



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

Metropolitan Historic Zoning Commission
Sunnyside in Sevier Park
3000 Granny White Pike
Nashville, Tennessee 37204
Telephone: (615) 862-7970
Fax: (615) 862-7974

STAFF RECOMMENDATION
1203 Forrest Avenue
May 16, 2012

Application: Demolition
District: Lockeland Springs-East End Neighborhood Conservation Zoning Overlay
Council District: 06
Map and Parcel Number: 08309009400
Applicant: Neil McGlothlin/ Paragon Group LLC
Project Lead: Robin Zeigler, robin.zeigler@nashville.gov

<p>Description of Project: Application is to demolish a contributing structure. A permit was issued in April for an addition and during construction; numerous structural issues were uncovered.</p> <p>Recommendation Summary: Staff recommends approval of the application finding that the level of deterioration, poor original construction and inappropriate repairs has resulted in an economic hardship. Staff finds the project to meet Section IV.B.2.e of the <i>Lockeland Springs-East End Neighborhood Conservation Zoning Overlay: Handbook and Design Guidelines</i>.</p>	<p>Attachments A: Engineer's Report B: Architect's Report</p>
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Vicinity Map:



Aerial Map:



Background: 1203 Forrest Avenue is a one-story Victorian house built c. 1905. The East Nashville National Register Historic District nomination form considers the house to be contributing to the district. On April 18, 2012, the MHZC approved an addition for this building and a permit was issued.

Applicable Design Guidelines:

IV. B. Demolition

1. Demolition is inappropriate:
 - a. if a building is of such architectural or historical interest and value that its removal would be detrimental to the public interest;
 - b. if a building is of such old or unusual or uncommon design and materials that it could not be reproduced without great difficulty or expense; or
 - c. if its proposed replacement would make a less positive visual contribution to the district, would disrupt the character of the district, or would be visually incompatible.
2. Demolition is appropriate:
 - c. if a building has lost its architectural and historical integrity and importance and its removal will not result in a more negative, less appropriate visual effect on the district;
 - d. if a building does not contribute to the historical or architectural character and importance of the district and its removal will result in a more positive, appropriate visual effect on the district; or
 - e. if the denial of the demolition will result in an economic hardship on the applicant as determined by the MHZC in accordance with section 91.65 of the historic zoning ordinance.

Analysis and Findings:

On April 18, 2012, the MHZC approved an addition for this building and a permit was issued. During rehab of the existing building, the applicant uncovered multiple structural issues that were not apparent at the time of purchase.

1. The Rim joists have deteriorated beyond repair along at least 50% of the exterior walls. The most critical area is the front where a planting bed was located and caused the complete deterioration of the joist. In other areas, the joists are severely compromised and causing walls to bow.
2. Floor joists are insufficient, have not been repaired properly, are compromised due to installation of water line and suffer from termite damage. Because of evidence of floor issues in multiple areas of the home, all flooring and subflooring was removed, exposing the joists. Repairs include sistering that does not span properly, a beam supported by stacked bricks that have failed and the installation of a poorly constructed floor section where a masonry fireplace had been removed. The system is further compromised by termite damage.
3. Foundation piers are deteriorated. In some areas the house is only supported by loose stone that was installed between the piers. This stone was not stacked or mortared in a method to provide additional support beyond the piers.

4. No headers over windows and lack of top plates. The windows were constructed without headers. Top plates for the walls are not always necessary to add in historic buildings but would likely now be required by Codes because of the extent of partial demolition that has taken place. Some demolition was necessary for the rehabilitation and uncovered areas of concern. Additional demolition was then necessary in order to determine the extent of damage.
5. Intersections of valley rafters and hip rafters are not supported. The roof may have been replaced at some point or was just constructed poorly to begin with.
6. Evidence of fire damage. All plaster was removed to install new mechanicals and insulation and revealed charred wood. Some of these roof members are structurally compromised and will have to be replaced.

Many of these issues are typical of old house construction and should be expected for renovation projects. Historic construction rarely meets modern code requirements, which change every year. Other concerns, noted by the applicant, such as the second floor not having adequate support for a usable second floor space should not be expected in a home that was not constructed for the second floor area to be habitable space.

Although foundation issues should be of great concern to any homeowner, repairs are not insurmountable. In this case, because of the level of deterioration and the poor construction and repair methods, repairing the foundation would require significant and costly reconstruction.

Staff recommends approval of the application finding that the level of deterioration, poor original construction and inappropriate repairs has resulted in an economic hardship. Staff finds the project to meet Section IV.B.2.e of the *Lockeland Springs-East End Neighborhood Conservation Zoning Overlay: Handbook and Design Guidelines*.



1203 Forrest Avenue, front façade before renovations began.



APPLE JUNCTION DESIGN SERVICES, PLC

3622 Mayflower Place
Nashville, TN 37204
Phone/Fax: (615) 383-5016
Cell Phone: (615) 337-5296
E-mail: dkaymoss@comcast.net

April 28, 2012

Brett Diaz
Managing Partner
Paragon Group
408 Taylor Street, Suite 202
Nashville, TN 37208

**Re: Structural Review of Integrity of Residence
1203 Forrest Avenue
Nashville, TN 37206
AJDS Project No. 12-0421-000**

Dear Brett:

At your request, we visited the above-mentioned residence on Thursday afternoon, April 26, 2012. This visit was performed to review the structural integrity of the residence including the existing foundation after you started demolition to uncover the walls, floor system, and foundation.

