
ROOM FINISH SCHEDULE

Project Designed For:
City of Fond du Lac

22-015
Project Number

A8.2
Sheet Number
8/30/2024 11:40:55 AM

SECTION 11 40 00
FOODSERVICE EQUIPMENT

ALL KITCHEN EQUIPMENT AND FURNISHINGS WILL BE PURCHASED SEPARATELY BY THE OWNER AND ARE NOT A PART OF THE CONSTRUCTION BID. 1

PART 1 – GENERAL

1.01 SCOPE:

Provide labor, equipment, and material, and perform all necessary procedures for installation of foodservice equipment. Work shall be in accordance with the Contract Documents and shall include all miscellaneous labor and materials which is reasonably inferred for installation of foodservice equipment.

1.02 DEFINITIONS AND ABBREVIATIONS

A. PROVIDE – Supply all materials, labor and equipment necessary for final connection.

B. FURNISH – Supply and deliver equipment ready for installation.

C. INSTALL – Set in place, level, secure and connect.

D. Abbreviations

ADA	Americans Disabilities Act
AFF	Above Finished Floor
AGA	American Gas Association
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASME	American Society for Mechanical Engineers
EC	Electrical Contractor
FEC	Foodservice Equipment Contractor
GC	General Contractor
HVAC	Heating, Ventilation and Air Conditioning Contractor
MC	Mechanical Contractor
NEC	National Electric Code
NEMA	National Electric Manufacturer's Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Agency
PC	Plumbing Contractor
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
UL	Underwriters Laboratory

1.03 CODES AND STANDARDS

A. Ordinances and Laws: All work to comply with all prevailing ordinances, laws, codes and regulations related to construction and installation.

B. Standards: All equipment must comply with ADA, AGA, ASHRAE, ASME, NEC, NEMA, NFPA 17A, 54, 70 and 96, NSF, OSHA and UL.

C. Extra charges for the providing of items or furnishing work which is required by the regulations even though items required may not be specifically called for on the drawings or in the specifications will not be paid. Should a conflict occur between these codes and the equipment specified, the code will take precedence. Notification of the code variance shall be made to the Architect.

1.01 DESCRIPTION OF WORK

A. Equipment: Fabricate, deliver, unload, uncrate, assemble, set in place and level equipment for final connection by appropriate trades.

B. Coordination:

1. Coordinate all mechanical, plumbing and electrical rough-in services including field verification of all stub-up and rough-in locations before flooring is poured and before walls and ceilings are finished. FEC to notify Architect and Consultant of any discrepancies.

2. Coordinate existing building conditions and all other building conditions related to the installation of Section 11 40 00 equipment with GC.

3. Coordinate requirements for all existing equipment, owner furnished equipment, future equipment and purveyor supplied equipment with appropriate trades.

4. Verify all delivery access, wall openings and overhead obstructions for delivery and installation of large equipment.

5. Supervise and inspect final connections of utilities to foodservice equipment.

C. Schedule: Perform work in a timely manner in accordance with the construction schedule. Submit written notice to Foodservice Consultant, Architect and General Contractor of any construction or manufacturer related problems that may cause delay in the delivery or installation of equipment. Substitutions for failing to order equipment in a timely manner are not acceptable.

D. Contract Documents: Drawings and Specifications are intended to be advisory and for informational purposes only. Contract Documents are not intended to be and shall not be used for construction purposes.

E. Document discrepancy: If drawings and specifications contain conflicting information, FEC to request clarification in writing or provide equipment and work of better quality and quantity. FEC is responsible for all costs incurred from the failure to request resolution of conflicting requirements.

F. Model Number Changes: When specified equipment is no longer available, the Owner reserves the right to accept the manufacturer's replacement Model number or equipment specified as equal.

G. Equipment verification: Verify sizes of trays, racks, dinnerware and pans prior to fabrication or ordering of equipment.

H. Qualifications: FEC to provide a jobsite supervisor with experience successfully completing two projects of similar size. Supervisor must be able to coordinate with all trades for electrical, plumbing and HVAC requirements.

I. Permits, Licenses and Inspections: Schedule and pay for all permits, inspections and testing required by prevailing agencies and codes related to the installation of Section 11 40 00 equipment. Supply owner and GC with copies of all certificates of compliance from inspections and testing.

1.01 RELATED WORK BY OTHER CONTRACTORS

A. General Contractor (GC)

1. Provide concealed wall backing to support all wall mounted equipment as shown on Section 11 40 00 drawings.

2. Install floor troughs and floor pans provided by FEC.

3. Provide all required floor penetrations, wall penetrations, wall sleeves, equipment pads and curbs for refrigeration systems.

4. Provide all flooring, ceiling finishes and wall finish materials unless indicated on Section 11 40 00 drawings and specifications.

B. Plumbing Contractor (PC)

1. Provide rough-in and final connections to all equipment requiring plumbing services. Flush all lines of contamination prior to connecting all fixtures.

2. Provide all water supply piping, drain lines, drain assemblies, floor drains, valves, traps, tailpieces, pressure reducing valves, shut-off valves, flow control valves, check valves, backflow prevention, etc. that are necessary for the complete installation of Section 11 40 00 equipment unless indicated in Plumbing Schedule as furnished by the FEC.

3. Provide eye wash stations, mop sinks and hose bibbs unless indicated in Plumbing Schedule as furnished by the FEC.

4. Provide gas pressure reducing and regulation valves for pressures above 14" W.C.

5. Provide PVC conduit with wide radius elbows for passage of beverage and refrigeration lines.

6. Provide copper condensate lines for walk-in cooler/freezer. Attach condensate lines securely to the walls of the walk-in cooler/freezer. Trap drain lines on the exterior of walk-in cooler/freezer. Coordinate installation of heat tape for walk-in freezers with electrical contractor.

7. Install all faucets, drains, vacuum breakers, valves, water inlets, traps, filters, PRV's, gauges, gas valves, gas hoses, flexible water hoses, pressure regulators, etc. furnished by the FEC.

8. Interconnect and assemble all plumbing components, piping and systems of Section 11 40 00 equipment which requires field assembly.

C. Electrical Contractor (EC)

1. Provide all systems and services including wiring to and final connections of all foodservice equipment and components.

2. Provide all receptacles, conduit, controls, starters, disconnects, switches, etc. that are necessary for the complete and proper installation of section 11 40 00 equipment.

3. Provide water proof conduit, electrical boxes and Ground Fault Interrupter receptacles in wet areas.

4. Provide shunt trip breakers and contactors as indicated on Section 11 40 00 drawings. Wire from fire suppression system controls to shunt trip breakers.

5. Install all control circuits for fire suppression systems, exhaust hoods, condensate hoods, refrigeration systems, electrical load systems and waste systems.

6. Install all electrical mechanisms provided by FEC.

7. Whenever possible electrical conduits shall stub-out of walls rather than stub up through floor. Conceal all electrical conduit when possible. No unnecessary exposed wiring permitted. Use polished chrome conduit where exposed.

8. Mount all receptacles above work surfaces horizontally. Provide stainless steel cover plates.

9. Interconnect and assemble all electrical components, exhaust hoods, refrigeration systems and all walk-in cooler/freezer components.

10. All materials and components shall be UL approved and labeled and installed in accordance with NEMA standards.

11. EC and FEC shall verify that the voltage on the job corresponds with the equipment drawings and specifications before ordering any electrical equipment. All equipment shall be grounded.

D. Mechanical Contractor (MC)

1. Provide all systems and services including exhaust ducts, fans, dampers, starters, etc. necessary for the operation of Type I and type II exhaust hoods.

2. Provide rough-in and final connections required for Section 11 40 00 equipment requiring HVAC services.

3. All installation most conform to NFPA 96 and prevailing codes.

1.02 EQUIPMENT WARRANTY

A. General: All equipment to carry one-year parts and labor warranty from date of demonstration or owner acceptance by owner or architect. Parts or equipment failure due to material defect or improper installation shall be repaired or replaced at no cost to the owner during this time.

B. Refrigeration Systems: One year refrigeration system parts and labor with an additional four year compressor, condenser and evaporator coil warranty. Refrigerant lost due to a leak in the system or faulty equipment shall be included in warranty.

C. Service: Equipment will be serviced within 24 hours of equipment failure by a factory-trained service agency. Refrigeration system services shall be available 24 hours per day, seven days per week.

1.01 SUBMITTALS

A. General: Submit rough-in drawings, custom fabrication drawings and buyout brochure books within 30 days of contract being awarded. Quantity of submittals to be determined by the architect.

1. All submittals will be provided in PDF format. Drawings will also be accepted in AutoCAD compatible format.

2. Architect or GC will forward electronic documents to Foodservice Consultant for review and approval. Foodservice consultant will return all submittals to architect for revisions to be made by the FEC. FEC to make revisions to submittals until all corrections are made. After all corrections are made to the satisfaction of the Foodservice Consultant and Architect submit final documents in quantity required by the architect.

B. Buyout brochure book: Assemble specification for each piece of foodservice equipment sheets in three-ring binder. Submittal to include numbered cover sheet for each specified item. Indicate accessories and options included with each item. Indicate all utility connections required. Buyout brochure book to be provided in hard copy and PDF format.

