MATRIX ENGINEERING PLLC

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February 12, 2019

First Kentucky Realty
101 South 4th Street
Murray, KY 42071

Attn: Mark and Val Fredrick
Via email: 1stkyrealty@gmail.com

Subject: Office Building Floor Capacity Analysis and Condition Assessment
Matrix Engineering Project Number: 18086

Dear Mark and Val,

You requested my services to evaluate the structure of your office building located at 101 South 4th Street in Murray, KY. The building was originally used as a bank with at least two distinct sections built at different times, they will be referred to as the New Building (3rd & Main St.) and the Original Building (4th Street Offices). You indicated to me that the local library board was considering purchasing the building to use as a library.

According to the Kentucky Building Code, required live loads for libraries is 150 pounds per square foot (PSF). The original building design drawings indicate that the majority of the floor space was designed for uniform live load of 100 PSF, except for designated vault and records areas that were designed for a uniform live load of 150 PSF.

The new building currently has two floors with partial basement areas. This area of the building is designed to have another floor added. The building structure is comprised of steel beams, steel columns, composite concrete/steel floor beams and girders. The structure is supported by a series of reinforced concrete spread footings. The upper floors and roof decking are reinforced concrete slabs of varying thicknesses. The basement floors are 4-inch thick concrete slabs on grade.

The general condition of the visible portions of the structure is considered good with no obvious signs of settlement or distress noticed. Visual inspection of the steel beams and columns and composite floor slab in the newest part of the building could only be done from areas with a suspended ceiling. The structural steel has been coated with protective fire proofing, so the structural steel beam surfaces and connections are not readily visible.

I analyzed the floor framing by applying a 150 PSF uniform live load over the entire floor areas and found that some of the main composite steel/concrete floor beams would be

overstressed. I continued to analyze the floor framing, reducing the areas loaded with the 150 PSF uniform load, with the remaining areas loaded with the original 100 PSF uniform live load until I found the optimum areas that could be loaded with the 150 PSF uniform live load and not overstress the floor framing and floor slab. Refer to the attached sketches for location of these areas.

Even though some the floor framing and floor slab area can handle the extra loading, the individual beam to column connections need to be verified before the targeted floor areas can be rated for 150 PSF. The support reactions for the beams in these areas exceed the design reactions stated in the design drawings. This does not necessarily mean the connections are not strong enough but more information is needed for analysis. Getting access to these connections will require removal of wall and ceiling board and scraping away fire proofing. If after analysis it is found that the connection will not support the new loading, additional support can be designed and added to the affected connections.

The building columns and foundations where not analyzed since they were originally designed and constructed to support an additional floor level.

All existing concrete slab on grade areas in the original and new sections of the building can support a 150 PSF live load.

The mechanical room basement area in the original building has overlying reinforced concrete floor beam and slab system. At some point in time, the mechanical room size was increased. New concrete beams and slabs were constructed. A portion of the original overlying basement floor slab remains. My analysis found that the new beams and floor can support the 150 PSF floor load. There is not enough information available on the existing floor slab for me to adequately analyze. However, this slab is located in an egress area and has to remain open for safe exit of the building in case emergencies. If for some reason this slab needed to be rated for 150 PSF, a shoring/support system could be designed and constructed.

The second floor of the original building was not evaluated for the additional floor load.

To summarize, the overall condition of the building is be considered good. Assuming the beam to column and beam to beam connections are verified and/or modified, specific areas of the floors can support a floor live load of 150 PSF. The amount of floor area in the new building capable of supporting the 150 PSF floor live load is approximately 3,800 SF in the basement areas, approximately 2,950 SF on the first floor, and approximately 2,950 SF on the second floor. The amount of floor area in the original building main floor capable of supporting the 150 PSF floor live load is approximately 5,300 SF (excludes floor slab over mechanical/boiler room and egress from offices). With the removal of plaster to verify connection capacity, approximately 15,000 SF would be capable of supporting the 150 PSF live load.

Some areas of the floor can currently support a 150 PSF live load without any additional beam connection verification/modifications. These includes approximately 3,800 SF in the basement areas, approximately 1,886 SF on the first floor of the new building, approximately 782 SF on the second floor of the new building, and 5,300 SF on the main floor of the original building ((excludes floor slab over mechanical/boiler room and egress from offices). The

total floor area that can currently support the 150 PSF live load without any plaster removal for connection verification is 11,800 SF.