Our structural review included no destructive or intrusive procedures and was limited solely to features normally visible to the unaided eye. This is a structural report of a visual review and should not be construed as a comprehensive structural analysis of capacity or performance.

OBSERVATIONS

From our limited research, the residence appears to have been originally constructed in about 1909.

Since there has been numerous tornadoes that have passed through this area, with a major one occurring along Forrest Avenue in 1998, we do not know how much the tornadoes have shifted the framing and its foundation. It does appear that at least the left side of the residence has shifted off of its original wood posts.

Unfortunately, there was no accessible crawl space before you purchased the residence so there was no actual way to determine the condition of the foundation or the floor system until the subflooring was removed. Some of the rim joists were covered with plywood and the apparent thin stone skirting around the perimeter of the residence was mortared, leaving the impression that the residence had a complete stone foundation under it.

The original support of the residence appears to have been a combination of brick pilasters and wood posts that were placed around the perimeter of the residence and at various locations in the crawl space.

At some time in the past, stacked stones were placed between and/or around the original supports. Only the thin outer course of stone was apparently mortared to give the appearance of an actual stone foundation. Over time, the original brick pilasters have deteriorated and the wood posts have rotted such that they no longer properly support the residence.

At the exterior, the residence's exterior walls have now had to rely on the non-structural stacked stone skirting for some type of support without the residence collapsing altogether. This loss of support and the loss of the supports in the crawl space has caused all of the floors to be extremely out of level.

Double 2x10 rim joists with 2x4 ledgers were used to span between the supports at the exterior. These rim joists are in various degrees of deterioration with the worst being at the front left where soil has been against the rim joist and this portion of the rim joist has rotted out.

At other locations (especially at the left side), the rim joists appear to have moved outward and also the two plies have started to pull apart. A gap has been left between the double rim joists and the ends of the floor joists.

The floor joists are generally 2x10s spaced at approximately 16-inch centers. The floor joists span in different directions throughout the residence. At most of the beams including the double rim joists at the exterior, 2x4 ledgers were attached to the original main beams to support the ends of the floor joists.

Apparently there was too much deflection especially in the floor system at the left side of the residence so someone installed a main beam at mid-span of the original floor joists. This beam was poorly supported by stacked bricks apparently, but the supports have fallen over. The front of the beam framed into a single original floor joist. The floor in this area has now collapsed at the beam as the beam fell to the crawl space floor.

Apparently between the front left living room and the dining room behind it there was originally a double faced fireplace. At some time (possibly after the tornado of May 1998 hit this area), the fireplace was removed. Unfortunately the floor system where the fireplace use to be was poorly framed back into the original floor system.

There are many other areas of patched floor framing throughout the residence that can easily be seen now that the subflooring has been removed.

The remaining double fireplace at the right side has a poorly supported hearth area with headers that span between single floor joists. Beams apparently rely on the base of the fireplace for some amount of support.

Once the first floor ceiling was removed, it was noted that the residence had experienced a fire in the past. It could not be determined when the fire occurred or how much of the residence that it affected. It could be visibly be noted at several locations where the ceiling joists had been painted to cover up the charring on the ceiling joists.

With the crawl space being so shallow, the floor system is too low to the ground and there has been some amount of past termite damage to the floor system at several locations.

Once the covering has been taken off of the walls, one can now note that insufficient headers were placed over windows and doors at the exterior walls and over interior doors that are in load bearing walls. In addition it could be noted that the walls only have a single top plate. Many of the original walls also have no bottom plates, but were instead constructed directly on top of beams and/or floor joists.

The first floor ceiling joists for the residence were 2x6s spaced at 16-inch centers. They rest on walls with single top plates. The roof rafters are 2x4s spaced at approximately 24-inch centers that rest on a 1x4 ribbon board on top of the ceiling joists. With the differences in rafter and ceiling joist spacing, most all of the rafters do no rest on top of the ceiling joists for transfer of their load to the wall below. This has caused the ribbon board to deflect too much and the ends of the rafters to settle.

It appears that the residence did not originally have any livable area at the second floor. Someone apparently constructed the stairs to the attic later as the walls of the stairway do not appear to be original to the residence. With only ceiling joists to use as floor joists at the second floor, the ceiling joists have greatly sagged over time. To make matters worse, knee walls were installed for the second floor living area that rest only on the second floor subflooring or on single floor joists that have made the ceiling (floor) joists have additional sagging occur in them.

The roof system as we mentioned above is also very minimal. In addition to those issues, there is also the issue of hip and valley rafters framing into points or locations at the ridge boards that have no support under them thus allowing sagging to occur in the roof.

We noted that the left wall of the left dormer was poorly constructed with minimal number of studs and the studs were turned sideways with the 2-inch dimension parallel to the wall.