C. Drawings: When required by architect drawings to be sent rolled in a tube. Paper size to be minimum 24" x 36". Drawings to include the following:

1. Layout drawing with equipment list. ¼" = 1'-0" scale.

2. Shop drawings for all custom fabricated equipment in minimum ¾" = 1'-0" scale. Drawings to indicate Manufacturer and Model for all buyout equipment, metal gauges, types and finishes of all materials used.

3. Dimensioned Mechanical, Electrical and Plumbing rough-in drawings indicating duct locations, rough-in heights, sizes, connection types, drains, electrical outlets, switches, etc. ¼" = 1'-0" scale.

D. Approval: Fabrication may start when approved drawings and buyout brochures are received. Document approval shall not relieve FEC of responsibility to comply with Contract Documents unless prior approval has been obtained by Owner or Architect.

E. Samples: Samples of materials shall be submitted to Architect for review and approval at no extra cost.

F. Operations and Maintenance Manuals: Submit PDF copy of operations and maintenance manuals containing all equipment parts lists and operations manuals to Foodservice Consultant for approval. Manuals to include cover sheet indicating project name and location. Cover sheet to include architect contact, foodservice consultant contact and foodservice equipment contractor contact information. Include index indicating all equipment item numbers, manufacturers, serial numbers, responsible service agencies and contact phone numbers. Submit three hard copies in three ring binders to contractor after approval.

1.01 PROJECT CONDITIONS AND COORDINATION

A. Field verify dimensions of foodservice equipment installation areas prior to equipment fabrication.

B. Coordinate installation requirements for HVAC equipment with GC and MC.

C. Coordinate fire suppression system components and installation with EC, MC and GC.

D. Coordinate location and requirements of utility connections with appropriate trades.

E. Coordinate size, location and requirements for concrete bases, floor depressions and insulated floors with GC.

F. Coordinate installation of roof curbs, equipment support, roof and wall penetrations with GC.

PART 2 – PRODUCTS

2.01 GENERAL

A. All equipment and components shall be new and unused.

B. All items will be the current model at the time of delivery.

C. All manufacturer items requiring electrical service shall be UL listed, UL approved and labeled with UL symbol.

D. All faucets shall be by same manufacturer unless specified.

E. All cabinet style refrigerators/freezers shall be by same manufacturer unless specified.

2.02 CUSTOM FABRICATION AND MATERIALS

A. All custom fabricated equipment as described in Item specifications shall be of identical design and finish and shall be fabricated by one manufacturer. All fabricated equipment is to be labeled with NSF symbol.

B. Stainless Steel shall be 18-8 Type 304 #4 finish. Sheets shall be of identical color, finish and appearance. Grain of material shall run in same direction whenever possible.

C. Galvanized steel shall meet ASTM standard A446. Clean, prime and finish with NSF approved grey epoxy-based paint.

D. Edges, corners and welds shall be ground and polished smooth. No sharp edges will be permitted.

E. Unless specified the following metal gauges shall be used:

10 Gauge:	Gusset Plates
12 Gauge:	Hardware reinforcement, channels
14 gauge:	Table tops, sinks, backsplashes, drain boards, slanting rack shelves and shelf brackets
16 gauge:	Under shelves, over shelves, wall shelves, drawer fronts, access panels
18 gauge	Cabinet bodies, drawer pans, skirts, closure panels, trim strips.

F. Equipment Edges and Backsplashes: Provide equipment edges and backsplashes shall follow all SMACNA standards unless otherwise noted. Weld and enclose all ends. Cove the intersections of all raised edges and backsplashes ¾". Seal all splashes and turn-ups to wall with NSF approved silver silicone.

G. Sound Dampening: Provide NSF certified 3mm thick sound deadening tape material between table frame and below metal surfaces. NSF approved evenly sprayed-on, 1/8" thick aluminum finish below sinks.

H. Equipment Tops: Reinforce tops with 1"x 4" 12 gauge stainless steel, welded galvanized or painted angle iron hat channels or u-channels. Provide reinforcement lengthwise and at 30" O.C. and at table legs. Fully weld all intersections. No tack welding of table reinforcement allowed.

I. Equipment Legs: Provide 1 5/8" O.D. 16 gauge type 304 stainless steel tubing table legs and frames. Continuously weld cross-bracing. Provide S/S flange secured with S/S screws where cross-rails join cabinet body.

J. Leg sockets: S/S leg sockets with set screws for securing legs. Fully weld leg sockets to channels or socket plates. Legs shall not be placed more than 66" O.C. apart or 30" from front to back.

K. Drawers: Construct using Component Hardware S52 heavy duty slides, 200# capacity per pair. Provide 3-sided housing mounted to S/S cross bracing mounted to underside of table. Drawer front shall be S/S double pan construction with fiberglass sound dampener and continuous S/S pull. Include Component Hardware rubber cushion bumpers. Weld and silicone 16 gauge S/S pan holder in position. Include removable, stamped 18 gauge, 20" x 20" x 5" pan. Drawers must be self-closing.

L. Under shelves: Welded under shelves larger than 21" shall be reinforced using same methods as equipment top. Removable shelves shall be no wider than 21". Grind and polish all edges.

M. Over shelves: Table over shelves are to be 12" wide mounted on 14 gauge S/S brackets unless otherwise noted. Shelf brackets shall not exceed 48" O.C. Front of table over shelves shall match leading edge of table.

N. Sinks: Sinks shall be manufactured using 14 gauge S/S. Fully welded one piece construction with ¾" minimum coved corners. Multiple compartment sinks shall contain fully welded double wall construction. Trim strips not allowed. 18 gauge S/S apron shall be provided in front of multiple compartments. Bottom of sink to be pitched to center located drain cup. NSF approved sound dampener required on all sinks.

O. Drain boards: Pitch all drain boards to sinks.

P. Equipment Brackets: Provide S/S brackets for all rotary lever drains attached to welded studs and chrome acorn nuts. Fully weld all brackets for disposer controls panels to U-channel reinforcement below table as shown on drawings.

Q. Fasteners: All fastening devices to be unexposed, wherever possible. Exposed fasteners shall be counter sunk.

2.03 EXHAUST HOODS

A. Provide fully welded all 18 gauge 304 S/S #4 finish on all exposed surfaces. Corners to be fully welded, ground and polished. Ship duct collar loose. Conceal all wiring. Heat sensor to be installed at each duct collar location to activate exhaust fan when cooking occurs below exhaust hood.

B. Must be designed and installed to comply with all prevailing codes.

C. Lights to be pre-wired to single electrical connection point for connection by EC. Provide NSF and code compliant light fixtures as specified.

D. Trim any spaces or gaps between top of exhaust hoods and finished ceiling with matching S/S trim pieces. Channel mounting of trim required. No exposed fasteners.

E. Hoods to be mounted at 80" AFF.

F. EC to make any required interconnections between hoods, fans, switches and controls.

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Consultant

General Contractor

Project Status
Issued for Bids

Issued
8/30/2024 Addendum 01

Drawn By: BN
Checked By: CFD

Food Hall
Main & Division Streets

Issue Date: 07-26-2024

Sheet Contents
FOODSERVICE SPECIFICATIONS

Project Designed For:
City of Fond du Lac

22-015
Project Number

FS3.1
Sheet Number

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3.01 START-UP AND TESTING

A. Provide trained individual to start-up and test all items to ensure proper installation and operation of foodservice equipment.

B. Test and certify all systems as required.

C. Adjust and calibrate all refrigeration systems, thermostats and temperature readout devices.

D. Arrange for demonstrations and instructions for operations and maintenance of foodservice equipment. Times and dates are to be selected by the owner. Demonstrations may take place over two days.

E. Provide operations and maintenance manuals as directed in Submittals section of Section 11 40 00 specifications.

3.02 CLEANING

A. Remove all packing, crating and debris from site.

B. Remove all protective covering from S/S and other finished surfaces.

C. Clean finished surfaces, touch up as required and remove or refinish damaged or soiled areas, as acceptable to Architect/Consultant. Clean work surfaces free of smudges, dust and debris.

3.03 PROTECTION OF COMPLETED WORK

A. Provide all necessary protective measures to prevent damage to equipment from exposure to other construction activity.

B. Advise GC of procedures and precautions for protection of materials and installed Foodservice equipment from damage by work of other trades.

3.04 MAINTENANCE

A. Provide service inspection six months after start-up.

B. Provide final inspection 30 days prior to the end of warranty periods of equipment. Have all required warranty work completed prior to expiration of warranty.

PART 4 – ITEM SPECIFICATIONS

4.01 ROUGH-IN DRAWINGS

Rough-in drawings have been completed by Capital Foodservice Design. It shall be the responsibility of the Foodservice Equipment Contractor (FEC) to verify all dimensions, plumbing, and electrical services and prevailing codes as they relate to this project and to show any required changes on the documents submitted for approval.

4.02 APPROVED FABRICATORS

Approved fabricators of custom fabricated S/S equipment for this project are.