Thanks again for the opportunity and let me know if you have any questions or need additional support.

Paul A. Crabtree, P.E.
Matrix Engineering, PLLC

PRO-LAB®
1675 North Commerce Parkway, Weston, FL 33326 (954) 384-4446

Prepared for : BARNES HOME INSPECTIONS

Test Address : 1ST KY REALTY
101 SOUTH 4TH ST
MURRAY, KY 42071

ANALYSIS METHOD	6110 Air Direct Examination	6110 Air Direct Examination	INTENTIONALLY BLANK	INTENTIONALLY BLANK
LOCATION	RETURN AIR/ BOTTOM FLOOR (RETEST)	BASE		
COC / LINE #	1203383-1	1203383-2		
SAMPLE TYPE & VOLUME	AIR-O-CELL - 150L	AIR-O-CELL - 150L		
SERIAL NUMBER	27528032	27528042		
COLLECTION DATE	Jan 16, 2019	Jan 16, 2019		
ANALYSIS DATE	Jan 18, 2019	Jan 18, 2019		
CONCLUSION	NOT ELEVATED	CONTROL		

IDENTIFICATION	Raw Count	Spores per m^3	Percent of Total	Raw Count	Spores per m^3	Percent of Total	Raw Count	Spores per m^3	Percent of Total	Raw Count	Spores per m^3	Percent of Total
Other Ascospores				4	27	25						
Other Basidiospores				4	27	25						
Penicillium/Aspergillus	4	27	100	8	53	50						
TOTAL SPORES	4	27	100	16	107	100						
MINIMUM DETECTION LIMIT*	4	27		4	27							
BACKGROUND DEBRIS	Light			Light								
OBSERVATIONS & COMMENTS												

Background debris qualitatively estimates the amount of particles that are not pollen or spores and directly affects the accuracy of the spore counts. The categories of Light, Moderate, Heavy and Too Heavy for Accurate Count, are used to indicate the amount of deposited debris. Light (None to up to 25% obstruction); Medium (26% to up to 75% obstruction); Heavy (76% to up to 90% obstruction); Too Heavy (Greater than 90% obstruction). Increasing amounts of debris will obscure small spores and can prevent spores from impacting onto the slide. The actual number of spores present in the sample is likely higher than reported if the debris estimate is 'Heavy' or 'Too Heavy for Accurate Count'. All calculations are rounded to two significant figures and therefore, the total percentage of spore numbers may not equal 100%. The effect of the results relate only to the items tested. The methods used in this analysis have been validated and is fit for the intended use. R "version" indicated after the lab ID# indicates a sample with amended data.

*** Minimum Detection Limit.** Based on the volume of air sampled, this is the lowest number of spores that can be detected and is an estimate of the lowest concentration of spores that can be read in the sample.
NA = Not Applicable.

Types that were observed from the samples submitted are listed on this report. If a spore is not listed on this report it was not observed in the samples submitted.

Interpretation Guidelines: A determination is added to the report to help users interpret the mold analysis results. A mold report is only one aspect of an indoor air quality investigation. The most important aspect of mold growth in a living space is the availability of water. Without a source of water, mold generally will not become a problem in buildings. These determinations are in no way meant to imply any health outcomes or financial decisions based solely on this report. For questions relating to medical conditions you should consult an occupational or environmental health physician or professional.
CONTROL is a baseline sample showing what the spore count and diversity is at the time of sampling. The control sample(s) is usually collected outside of the structure being tested and used to determine if this sample(s) is similar in diversity and abundance to the inside sample(s).
ELEVATED means that the amount and/or diversity of spores, as compared to the control sample(s), and other samples in our database, are higher than expected. This can indicate that fungi have grown because of a water leak or water intrusion. Fungi that are considered to be indicators of water damage include, but are not limited to: *Chaetomium, Fusarium, Memnoniella, Stachybotrys, Scopulariopsis, Ulocladium.*
NOT ELEVATED means that the amount and/or the diversity of spores, as compared to the control sample and other samples in our database, are lower than expected and may indicate no problematic fungal growth.
UNUSUAL *means that the presence of current or former growth was observed in the analyzed sample. An abundance of spores are present, and/or growth structures including hyphae and/or fruiting bodies are present* and associated with one or more of the types of mold/fungi identified in the analyzed sample.

580 Baldock Road
Scottsville, KY 42164

P.O. Box 267
Cross Plains, TN 37049

Remediation Inc.

