

Structural Inspection & Repair Estimate

Report No. 9020-R-001, Revision No. 0

Final Report

March 3, 2023



1334 5th Avenue, LLC (Current building Owner)
1344 Fifth Avenue
Pittsburgh, PA 15219

Orbital Engineering Project No. PIT.23.9020

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Orbital Engineering, Inc.

1344 Fifth Avenue

Pittsburgh, PA 15219

1334 5th Avenue, LLC
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Table of Contents

1.0	Executive Summary	1
2.0	Introduction.....	3
3.0	Disclaimer.....	3
4.0	Background.....	3
5.0	Inspection Information.....	4-5
6.0	Detail of Findings.....	5-16
7.0	Recommendations	16
8.0	Signature	17

1.0 Executive Summary

A structural inspection was completed on the building at address 1334 5th Ave. in Pittsburgh, PA, on February 7, 2023, by Orbital Engineering, Inc. (Orbital) for the current building owner, 1334 5th Avenue, LLC. Additional site visits were made after the February 7 initial visit to gather additional information for the inspection and cost estimate work by Orbital. The structure is a three-floor building with a basement and an attic space. It is on a lot that has exposure to all four sides of the building, with no adjacent buildings. The building, throughout the years, has had multiple owners and was used commercially in multiple ways. Most recently, the building was a restaurant. The building was originally constructed of wood interior structural framing with a sandstone foundation wall and double wythe brick exterior wall around the perimeter.

The building was inspected visually, and no destructive testing or special nondestructive testing was completed. The subject building is in a poor and unsafe condition, currently requiring Orbital to take safety precautions while completing the site inspection. In the basement, the only recent upgrades that were visual were the electrical and fire alarm system and a coat of paint on the walls. The wood framing, including joist, subfloor, and columns, were made of wood except for one steel post added since construction. The first-floor wood framing showed major signs of deterioration, water damage, and overall lack of maintenance throughout the years. There are areas in the floor framing that show signs of deformation due to building and/or foundation movement. No heating and ventilation system was observed in the building during the inspection. The other interior spaces and finishes are in fair to poor condition. The true extent of the structural framing is unknown because it is covered on the interior by plaster or drywall; however, what was observed during the inspection warrants the author's final recommendation. In some areas, there is a visible indication of moisture penetration at some point during the structure's life. The more concerning areas are on all floors at the front of the building. The drywall in the corners is pulling away more at the top and less as it goes toward the bottom of the structure. This indicates that not only are localized brick pieces deteriorating and falling toward 5th Avenue, but the whole brick front structural wall is moving toward 5th Ave. This means the complete structural integrity of the front wall is unstable and unpredictable.

The cost estimate to mitigate the deficiencies observed during the inspection by Orbital totaled \$211,789.20. The breakdown is shown in Figure 1.

Cost Estimate Summary Breakdown

Item	Description	Unit	Qty	Cost/unit	Item Cost
	Demo Work				
1	Demo front façade brick/framing	S.F	800	\$31.00	\$24,800.00
2	Remove storefront windows & doors	S.F	400	\$15.00	\$6,000.00
3	Remove windows	Each	6	\$250.00	\$1,500.00
4	Stucco on East side	S.F.	2300	\$5.70	\$13,110.00
5	Demo miscellaneous interior items	S.F.	2000	\$2.50	\$5,000.00
6	Hauling 7 disposal		Lump Sum		\$5,000.00
				Demo Work Total	\$55,410.00
	Renovation Work				
1	Install new front wall framing				
2	Install new windows 2nd & 3rd floors	Each	6	\$571.00	\$3,426.00
3	New storefront door and windows	S.F.	400	\$35.00	\$14,000.00
4	First Floor support framing	S.F.	1300	\$21.85	\$28,405.00
5	Repoint East side brick	S.F.	2100	\$5.00	\$10,500.00
6	Repoint rear wall brick and chimneys	S.F.	900	\$5.00	\$4,500.00
7	Foundation wall	S.F.	150	\$148.00	\$22,200.00
8	Install HVAC system	S.F.	3000	\$9.65	\$28,950.00
9	miscellaneous electrical & roof work	S.F.	1300	\$7.00	\$9,100.00
				Renovation Work Total	\$121,081.00
				Subtotal	\$176,491.00
				Contingency (20%)	\$35,298.20
				Grand Total Estimate	\$211,789.20

Figure 1

2.0 Introduction

Orbital Engineering, Inc. was contracted to complete the structural inspection of the building located at 1334 5th Avenue, Pittsburgh, PA, by the owner, 1334 Fifth Ave., LLC. This inspection was requested to understand the current structural integrity of the structure and whether it is economically feasible to mitigate the building deficiencies or demolish the structure.