Best-Way Fabricating, Inc. 603 19th Avenue NE PO Box 187 St. Joseph, MN 56374 1-800-896-5565	ACS Fabrication 200 West Plato Blvd St Paul, MN 55107 1-888-429-5924	Two Rivers Enterprises 490 River Street West Holdingford, MN 56340 320-746-3156
Nationwide Fabrication, Inc. 5311 Niagra Street Commerce City, CO 80022 1-303-853-0107	Kiefer Corp. 400 Industrial Drive Random Lake, WI 53075 1-920-994-4332	Institutional Equipment, Inc. 704 Veterans Parkway, Unit B Bolingbrook, IL 60440-5094 1-630-771-0990

4.03 ALTERNATES AND SUBSTITUTIONS

A. Item specifications are to establish a quality and performance standard. The first manufacturer listed is to be considered prime manufacturer and has been selected to establish a minimum requirement for construction, performance, quality and capacities. Approved alternate manufacturers are listed when available.

B. Approved alternate manufacturers must provide equipment equal to the prime specified manufacturer. Performance, quality, capacity and accessories must be equal to prime specified manufacturer. FEC to coordinate any changes required to electrical, plumbing or HVAC requirements with Architect, Consultant and appropriate trades. FEC responsible for any cost involved with changes caused by alternate manufacturer selection.

ITEM 1 DRY STORAGE SHELVING
Twenty-four required
Focus, Eagle or InterMetro approved equal Model
Twenty-four shelving units each consisting of the following:
A. Five FF2148G shelves.
B. Four FGN063G posts.
C. Four FSCAST5B casters. Omit bumpers.

ITEM 2 UTILITY CARTS
Five required
Lakeside, New Age or Channel approved equal Model
Five Model 422 stainless steel Medium duty (500 lb. minimum capacity) utility carts.

ITEM 3 WALK-IN FREEZER
One required
Kolpak or approved equal Model
A. General: One assembly of prefabricated panels fabricated according to NSF Standard #7 and Section 11400.
B. Dimensions: Overall dimensions to be as shown on drawings 20’-0” x 12’-0” x approximately 7’-6” high with manufacturer floor and interior ramp. Provide 3M anti-skid strips on ramp.
C. Metal Finishes:
1. 26-gauge galvalume steel at unexposed walls and ceilings.
2. .040 stucco aluminum at interior walls and exposed walls.
3. .040 smooth aluminum with baked-on white finish at ceiling.
4. .100 diamond tread Era floor.
5. Aluminum coved base at exposed exterior.
6. Diamond tread plate at exposed exterior to a height of 36” AFF.
D. Trim: Trim the box to the walls and finished ceiling using matching stucco aluminum. Top trim panels to be channel mounted. No exposed fasteners allowed. Furnish and install a bumper rail with vinyl insert at all exposed exterior walls. Omit bumper rail from doors.
E. Lighting: Mount standard light fixture above door. Provide 48” LED light fixtures suitable for walk-in cooler and freezer applications. Light level minimum 20-foot candles.
F. Doors: 36” doors with 14”x14” heated viewports.
G. Temperature Alarms: Digital walk-in alarm and light management system.
Temperature probe and cord mounted minimum 72” from walk-in door.
Alarms to be completely installed and set to notify user at:
1. +35° F and +48° F for the cooler.
2. +15° F for the freezers.
H. Refrigeration System: Provide complete remote refrigeration systems. Include the following:
1. Welded angle iron frame to mount the condensing units for Items #3 and #5. Verify the exact location and installation methods with the GC.
2. Installed line driers, sight glasses and vibration eliminators.
3. Installation procedures to follow Section 11400 Refrigeration System Specifications
4. PC348LZOP-2EP, 208-230/60/1, 3 1/2 HP, Low Temp Pre-Charged Air-Cooled Scroll Condensing Unit, Include crankcase heater for -20° ambient conditions and weather-proof housing
5. EL26-090-2ECAFOEM-PR-8, 208-230/60/1, Low Temp Electric Defrost Standard Unit Cooler with Tru-Dmnd™ by ArcticFox. Headmaster controls.

ITEM 4 COOLER/FREEZER SHELVING
Twenty required
Focus, Eagle or InterMetro approved equal Model
Nine shelving units consisting of the following:
A. Five FF2148G shelves.
B. Four FGN074G posts.

Eleven shelving units consisting of the following:
A. Five FF2160G shelves.
B. Four FGN074G posts.

ITEM 5 WALK-IN COOLER
One required
Kolpak or approved equal Model
A. General: One assembly of prefabricated panels fabricated according to NSF Standard #7 and Section 11400.
B. Dimensions: Overall dimensions to be as shown on drawings 18’-6” x 12’-0” x approximately 7’-6” high with manufacturer floor and interior ramp. Provide 3M anti-skid strips on ramp.
C. Metal Finishes:
1. 26-gauge galvalume steel at unexposed walls and ceilings.
2. .040 stucco aluminum at interior walls and exposed walls.
3. .040 smooth aluminum with baked-on white finish at ceiling.
4. .100 diamond tread Era floor.
5. Aluminum coved base at exposed exterior.
6. Diamond tread plate at exposed exterior to a height of 36” AFF.
D. Trim: Trim the box to the walls and finished ceiling using matching stucco aluminum. Top trim panels to be channel mounted. No exposed fasteners allowed. Furnish and install a bumper rail with vinyl insert at all exposed exterior walls. Omit bumper rail from doors.
E. Lighting: Mount standard light fixture above door. Provide 48” LED light fixtures suitable for walk-in cooler and freezer applications. Light level minimum 20-foot candles.
F. Doors: 36” doors with 14”x14” heated viewports.
G. Temperature Alarms: Digital walk-in alarm and light management system.
Temperature probe and cord mounted minimum 72” from walk-in door.
Alarms to be completely installed and set to notify user at:
3. +35° F and +48° F for the cooler.
4. +15° F for the freezers.
H. Refrigeration System: Provide complete remote refrigeration systems. Include the following:
1. Welded angle iron frame to mount the condensing units for Items #3 and #5. Verify the exact location and installation methods with the GC.
2. Installed line driers, sight glasses, vibration eliminators.
3. Installation procedures to follow Section 11400 Refrigeration Systems Specifications.
4. PC68MZOP-2EP, 208-230/60/1, 3/4 HP, Medium Temp Pre-Charged Air-Cooled Scroll Condensing Unit, Include crankcase heater for -20° ambient conditions and weather-proof housing
5. AM26-073-1ECAFOEM-PR-8, 208-230/60/1, Low Temp Electric Defrost Standard Unit Cooler with Tru-Dmnd™ by ArcticFox™

ITEM 6 OPEN NUMBER

ITEM 7 OPEN NUMBER

ITEM 8 SOILED DISH TABLE
One required
Custom Fabrication
One S/S soiled dish table as shown on drawings. Include the following:
A. 10” back splash and left end splash.
B. Quick drain trough with removable basket.
C. 20”x20”x10” deep sink.
D. Removable H-frame.
E. Provisions for installation of Item 9 disposer.
F. Weld-on disposer bracket.
G. Pre-cut holes for spray assembly and vacuum breaker.
H. Provisions for installation of dishwasher.
I. Enclosed rolled rim at dishwasher.

ITEM 9 PRE-RINSE SPRAY ASSEMBLY
One required
T&S Brass
One Model B-0133-12ACRB8S.

ITEM 10 DISPOSER
One required
Salvajor or In-Sink-Erator equal
One Model 200-SA-6½”-ARSS-2 (208/60/3) Include the following accessories:
A. Sink collar assembly.
B. T&S B-0405 chrome vacuum breaker mounted in angle of backsplash.
C. Solenoid valve.
D. Flow control valve.

ITEM 11 DISHWASHER
One required
Hobart or approved equal Model
Model: AM16T-BAS. Include the following:
A. Integral booster heater.
B. Single point electrical connection.
C. Two peg racks.
D. One sheet pan rack.
E. One combination rack.
F. WS-80 water softener.

ITEM 12 CONDENSATE HOOD
One required
Accurex, Avtec or Gaylord approved equal
One 48” x 48” x app. 24” high 18-gauge S/S condensate hood. Mount bottom of condensate hood at 80” AFF. Install the hood using non-ferrous rods.

ITEM 13 OPEN NUMBER

ITEM 14 OPEN NUMBER

ITEM 15 CLEAN DISH TABLE
One required
Custom Fabrication
One “L-shaped” stainless steel clean dish table as shown on drawings. Include the following:
A. 10” back splash.
B. Provisions for installation of dishwasher.
C. Enclosed rolled rim at dishwasher.
D. Partial removable sectional under shelf.

ITEM 16 STAINLESS STEEL WALL COVERING
Lot required
Custom Fabrication
20 ga. #4 finish S/S panels behind soiled dish table, dishwasher and clean dish table. Extend wall covering from flooring base to finished ceiling.
Cover seams between panels using Component Hardware Model J64-1450 AH@ strips. Cap edges using Component Hardware S/S continuous U-clips.
All panels shall be securely attached with clear silicone along the full perimeter of each panel and on the rear of S/S panel.
Provide clean cut holes for passage of utilities.

ITEM 17 HAND SINKS 1
Three required
Advance Tabco
Three Model 7-PS-59.