KY: 270-495-5368
KY Fax: 270-618-6729
Louisville: 502-963-4461

TN: 615-530-6862
TN Fax: 615-530-6864

Email: aaaremediationinc@hotmail.com

2-8-19

CLEARENCE CERTIFICATION LETTER

RE: 1st KY Reality
101 S. 4th Street
Murray, Ky 42071

To Whom It May Concern:

As per our proposal AAA Remediation Inc. has removed all known asbestos piping, and asbestos flooring at 101 South 4th Street Murray, Ky . All asbestos has been removed per local, state and federal guidelines.

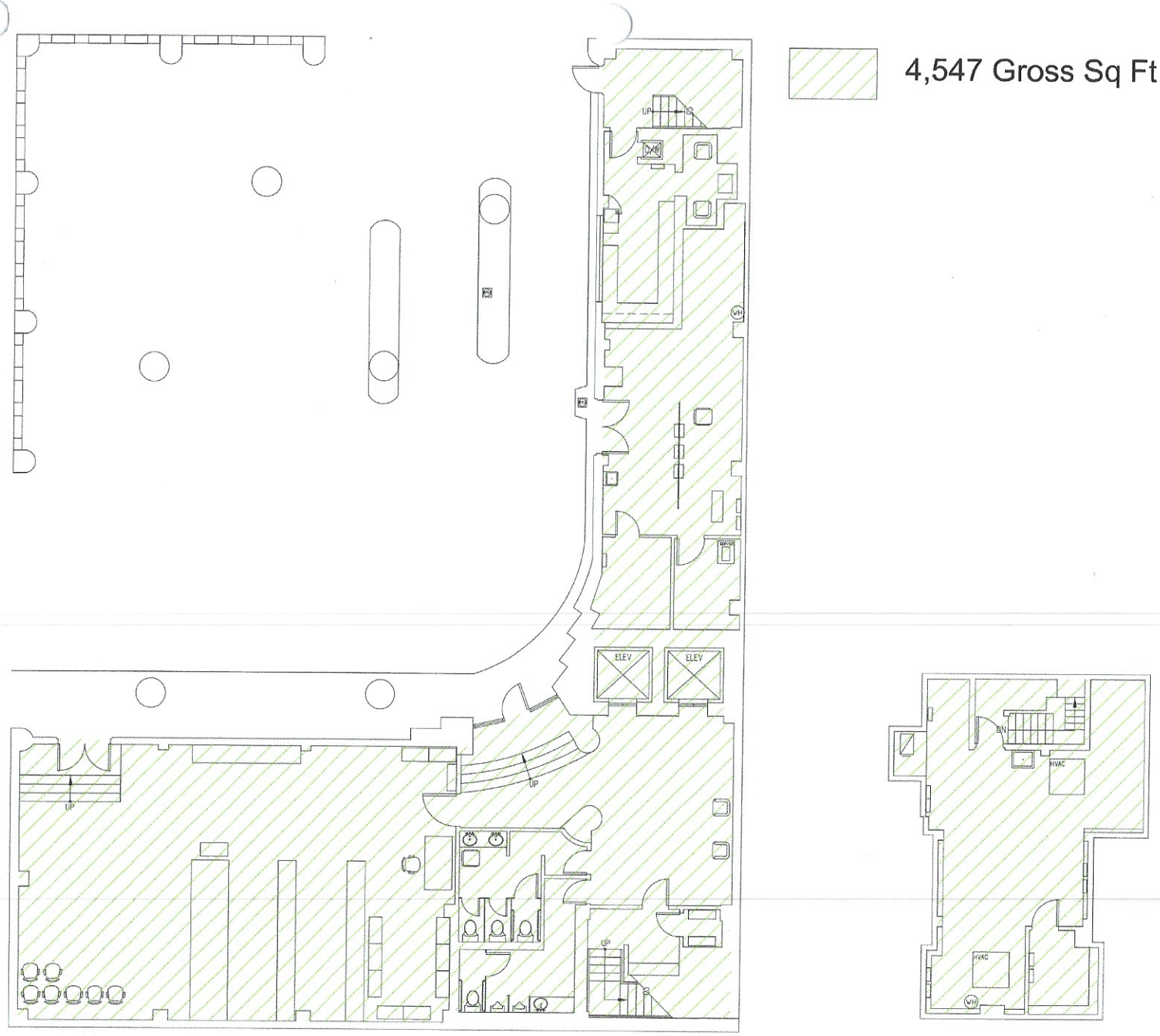
This letter is conformation that the above location was inspected by Flynn Warden, Kentucky asbestos inspector accreditation number is I13-09-2109.