3.0 Disclaimer

This report details work completed to date and describes the findings resulting from that work. All of my opinions and recommendations are made within a reasonable degree of engineering certainty based on industry standards, my experience, and my education. I relied upon my experience in building structures, which includes engineering design, field supervision, inspections, and risk mitigation; my knowledge of industry accepted safety practices; and my knowledge of and experience with the industry standards in the construction industry and the information available at the time of this report.

I reserve the right to supplement this report and to expand or modify my opinions based on review of additional material as it becomes available through ongoing discovery or through any additional work or review of work performed by others.

While conducting this investigation and developing my opinions, I followed the generally accepted practices of root cause/problem analysis and methodologies for determining any failures and damage. I collected data in reference to the building's as-is condition and identified the deficiencies and, in some cases, a potential root cause. I then applied engineering principles to the available data and, based upon my experience, education, and knowledge, determined the extent of damages to develop a cost estimate for the required mitigation work to bring the building back to a safe and structurally sound building.

4.0 Background

The building was constructed between 1862 and 1872. The building sits on Allegheny parcel ID:0002-G-00051-0000-000 and is located in the 1st Ward in Pittsburgh, PA. The information on the Allegheny County Real Estate Portal states the lot is 1,449 square feet, with its Class listed as commercial. And a use code stating retail/apartment over. The building has a frontage that is 22 feet wide by three stories. The building on the East side is approximately 66 feet in length from 5th Avenue towards the alley. On the West side, the building is approximately 86 feet in length from 5th Avenue towards the alley. More specific information can be found in the Deed Book 19167 and page 486, which the author of this report has not reviewed. Its original use is unknown to the author of this report, but it would be assumed that it was a storefront commercial on the first floor with residential on the upper floors. The building is constructed with sandstone foundations up to grade and then double wythe brick walls to the roof. The

interior walls are either constructed of furring strips and drywall along the exterior brick wall or stud framing for interior partitions or load-bearing internal walls. The floor construction is wood framing with various coverings applied throughout the years. The flat roof in the back of the property is currently covered with a membrane roofing material that goes up the parapets. The parapets are capped with a coping that is masonry and or metal. The front part of the building's sloped roof is a shingled roof. The most recent use of the building on the first floor was a restaurant.

The city of Pittsburgh has written multiple citations for this property. The first citation was September 29th, 2021, record number CF-P L I-20211- 034814. The citation description was: front and left exterior wall is cracked with loose brick and debris falling. The second citation was issued on February 6, 2023 record number CF-PLI-2023-003964. The citation description was: exterior of the building in disrepair. There are large holes, separation, and bricks on the side and front of the building. Appears to be creating an unsafe condition. Additionally, there is a note on the record noting: safety for the community stage and a canopy to protect pedestrians from falling debris. At the cost of \$5,778 plus \$535 per month rental and adding cones and caution tape to block off the 1334 side of the parking lot cost \$1,016 total cost.

5.0 Inspection

The front façade of the subject building facing Fifth Avenue is in unsafe structural condition. Visually you can see where large areas of the brick facade are moving toward the street on the front facade. Bricks and other exterior building materials have fallen from the facade to the ground along the sidewalk and adjacent east side parking lot. The condition is so bad and concerning for pedestrian safety that the city of Pittsburgh installed barriers and caution tape along the Fifth avenue sidewalk in front of the subject property. 1334 5th Avenue, LLC installed scaffolding to protect personnel walking on the sidewalk in front of the building. Looking at the front façade, other deficiencies show this condition has been deteriorating over time. Some of the second-floor and third-floor window lintels show clear signs of vertical and horizontal displacement. The storefront window and door framing for the first floor of the building have been deformed such that the door will not close unless it is hit with a hammer.

The East exterior side of the building is in an unsafe condition, similar to the front. Pieces of material brick and stucco are continuously falling to the ground. The stucco material has been added over time to help hide imperfections in the east side brickwork resulting from lack of maintenance. It has been observed that water is penetrating behind this stucco coating and, over time and deteriorating its adhesion to the brick as a result of the moisture and freeze and thaw cycles. The area where this material falls is an active parking lot that has been barricaded by 1334 5th Avenue, LLC, to ensure public safety.

The West exterior side of the building show signs of moisture penetration into the applied stucco coating over the original brick facing. This side of the building appears to be in a more stable condition. However, there are areas where the stucco has broken

loose and has deteriorated away or fallen. There are cracks along the stucco on this side of the building, and water stains show how the water runs down the side, thus compromising the integrity of the stucco.