ITEM 18 3-COMPARTMENT SINKS
One required
Custom Fabrication
One set of S/S utensil sinks. Include the following:
A. Three 20” x 28” x 14” deep sinks.
B. Three Component Hardware DBN-8000 rotary drains.
C. Welded on rotary drain brackets.
D. 10” high back splash and right end splash.
E. One T&S Model B-0290 “Big-Flo” faucet.
F. Pre-cut holes for faucet and spray and fill assembly.
G. Sectional removable under shelves as shown on drawings.

ITEM 19 SPRAY AND FILL ASSEMBLY
One required
T&S, Fisher or Chicago Faucet equal Model
One Model B-0287 “Big-Flo” spray and fill assembly.

ITEM 20 POT RACK/WALL SHELF
One required
Advance Tabco, John Boos or Custom Fabricated equal
One Model PS-15-36.

ITEM 21 STAINLESS STEEL WALL COVERING
Lot required
Custom Fabrication
20 ga. #4 finish S/S panels behind three compartment sink. Extend wall covering from flooring base to finished ceiling.
Cover seams between panels using Component Hardware Model J64-1450 AH@ strips. Cap edges using Component Hardware S/S continuous U-clips. All panels shall be securely attached with clear silicone along the full perimeter of each panel and on the rear of S/S panel. Provide clean cut holes for passage of utilities.

ITEM 22 MOBILE SHELVING UNITS
Four required
Focus, Eagle or InterMetro approved equal Model
Four shelving units each consisting of the following:
A. Five FF2148G shelves.
B. Four FGN063G posts.
C. Four FSCAST5B casters.

ITEM 23 MOBILE WORK TABLE
One required
Custom Fabrication
One 60” x 30” S/S mobile worktable. Include the following:
A. Full under shelf.
B. Four Colson or Jarvis equal #22.0657.95 TotalLock swivel stem casters.
C. Component Hardware S90-0020-CN drawer.

ITEM 24 OPEN NUMBER

ITEM 25 WORK TABLE WITH SINK
One required
Custom Fabrication
One S/S work table with sink as shown on drawings. Include the following:
A. 20” x 20” x 10” deep sink with Component Hardware DBN-8000 rotary drain.
B. Drain bracket.
C. One T&S B-0231CR faucet with B-0199 aerator.
D. 8” back splash.
E. Two Component Hardware S90-0020-CN drawer.
F. Partial sectional removable under shelves.

ITEM 26 HEATED CABINET
One required
Metro
One Model C539-CDC-U.

ITEM 27 OPEN NUMBER

ITEM 28 OPEN NUMBER

ITEM 29 EQUIPMENT STAND
One required
Custom Fabrication
One 24” x 30” x 21” high S/S equipment stand as shown on drawings. Include the following:
A. Full under shelf.
B. Four Colson or Jarvis equal #22.0657.95 TotalLock swivel stem casters.

ITEM 30 CONVECTION OVENS - STACK OF TWO
One required
Southbend, Blodgett or Vulcan approved equal
One Model GS25SC. Include the following:
A. Stainless steel oven interior.
B. Low profile casters.
C. Dormont or equal gas hose kit with swivels at both ends and quick disconnect. 1

ITEM 31 RANGE WITH OVEN
Two required
Southbend, Vulcan or approved equal
Two Model 4361A. Include the following:
A. Extra oven rack.
B. Flame failure device.
C. Battery spark ignition for open tops.
D. Heavy-duty casters.
E. Dormont or equal gas hose kit with swivels at both ends and quick disconnect.

ITEM 32 GRIDDLE WITH STAND
One required
Southbend, Vulcan or approved equal
One Model HDG-24. Include the following:
A. Stainless steel stand with casters.
B. Dormont or equal gas hose kit with swivels at both ends and quick disconnect.

ITEM 33 FRYERS
One required
Star or approved equal
One Model 530FF.

ITEM 34 STEAMER WITH STAND
One required
Accutemp
One Model E62083E100 SGL with stainless steel mobile stand. Include flexible water hose.

ITEM 35 EXHAUST HOOD
One required
Accurex
One model 18’-0” x 63” x 24” exhaust hood. Exhaust hood shall be all 300 Series 18-gauge stainless steel construction. Include removable stainless-steel X-tractor filters and filter removal tool. The hood shall be fabricated in two equal sections if required by delivery access. Hoods shall be UL listed and NSF approved. Exhaust hoods shall meet all requirements of NFPA-96 and be IMC 507.2.1.1 compliant. Startup, Testing, and Balancing of hood to be provided factory-trained authorized personnel. Provide testing and balancing after all air handling systems and cooking equipment are operational. Provide report to Owner and Architect upon completion of testing and balancing.
Include the following:
A. Factory supplied pre-piped Ansul fire suppression system. See item #36.
B. Variable Volume Controls. See Item 35A.
C. Recessed LED lights pre-wired to single connection point.
D. Continuous Capture.
E. Matching stainless steel trim from top of hood to finished ceiling. Use channel mounting. No exposed fasteners permitted.
F. Stainless steel wall panels as shown on drawings. Include divider bars and J-Channels
G. Factory mounted 3” back air space.
H. Performance enhancing lip.
I. Sloped grease trough with removable enclosed grease cups and each end of exhaust hood.
J. Low profile, 4” height Air Supply Plenum (ASP) with rectangular slot perforation on front of hood.
K. Stainless steel utility/fire cabinet as shown on drawings.

ITEM 35A VARIABLE VOLUME CONTROLS
One required
Accurex
One model XKC-DCV, Demand Control (Variable Volume) System mounted in stainless steel utility cabinet at end of exhaust hood as shown on drawings. Provide with interlocking temperature sensors mounted in capture tank of exhaust hood to automatically modulate fan speed. 50% turndown capability for exhaust and supply fans. Include reset function for electric gas valve and full color touchscreen with toolless mounting.

ITEM 36 FIRE SUPPRESSION SYSTEM
One required
Ansul
One Model R-102 wet chemical fire suppression system mounted in stainless steel utility cabinet at end of exhaust hood as shown on drawings.
Full fire suppression system provided by exhaust hood manufacturer. Provide chrome nozzle drops. Provide duct and surface protection for all appliances below exhaust hood. Provide electrical gas shut-off valve and remote pull switch to appropriate trades for installation. Include fire suppression testing and permits by authorized Ansul distributor.

ITEM 37 STAINLESS STEEL WALL COVERING
Lot required
Custom Fabrication
20 ga. #4 finish S/S panels full length of wall behind exhaust hood. Extend wall covering from flooring base to finished ceiling.
Cover seams between panels using Component Hardware Model J64-1450 AH@ strips. Cap edges using Component Hardware S/S continuous U-clips.
Seal the panels with clear silicone. All panels shall be securely attached with clear silicone along the full perimeter of each panel and on the rear of S/S panel to ensure a tight and secure installation of the S/S panels to the walls. Provide clean cut holes for passage of utilities.

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Consultant

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Sheet Contents
FOODSERVICE SPECIFICATIONS

Project Designed For:
City of Fond du Lac

22-015
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ITEM 38 OPEN NUMBER

ITEM 39 OPEN NUMBER

ITEM 40 WORK TABLE WITH SINKS
One required
Custom Fabrication
One stainless steel work table with sinks as shown on drawings. Include the following:
A. Two 20" x 20" x 12" deep sinks with drain overflows. Provide one-piece front panel.
B. Component Hardware DBN-8000 rotary drain.
C. Provisions for installation of faucets and vacuum breaker.
D. Welded disposer control bracket and rotary drain bracket.
E. Provisions for installation of Item 41 and 42.
F. 8" back splash and right end splash.
G. Raised rail edge.
H. Partial sectional removable under shelves.

ITEM 41 SPRAY AND FILL ASSEMBLY
One required
T&S Brass
One Model B-0133-12ACRB8S.

ITEM 42 DISPOSER
One required
Salvajor
One Model 200-SA-6½"-ARSS-2 (208/60/3) Include the following accessories:
A. Sink collar assembly.
B. T&S B-0405 chrome vacuum breaker mounted in angle of backsplash.
C. Solenoid valve.
D. Flow control valve.

ITEM 43 WALL SHELVES
Four required
Custom Fabrication
Four 36" x 12" 16 gauge stainless steel wall shelves as shown on drawings.

ITEM 44 REACH-IN REFRIGERATOR
One required
Utility
One Model R-30-SS-2S-D. Include the following:
A. Additional shelf.
B. 4" front locking casters.
1

ITEM 45 CORNER GUARDS/WALL CAPS
Lot required
Custom Fabrication
Five 18-gauge stainless steel corner guards as shown on drawings.
Extend from flooring base to finished ceiling. Protectors are to extend upward from the top of the cove base and are to be attached with round head screws and clear silicone.
All edges are to be sealed with silicone.

Three 18-gauge stainless steel wall caps as shown on drawings.
Extend from flooring base to finished ceiling. Protectors are to extend upward from the top of the cove base and are to be attached with round head screws and clear silicone.
All edges are to be sealed with silicone.

ITEM 46 OPEN NUMBER

ITEM 47 OPEN NUMBER

ITEM 48 OPEN NUMBER

ITEM 49 OPEN NUMBER

ITEM 50 OPEN NUMBER

ITEM 51 MOBILE WORK TABLES
Seven required
Custom Fabrication
Seven 54" x 30" S/S mobile worktables. Include the following:
A. Full under shelf.
B. Four Colson or Jarvis equal #22.0657.95 TotalLock swivel stem casters.
C. Component Hardware S90-0020-CN drawer.
D. 8" back splash.
1

ITEM 52 WORK COUNTER WITH SINKS
Provided by Others. Not in Contract.