If you have any questions, please call me and I will do my best to answer them.

Respectfully

Flynn Warden

Flynn Warden

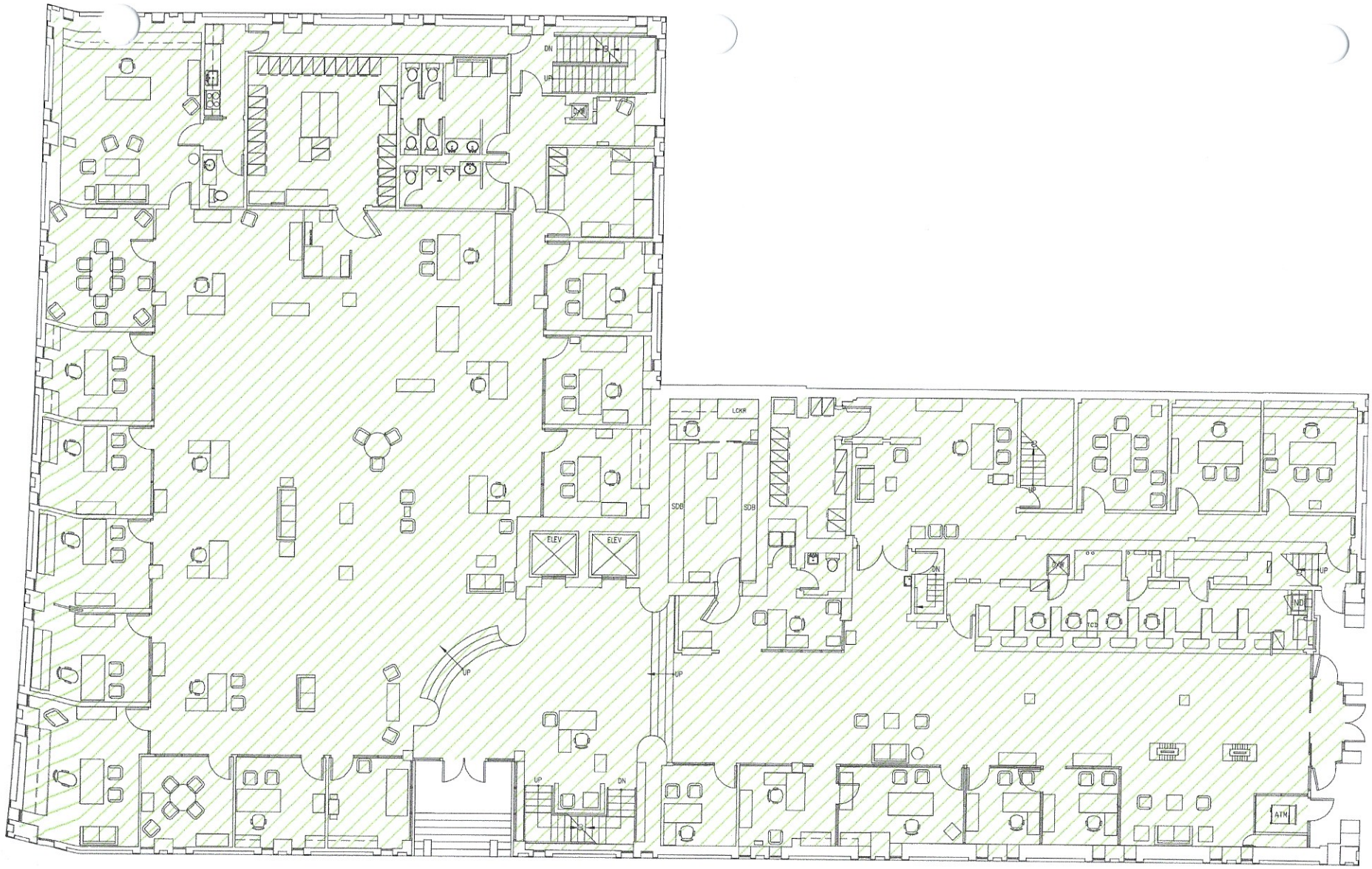


023519 Murray Downtown Office

101 South 4th Street, Murray KY

Basement

Facilities Record Drawing



4th street