The back side of the building has no stucco coating on it, just the original brick facing. The grout in this area shows signs of deterioration and cracking. At the top of this side, cracking and movement along the joints have been observed, which is a safety concern for falling objects. With the cracks, moisture has penetrated the wall and most likely created further deterioration within the wall due to moisture and freeze and thaw cycles.

6.0 Detail of Findings

6.1 First-Floor Framing: The first-floor wood framing, as observed from the basement, is in poor condition and has deteriorated over time due to moisture penetrating and impacting the wood, use, and the lack of any preventive maintenance. There are large cracks in primary framing members and secondary members along with visible wood rot/deterioration along with multiple areas where the first-floor subfloor has failed and been repaired unprofessionally. Reference the pictures below outlining deficiencies that were observed during the inspection.





6.2 East Foundation Wall: the east foundation wall, approximately 20 feet down towards the alley from the building front, has failed. It was observed during the inspection that this wall at the base, close to the basement slab, has moved in towards the basement approximately three to four inches in a 5 foot linear area along the wall. Signs of moisture were observed in this area. Reference the pictures below showing this deficiency observed during the inspection.





6.3 West Foundation Wall: it was observed during the inspection that the West foundation wall had been replaced with concrete blocks at some point. This should be noted since the replacement of the sandstone foundation with a new concrete block wall resulted from a deficiency that had to be mitigated. And if the root cause has not been addressed, this type of deficiency will continue in the foundation structure. Reference the picture below taken during the inspection.



6.4 No Heating & Cooling Equipment: it was observed during the inspection that no heating or cooling equipment was in the building. Additionally, no condensing or other types of HVAC units were observed outside or on the roof structure.

6.5 Front Facade: The building's front facade is a major concern not only from a structural evaluation but from a public safety perspective. As a result of poor preventive maintenance practices and allowing moisture to penetrate the structural brick walls, the facade has deteriorated such that the front door for the storefront will not close as a result of this movement. One major concern is that the whole front wall is observed to be moving away from the building structure towards 5th Ave. Thus a public safety concern such that the current building owner has installed protective scaffolding along the sidewalk. Windows on the second and third floors show signs of movement such that lintels on top of the windows supporting the brick above are no longer level. Brick and other materials associated with the wall are continually falling to the ground at this location. Reference the pictures below for these deficiencies.







6.6 East Building Exterior: The building's east side, at some point, had a brick wall covered with stucco material. The stucco material was not installed professionally based on observations from the inspection to take into account the condition of the wall at the time of the application. As a result, over time, moisture has penetrated the stucco and, during freeze and thaw cycles, has deteriorated the wall such that material is falling to the ground and cracks are forming. Some patches have been applied to areas that have fallen away; however, since the root cause of the deficiency has not been addressed, this will continue throughout the life of the building. Reference the pictures below for observed deficiencies.





6.7 West Building Exterior: On the building's West side, at some point, a stucco covering was applied to it more recently than the east side. This wall appears to be in better shape than the exterior walls. However, there are signs of moisture running down the face as a result of poor downspouts or coping above, plus there are signs of moisture getting underneath the stucco, as shown where it has fallen off the side of the building. Reference the pictures below for these deficiencies.



6.7 Rear Building Exterior: The rear building exterior has areas where the brick and grout interface has been cracked, thus allowing moisture to penetrate the wall and cause further deterioration. Reference the photos below showing these deficiencies.



6.8 General Deficiencies: each floor was observed to have areas that were not level or uneven. Based on the observations of the inspection, it would be assumed that these were either installed this way, which is doubtful, or there has been deformation throughout the life of the building that would cause this movement, either framing deficiencies or settlement and movement in the exterior and foundation wall system. The flat roof in the rear of the building is in fair shape, but the top of the parapet is in poor shape and requires work to ensure moisture does not continue to penetrate the brick wall. The pitch roof shingles were observed to be in poor shape, with some missing areas along with the interface of the dormers to the roof needing to be sealed up better to ensure a watertight connection.



7.0 Recommendations

In conclusion, based on the current condition of the subject building, the current value of the property, the fact that it is a known & recorded public safety hazard and, the lack of maintenance throughout the years, and the cost to mitigate the current deficiencies, it is best if the property is demolished.

8.0 Signature

The opinions and information presented in this report are based upon my knowledge, training, and experience, my physical observations, and the materials that I reviewed to date. My review and analysis of the subject building is a dynamic process based on its condition and may require updates based on new information that is observed or uncovered. I reserve the right to revise this report if any new information is made available after submitting this report.



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