ITEM 52A UNDER MOUNT SINK WITH FAUCET
Seven required
Advance Tabco, John Boos or approved equal
Seven Model 1014-A-10. Include T&S Model B-0301 faucet with wrist handles.
Coordinate installation with counter top manufacturer.
1

ITEM 52B UNDER MOUNT SINK WITH FAUCET
Seven required
Advance Tabco, John Boos or approved equal
Seven Model 1620-A-10. Include T&S Model 5F-8DLX12 faucet.
Coordinate installation with counter top manufacturer.
1

ITEM 53 UNDER COUNTER FREEZERS
Seven required
Continental, Victory or approved equal
Seven Model SW27F-U. Include the following:
A. Stainless steel interior.
B. Door lock.
1

ITEM 54 UNDER COUNTER REFRIGERATORS
Seven required
Continental, Victory or approved equal
Seven Model SW27N-U. Include the following:
A. Stainless steel interior.
B. Door lock.
1

ITEM 55 SERVING COUNTERS
Provided by Others. Not in Contract.

ITEM 56 OPEN NUMBER

ITEM 57 OPEN NUMBER

ITEM 58 OPEN NUMBER

ITEM 59 OPEN NUMBER

ITEM 60 MODULAR BAR DIE
One required
Krowne, Perlick or Glastender approved equal
One "L" shaped modular bar die as shown on drawings. Include the following:
A. 39 ½" height.
B. LED lights.
C. (4) duplex outlets.

ITEM 61 STORAGE CABINET
Provided by Others. Not in Contract.

ITEM 62 SODA DISTRIBUTION SYSTEM
Provided by Soda Vendor. Not in Contract.

ITEM 63 BACK BAR COOLER
One required
Krowne, Perlick or Glastender approved equal
One Model BS60L-S-LG-RG. Include 4" locking casters.

ITEM 64 BEER DISPENSING COOLER
One required
Krowne, Perlick or Glastender approved equal
One Model DB72-R. Include the following:
A. Black Vinyl front.
B. Black vinyl doors with stainless steel handles and locks.
C. BT3-4 upgrade to 4-faucet "T" tower.
D. BEERKIT4 – draft beer kit.
E. Stainless steel tops and sides.
F. Black Vinyl clad doors.
G. 4" locking casters.

ITEM 65 BACK BAR CABINETRY
Provided by Others. Not in Contract.

ITEM 66 BLENDER STATION WITH SINK
One required
Krowne, Perlick or Glastender approved equal
One Model KR24-12BD-MOD.

ITEM 67 BAR SINKS
One required
Krowne, Perlick or Glastender approved equal
One Model KR24-53C-MOD with E-Z install water line kit and faucet.

ITEM 68 MANUAL GLASS WASHER
One required
BarMaid
One Model SS-100.

ITEM 69 GLASS STORAGE CABINET
One required
Krowne, Perlick or Glastender approved equal
One Model KR24-GSB3-MOD. Include perforated drain board insert.

ITEM 70 ICE CHEST
One required
Krowne, Perlick or Glastender approved equal
One Model KR19-24-10-MOD. Include the following:
A. SC24F ice bin cover.
B. RS-24 speed rail.
C. KR-520 garnish station.
D. KR-SC24 locking speed rail cover.

ITEM 71 SODA GUN FILLER
One required
Krowne, Perlick or Glastender approved equal
One Model KR24-6SH-MOD.

ITEM 72 LIQUOR BOTTLE STORAGE DISPLAY
One required
Krowne, Perlick or Glastender approved equal
One Model KR24-ML12-LC-MOD.

ITEM 73 HAND SINK
One required
Krowne, Perlick or Glastender approved equal
One Model KR24-SD12C-MOD. Include the following:
A. Perforated basket.
B. E-Z install water line kit.

ITEM 74 POS STATION
Provided by Others. Not in Contract.

ITEM 75 BAR TOP/SERVING COUNTER
Provided by Others. Not in Contract.

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Consultant

General Contractor
Project Status
Issued for Bids

Issued
8/30/2024 Addendum 01

Drawn By: BN
Checked By: CFD

Food Hall
Main & Division Streets

Issue Date: 07-26-2024
Sheet Contents
FOODSERVICE SPECIFICATIONS

Project Designed For:
City of Fond du Lac

22-015
Project Number

FS3.4
Sheet Number
8/29/2024 4:47:23 PM

ASSUMED SOIL BEARING: 2000 PSF

DESIGN FLOOR LOADS
PUBLIC AREAS: 100 PSF

ROOF/SNOW LOADS:

GROUND SNOW LOAD	Pg	40 PSF
IMPORTANCE FACTOR	I	1.0
EXPOSURE FACTOR	Ce	1.0
TEMPERATURE FACTOR	Ct	1.0
FLAT ROOF SNOW LOAD	Pf	28 PSF

WIND LOADS PER ASCE 7-05

BASIC WIND SPEED	90 MPH
IMPORTANCE FACTOR	1.0
EXPOSURE FACTOR	1.0
INTERNAL PRESSURE COEFFICIENT	+/-0.18

MAIN WIND FORCE RESISTING SYSTEM - SHEAR WALLS

WALLS	8.7 WINDWARD	-1.3 LEEWARD
ROOF	-7.6 WINDWARD	-2.8 LEEWARD

SEISMIC LOADS:
Ss: 0.060 Sds: 0.064
S1: 0.037 Sd1: 0.059
Ie: 1.0
OCCUPANCY CATEGORY: I
SITE CLASS: D
BASIC SEISMIC FORCE RESISTING SYSTEM: SHEAR WALLS (R=)
SEISMIC DESIGN CATEGORY: A
Cs: 0.032

CODE REFERENCES
ALL WORK SHALL CONFORM TO THE LATEST VERSIONS OF THE FOLLOWING CONSTRUCTION AND MATERIAL CODES:
OVERALL:
WISCONSIN ENROLLED COMMERCIAL CODE 2023
INTERNATIONAL BUILDING CODE 2015
CONCRETE:
ACI 301 - "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
ACI MCP - "MANUAL OF CONCRETE PRACTICE"
ACI 318 - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
CONCRETE REINFORCEMENT:
ACI 318 - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
MSP2 - "CRSI MANUAL OF STANDARD PRACTICE"
WRI - "WELDED WIRE FABRIC MANUAL OF STANDARD PRCTICE"
STEEL REINFORCING MATERIAL SPECIFICATIONS:
ASTM A615 (GRADE 60) DEFORMED
WELDED WIRE FABRIC: ASTM A185
REINFORCED MASONRY:
ACI 530.1-99/ASCE 6-99/TMS 602-99 - "SPECIFICATIONS FOR MASONRY STRUCTURES"
STRUCTURAL STEEL DESIGN AND FABRICATION:
AISC - "SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STEEL FOR BUILDINGS"
AISC - "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
STRUCTURAL STEEL MATERIAL SPECIFICATIONS:
HOT ROLLED WIDE FLANGE AND WT SHAPES ASTM A992 (Fy=50 KSI)
ALL OTHER STRUCTURAL SHAPES AND PLATES - ASTM A36 (Fy=36 KSI)
STRUCTURAL STEEL PIPE - ASTM A53 GRADE B (Fy=35 KSI)
HOLLOW STRUCTURAL SECTIONS (HSS) - ASTM A500 GRADE B (Fy=46 KSI)
HIGH STRENGTH BOLTS - ASTM A325N (BEARING TYPE) OR ASTM A325F (FRICTION TYPE)
ANCHOR BOLTS - ASTM F1554 GRADE 36 OR A36
STEEL JOISTS:
SJI - "STANDARD SPEC. FOR OPEN WEB, LONGSPAN STEEL JOISTS AND JOIST GIRDERS
SJI - "RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS AND JOIST GIRDERS
STEEL DECK:
AWS D1.3 - "STRUCTURAL WELDING CODE - SHEET METAL"
SDI - "CODE OF STANDARD PRACTICE"

GENERAL
1. ALL MATERIALS, WORKMANSHIP AND DETAILS SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE WISCONSIN ENROLLED COMMERCIAL BUILDING CODE.
2. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS. CHASES, OPENINGS, INSERTS, SLEEVES OR OTHER ITEMS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND INSTALL THESE ITEMS.
3. OPENINGS SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE MODIFIED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, AND PROJECT WORKPOINTS. REPORT ANY DISCREPANCIES TO THE ARCHITECT OR ENGINEER.
5. TYPICAL DETAILS NOT SPECIFICALLY LOCATED ON THE DRAWINGS SHALL BE APPLICABLE TO ALL PARTS OF THE CONTRACT DRAWINGS UNLESS SPECIFICALLY NOTED OTHERWISE.
6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY ON THE CONTRUCTION SITE.