Main Street

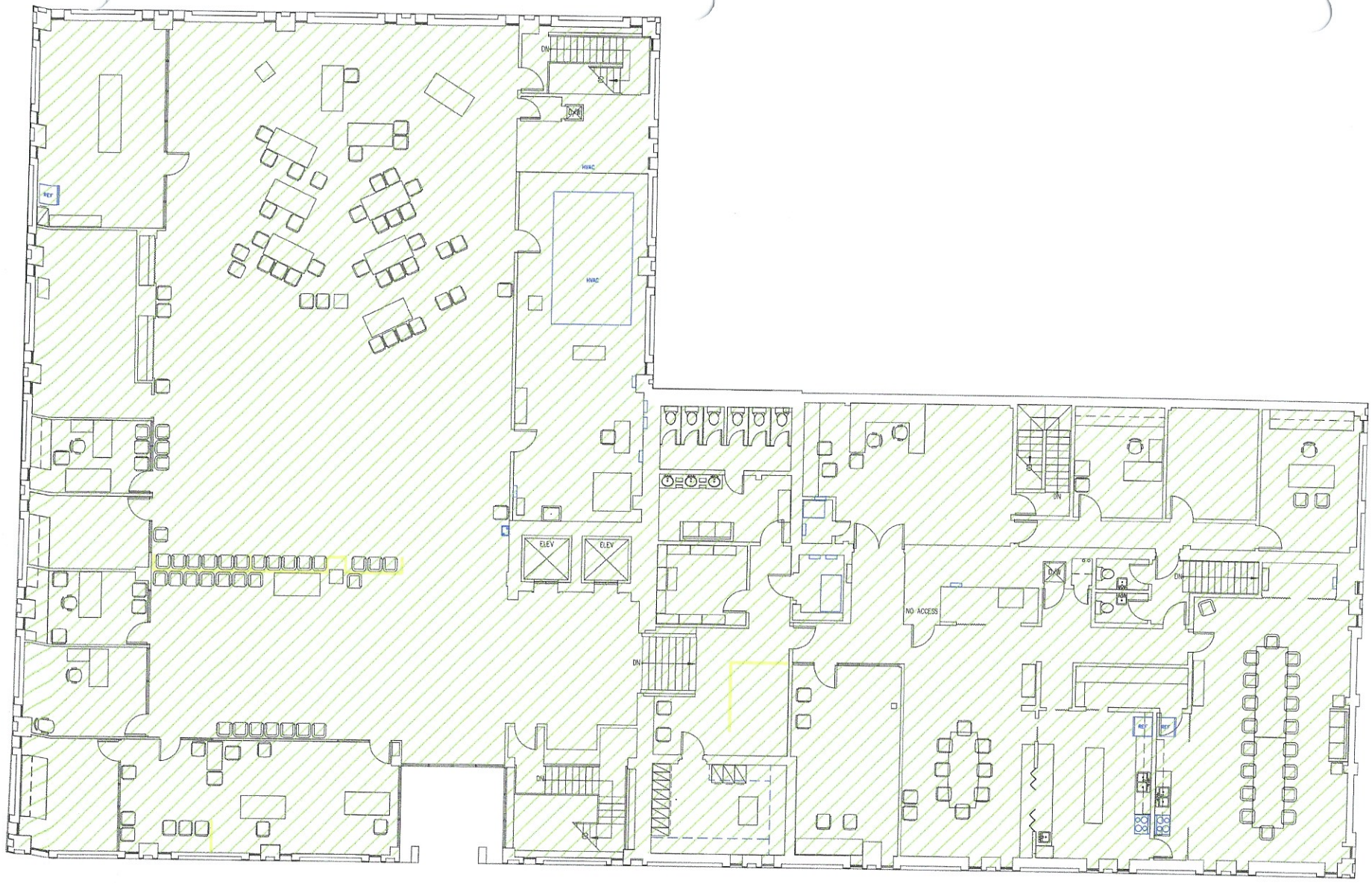
14,244 Gross Sq Ft

23519 Murray Downtown Office

1 South 4th Street, Murray KY

First Floor

Facilities Record Drawing



14,407 Gross Sq Ft

3519 Murray Downtown Office

South 4th Street, Murray KY

Second Floor

Facilities Record Drawing