FOUNDATIONS
1. FOUNDATION WORK FOR THIS PROJECT SHALL CONSIST OF SPREAD FOOTINGS, GRADE BEAMS, CONTINUOUS WALL FOOTINGS, DRILLED CONCRETE PIERS, AND SLABS-ON-GRADE.
2. FOUNDATIONS ARE DESIGNED TO BE SUPPORTED ON APPROVED EXISTING SUBGRADE OR APPROVED COMPACTED STRUCTURAL FILL HAVING AN ASSUMED BEARING CAPACITY OF 2000 PSF
3. ALL EXTERIOR FOUNDATIONS SHALL BEAR ON APPROVED SUBGRADE AT A MINIMUM DEPTH OF 4'-0" BELOW ADJACENT EXTERIOR FINISH GRADE.
4. FOOTING ELEVATIONS SHOWN ON THE DRAWINGS REPRESENT ESTIMATED DEPTHS AND ARE NOT TO BE CONSTRUED AS LIMITING THE AMOUNT OF EXCAVATION REQUIRED TO REACH SUITABLE BEARING MATERIAL.
5. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS ADJACENT TO EXISTING STRUCTURES, STREETS, UTILITIES OR PROPERTY TO PREVENT HORIZONTAL OR VERTICAL MOVEMENT OF THE ADJACENT SOIL OR PROPERTY.
6. CONTRACTOR SHALL CONTROL SURFACE AND SUBSURFACE WATER TO INSURE THAT ALL FOUNDATION WORK IS DONE IN THE DRY.
7. DO NOT PLACE FOUNDATIONS ON FROZEN SUBGRADE. IF FROST OCCURS, CONTRACTOR SHALL REMOVE FROZEN SUBGRADE, PLACE COMPACTED FILL AND PLACE CONCRETE PRIOR TO NEW FROST PENETRATION.
8. PROTECT ALL EXPOSED CONCRETE FROM FROST PENETRATION UNTIL THE PROJECT IS COMPLETE.
9. BRACE FOUNDATION WALLS DURING BACKFILLING AND COMPACTION OPERATIONS. BRACING SHALL REMAIN IN PLACE UNTIL PERMANENT STRUCTURAL SUPPORT IS INSTALLED AND APPROVEDD BY THE ENGINEER.
10. BACKFILL WALLS EVENLY ON BOTH SIDES.

CONCRETE
1. CONCRETE SHALL HAVE A MINIMUM 28-DAY ULTIMATE COMPRESSIVE STRENGTH AS FOLLOWS:

SLABS-ON-GRADE	3,000 PSI
FOOTINGS AND FROST WALLS	3,000 PSI
EXTERIOR EXPOSED CONCRETE	3,000 PSI

2. CONCRETE TO BE EXPOSED TO THE WEATHER SHALL HAVE AIR-ENTRAINING ADMIXTURE AS REQUIRED TO PROVIDE 4-6% AIR ENTRAINMENT.
3. GROUT USED TO SET PLATES SHALL BE NON-SHRINK AND NON-METALLIC.
4. CONTRACTOR SHALL USE SMOOTH FORMS FOR EXPOSED CONCRETE SURFACES. BOARD FORMS MAY BE USED FOR UNEXPOSED CONCRETE SURFACES. EARTH FORMS ARE FORBIDDEN.
5. PROVIDE A MINIMUM OF 6" COMPACTED GRANULAR FILL UNDER ALL SLABS-ON-GRADE.
6. WHEN RELEASE AGENTS ARE USED ON FORMWORK, SPRAY FORMWORK AWAY FROM REBAR. REBAR SPRAYED WITH RELEASE AGENT MUST BE CLEANED PRIOR TO CONCRETE PLACEMENT.

REINFORCEMENT
1. REINFORCEMENT FABRICATOR SHALL PROVIDE AND SCHEDULE ON SHOP DRAWINGS ALL REQUIRED REINFORCING STEEL AND THE NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN PLACE AT THE CORRECT LOCATIONS.
2. CLEARANCES FOR REINFORCEMENT: CONCRETE PLACED DIRECTLY ON EARTH (FOOTINGS, SLABS, ETC.) 3" FROM BOTTOM; ALL OTHER CONCRETE PROVIDE 2" CLEAR TO REINFORCING, UNLESS SHOWN OTHERWISE ON DRAWINGS.
3. CONTRACTOR SHALL REFER TO TYPICAL DETAILS SHOWN ON CONTRACT DRAWINGS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.
4. WHERE REINFORCEMENT IS REQUIRED IN SECTIONS, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER SECTION APPLIES.
5. WELDED WIRE FABRIC SHALL LAP A MINIMUM OF 6" AND BE TIED TOGETHER.
6. CONTRACTOR SHALL NOTIFY ARCHITECT OF COMPLETION OF REINFORCEMENT INSTALLATION AND ALLOW AT LEAST 24 HOURS BEFORE SCHEDULED CONCRETE PLACEMENT FOR ARCHITECT TO INSPECT REINFORCEMENT.

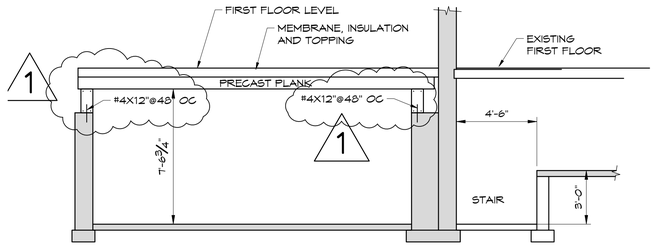
REINFORCED MASONRY
1. CONCRETE BLOCK SHALL CONFORM TO ASTM C-90. THE REQUIRED STRENGTH ON THE NET CROSS SECTIONAL AREA OF THE CONCRETE BLOCK SHALL BE 2,500 PSI.
2. MORTAR SHALL BE TYPE M OR S, CONFORMING TO ASTM C270.
3. GROUT SHALL CONFORM TO ASTM C476. GROUT MAY BE PLACED BY THE "HIGH LIFT" METHOD, CONFORMING TO THE GROUTING PATTERNS REQUIRED BY THE CONTRACT DRAWINGS.
4. THE REQUIRED MINIMUM 28-DAY COMPRESSIVE STRENGTH OF THE COMBINATION OF CONCRETE BLOCK, GROUT AND MORTAR ON THE NET AREA OF THE WALL (F'm) SHALL BE A MINIMUM OF 1,850 PSI.
5. THE ACTUAL 28-DAY COMPRESSIVE STRENGTH OF THE CONCRETE MASONRY ASSEMBLY (F'm) SHALL BE DETERMINED AS DESCRIBED IN SECTION 1.6 OF ACI 530.1-05/ASCE 6-05/TMS 602-05.
6. ALL CONCRETE BLOCK MASONRY UNITS SHALL BE LAID IN RUNNING BOND, UNLESS NOTED OTHERWISE.
7. MASONRY BLOCK CELLS CONTAINING VERTICAL REINFORCING SHALL BE GROUTED SOLID. FILLING CELLS WITH MORTAR IS UNACCEPTABLE.
8. THE BASE OF EACH CELL, IN WHICH A BAR IS PLACED, MUST HAVE A CLEANOUT HOLE.
9. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60. VERTICAL REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 40 BAR DIAMETERS.
10. PROVIDE CONTINUOUS REINFORCED BOND-BEAMS IN ALL REINFORCED MASONRY WALLS AT TOPS OF WALLS, IMMEDIATELY BELOW STEEL BEARINGS, AND WHEREVER CALLED FOR IN CONTRACT DRAWINGS. BOND BEAMS AT TOP OF WALL SHALL BE CONTINUOUS AT MASONRY CONTROL JOINTS. OTHER BOND BEAMS SHALL NOT BE CONTINUOUS AT MASONRY CONTROL JOINTS. BOND BEAM REINFORCING SHALL EXTEND INTO AND BE CONTINUOUS WITH ALL INTERSECTING BOND BEAMS.
11. REINFORCED MASONRY WALLS SHALL HAVE #9 GAUGE (TRUSS TYPE) HORIZONTAL REINFORCING AT SPACING AS NOTED ON THE CONTRACT DRAWINGS, BUT AT A MAXIMUM OF 16" O.C. VERTICALLY.
12. FILL CORES OF MASONRY UNDER ALL BEARING PLATES FOR A WIDTH EQUAL TO THREE TIMES THE BEARING PLATE LENGTH FOR THREE COURSES BELOW BEARING, OR AS SHOWN ON DRAWINGS.
13. IN NON-LOAD BEARING WALLS PROVIDE AND INSTALL ONE LINTEL FOR EACH 4" OF WALL THICKNESS ACCORDING TO THE FOLLOWING SCHEDULE:

OPENING	LINTEL
3'-0"	L3 1/2X3 1/2X 5/16
4'-0"	L4X3 1/2X5/16
5'-0"	L4X3 1/2X5/16
6'-0"	L5X3 1/2X5/16
7'-0"	L6X3 1/2X5/16

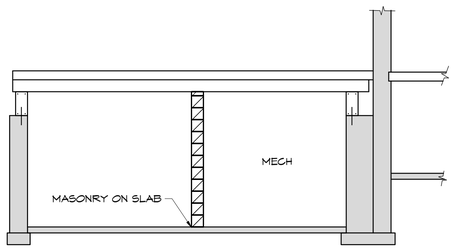
LINTELS SHALL BEAR A MINIMUM OF 6" ON EACH SIDE OF OPENING. LONG LEG OF ANGLE SHALL BE VERTICAL.

STRUCTURAL STEEL
1. PROVIDE 2 MIL. THICK RED OR GREY OXIDE PRIMER ON ALL STEEL SURFACES UNLESS NOTED OTHERWISE.
2. ANCHOR BOLTS SHALL BE PRESET WITH TEMPLATES AT REQUIRED LOCATIONS.
3. LEVELING PLATES AND BEARING PLATES SHALL BE SET IN FULL BED OF NON-SHRINK GROUT.
4. CONNECTIONS MAY BE EITHER BOLTED OR WELDED AT THE FABRICATOR'S OPTION. BOLTED CONNECTIONS SHALL BE AS FOLLOWS:
5. MINIMUM BOLT DIAMETER: 3/4"
6. ALL BEAM CONNECTIONS NOT DETAILED, SHALL SUPPORT 1/2 OF THE TOTAL UNIFORM LOAD CAPACITY FOR THE GIVEN BEAM AND SPAN OR THE INDICATED REACTION, WHICHEVER IS GREATER. CONNECTIONS SHALL GENERALLY FOLLOW THE TYPES SHOWN IN THE "AISC MANUAL OF STEEL CONSTRUCTION", TABLE II, III, OR X.
7. WELDS SHALL FULLY DEVELOP STRENGTH OF THE MATERIALS BEING WELDED, UNLESS NOTED OTHERWISE, EXCEPT THAT FILLET WELDS SHALL BE A MINIMUM 3/16".
8. WELDED CONNECTIONS SHALL BE MADE BY APPROVED CERTIFIED WELDERS USING FILLER METAL CONFORMING TO E70XX.
9. CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN POSITION. TEMPORARY BRACING SHALL REMAIN UNTIL THE PERMANENT LATERAL BRACING HAS BEEN INSTALLED AND THE CONCRETE FOR FLOOR SLABS HAS ATTAINED 75% OF ITS REQUIRED STRENGTH.
10. STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE FINAL BOLTING OR WELDING OF CONNECTIONS.
11. CONTRACTOR SHALL NOT MODIFY OR CUT ANY STRUCTURAL STEEL WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
12. CONTRACTOR SHALL FIELD TOUCH UP ALL ABRASIONS, BURNS, AND SIMILAR DEFECTS IN PAINT OF THE STRUCTURAL STEEL, JOISTS, AND STEEL DECK.

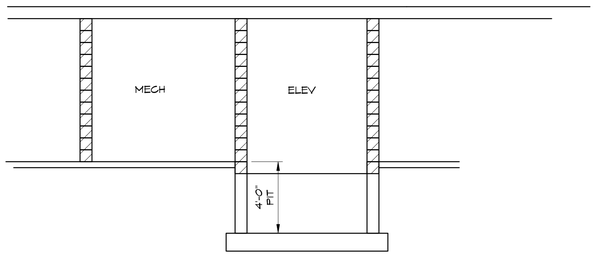
STRUCTURAL WOOD CONSTRUCTION
1. STRUCTURAL WOOD SHALL BE VISUALLY GRADED IN ACCORDANCE WITH ASTM D1990-00E1 OR ASTM D245. WOOD SHALL BE IDENTIFIED BY A GRADE MARK OR CERTIFICATE OF INSPECTION ISSUED BY A RECOGNIZED INSPECTION AGENCY.
2. ALL WOOD SHALL HAVE A MAXIMUM MOISTURE CONTENT OF 15% PRIOR TO INSTALLATION.
3. NEW WOOD SHALL HAVE ALLOWABLE UNIT STRESSES ACCORDING TO THE SCHEDULE OF WOOD DESIGN STRESSES SHOWN ON THE DRAWINGS.
4. JOISTS SHALL BE BRIDGED WITH 1 X 3 CROSS BRIDGING, OR EQUAL, AT INTERVALS NOT EXCEEDING 8'-0".
5. ALL JOISTS AND RAFTERS SHALL BE SUPPORTED BY DIRECT END BEARING ON WALLS, BEAMS, OR JOIST HANGERS.
6. ALL WOOD PERMANENTLY EXPOSED TO THE WEATHER, IN CONTACT WITH EXTERIOR CONCRETE, OR IN CONTACT WITH THE GROUND SHALL HAVE A PRESERVATIVE TREATMENT EQUAL TO 0.4 P.C.F. RETENTION OF PRESSURE INJECTED PRESERVATIVE.
7. NO WOOD MEMBER SHALL BE CUT, NOTCHED, OR DRILLED WITHOUT THE SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.
8. DO NOT EMBED WOOD MEMBERS IN CONCRETE.
9. PLYWOOD (OSB) SHALL BE LAID WITH FACE GRAIN PERPENDICULAR TO SUPPORTS, STAGGER ALL JOINTS.
10. PLYWOOD (OSB) SHALL BE CAPABLE OF SUPPORTING DESIGN LOADS AT REQUIRED SUPPORT SPACING AND BEAR APPROPRIATE GRADING STAMP FROM AMERICAN PLYWOOD ASSOCIATION.
11. USE COMMON WIRE NAILS UNLESS SPECIFICALLY NOTED OTHERWISE.
12. ALL BOLTS AND LAG SCREWS SHALL CONFORM TO ASTM A307. USE STEEL WASHER BETWEEN HEAD OF BOLT OR LAG SCREW AND WOOD. USE STEEL WASHER BETWEEN NUT AND WOOD.
13. ALL FASTENERS USED FOR PRESERVATIVE TREATED WOOD SHALL BE GALVANIZED OR STAINLESS STEEL. STAINLESS STEEL IS PREFERRED.
14. LAMINATED VENEER LUMBER (LVL) BEAMS SHALL CONFORM TO TRUS JOIST CORPORATION MICROLLAM 1.9E LVL SPECIFICATIONS, OR EQUAL.



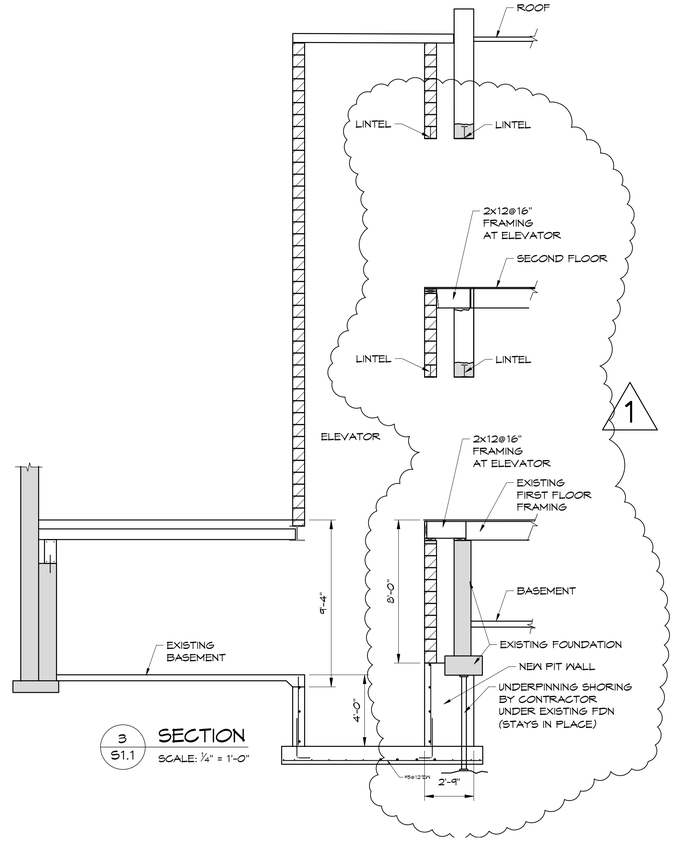
1 / S1.1 SECTION
SCALE: ¼" = 1'-0"



2 / S1.1 SECTION
SCALE: ¼" = 1'-0"



4 / S1.1 SECTION
SCALE: ¼" = 1'-0"



3 / S1.1 SECTION
SCALE: ¼" = 1'-0"

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8/26/24

General Contractor

Project Status
Issued for Bid

Issued	
Rev 1	08-30-24

Drawn By: ddk
Checked By: ddk

Food Hall
Main & Division Streets

Issue Date: 7-26-2024

Sheet Contents
STRUCTURAL NOTES AND DETAILS

Project Designed For:
City of Fond du Lac

22-015
Project Number

S1.1
Sheet Number

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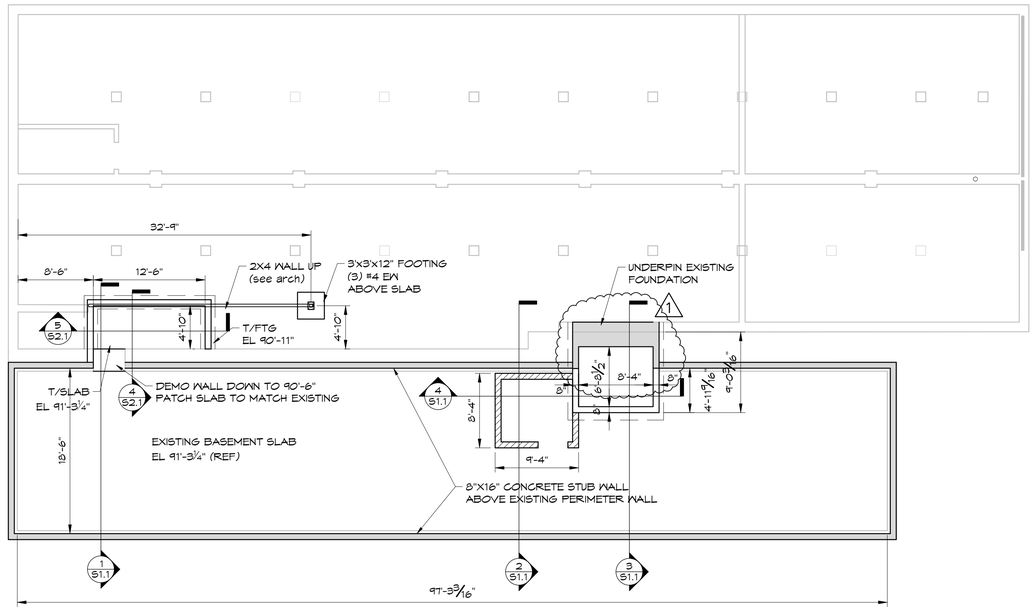
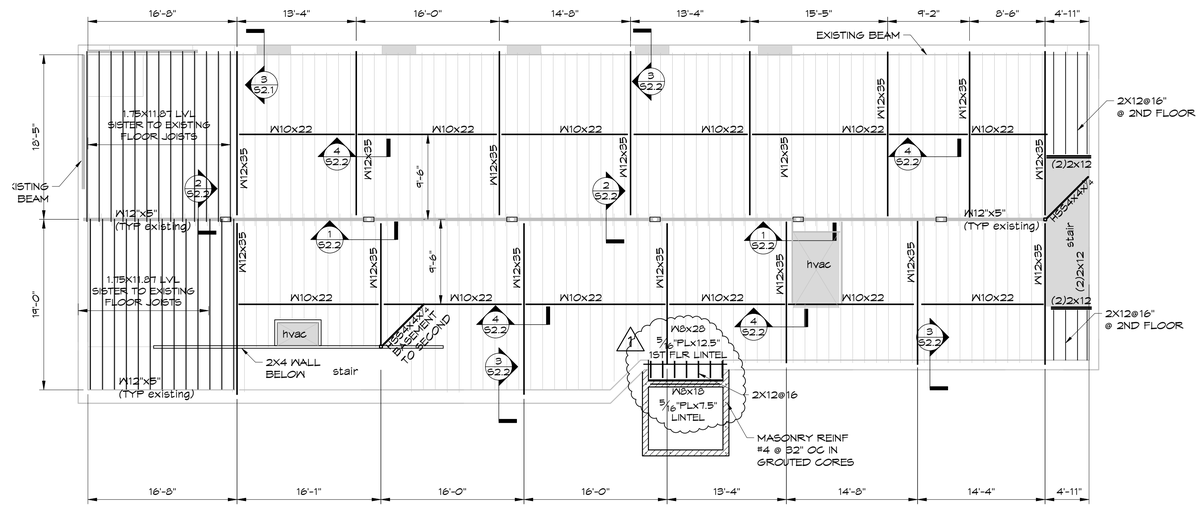


NORTH

BASEMENT PLAN

SCALE: ⅛" = 1'-0"

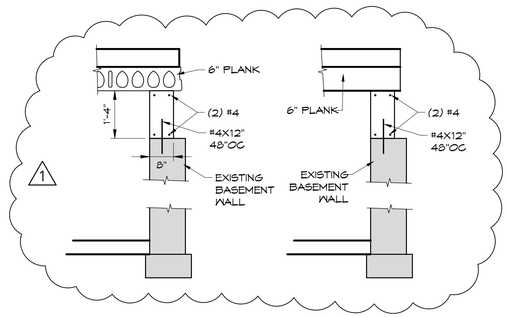


NORTH

SECOND FLOOR FRAMING

SCALE: ⅛" = 1'-0"

NEW BEAMS AT SAME ELEVATION AS EXISTING CENTER W12

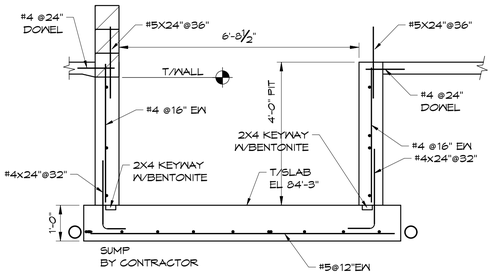


1 / S2.1 SECTION

SCALE: ½" = 1'-0"

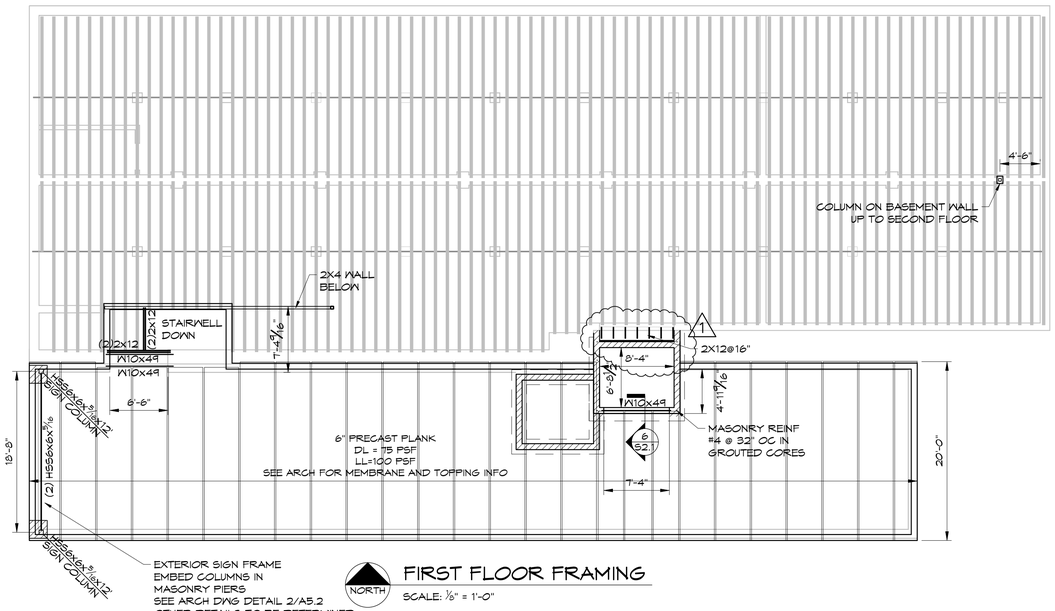
2 / S2.1 SECTION

SCALE: ½" = 1'-0"



3 / S2.1 SECTION

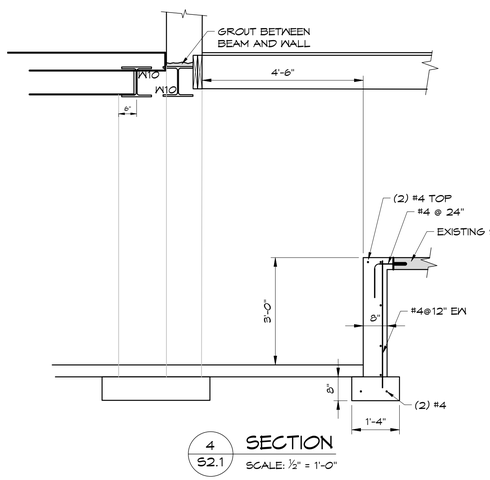
SCALE: ½" = 1'-0"



NORTH

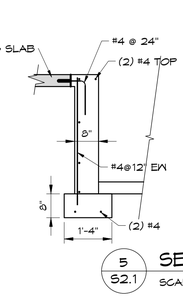
FIRST FLOOR FRAMING

SCALE: ⅛" = 1'-0"



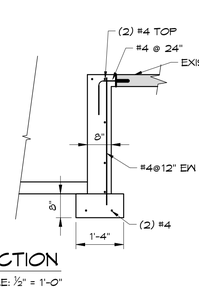
4 / S2.1 SECTION

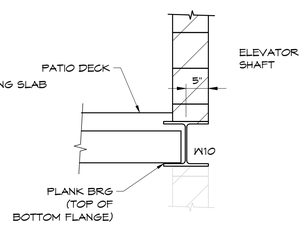
SCALE: ½" = 1'-0"



5 / S2.1 SECTION

SCALE: ½" = 1'-0"





6 / S2.1 SECTION

SCALE: ¾" = 1'-0"
PLANK SUPPORT

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8/28/24

General Contractor

Project Status

Issued for Bid

Issued	
Rev 1	08-30-24

Drawn By: ddk
Checked By: ddk

Food Hall

Main & Division Streets

Issue Date: 7-26-2024

Sheet Contents

STRUCTURAL NOTES AND DETAILS

Project Designed For:

City of Fond du Lac

22-015
Project Number

S2.1
Sheet Number

7/26/2024 10:42:32 AM