Where the original fireplace and chimney were removed near the front left of the residence, the roof framing was poorly patched as was done at the first floor framing.

COMMENTS

Any attempt to try to salvage any portion of the residence would require large expenditures to repair since considerable amounts of temporary supports would be required to keep the residence stable during the repair and/or lifting process.

The first and most major issue would be the construction of a proper foundation under the residence. The present support for the residence is poor at best as the residence is only resting on the unstable stacked stones all around the perimeter of the residence.

It would be extremely difficult to even temporarily support the residence's structure and hold the structure in place with steel beams supplied and installed by a house mover. Just trying to install these temporary steel support beams could cause the whole house to fall down. The present floor joists, ceiling joists, and roof rafters are not strong enough to keep the walls together during the period of time needed to construct the foundation.

One would not want to spend the money to temporarily install new floor joists, ceiling joists, etc. just to be able to temporarily support the residence so the foundation could be constructed. And then after the foundation was constructed go back and take out the temporary members and install the new entire floor system for the residence which would eventually be required in order to level the floors.

Ideally the foundation/floor system for the residence would be raised a minimum of 8 inches to get the floor system up away from the ground. Inside, the crawl space would need to be excavated to obtain the minimum clearance of 18 inches under the floor system. Even addition crawl space depth would be advisable in order to install the utilities.

Attempting to install the proper foundation could easily exceed \$40,000.

In addition, the existing walls of the residence are in poor condition as well and will require strengthening to bring the wall construction up to current building codes. Most of the existing stud walls would have to be rebuilt as they already lean outward. The top single top plate would need to be strengthened with the installation of pieces of 2x4 placed under the top plate between studs. Proper size headers would need to be installed over all of the windows and doors.

Since there is no wall sheathing behind the existing wood siding and therefore there is no means of lateral shear resistance in the walls, then the existing wood siding will require removal. When the wood siding is removed, it will not be possible to salvage the siding since it will crack and break during removal. In addition, after removal of the vinyl siding that was placed over the original wood siding, it has been noted that the effort to remove all of the paint from the existing wood siding would be too expensive. One should also realize that with the age of this residence that the paint undoubtedly contains lead and the removal of the paint would have to be done in strict compliance

with the building code and EPA guidelines. New siding would be a lot more feasible and would allow for the installation of the new sheathing and whole house wrap.

Similarly, the existing ceiling joists would also need to be replaced because of their current sagged condition. In the area where there would be second floor living area, the ceiling joists would need to be changed out for proper size floor joists that could also support any required knee walls.

The second floor decking would need to be removed and replaced in order to install the new floor joists.

With only original 2x4 rafters, the roof already has sags in it. The rafters would need to be sistered with 2x6s for proper support of the roof. With only the 1x4 ridge board, rafter ties should be installed at each pair of rafters to strengthen the roof system. Blocking would need to be installed under the ribbon board that presently supports the rafter so the loads from the rafters are properly transferred to the walls below. Installation of these required structural elements would lower the height at the second floor such that there would be very little usable space at the second floor. It would actually be better if the entire roof was taken off and then rebuilt with proper size rafters and a true ridge beam. This would be the only way to install the plywood decking and regular shingles on the roof as indicated on the proposed house plans.

At the intersection of hip and valley rafters, proper supports will need to be installed under these joints down to a load bearing wall or beam. These would probably require major reframing of the existing roof system to eliminate as many of these intersections as possible.

Proper beams would need to be installed under all of the second floor knee walls as the roof that they are receiving from the roof is too much for just standard ceiling/floor joists.

One should consider the amount of work required to properly repair the residence before coming to the conclusion that it can be salvaged. We do not see any feasible way to salvage the residence.

As should be readily be seen by anyone, the work (and cost) required to repair the residence would be more than to completely reconstruct the residence. There is no way to be completely sure of the structural stability of the residence without completely reconstructing the residence either, starting at the foundation and proceeding on up.

Since the cost to repair the residence would cost more than reconstruction, this residence is a good candidate for re-construction.

We hope with all of our findings that we have discussed above that the Metro Historic Zoning Commission will agree.

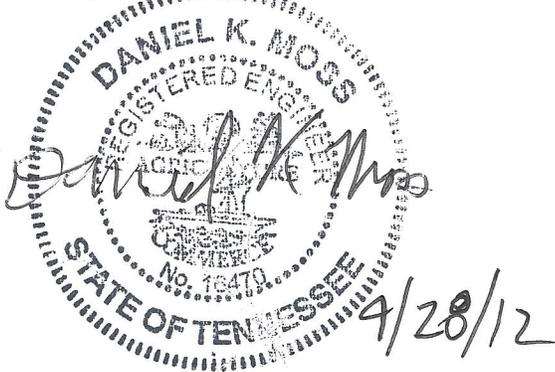
1203 Forrest Avenue
Nashville, TN 37206
April 28, 2011
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Our comments are based upon our observation of the apparent performance of the items noted and upon the conditions observed at the time of the investigation.

We appreciate this opportunity to be of service to you. If you or the Metro Historic Zoning Commission has any questions, please give us a call.

Sincerely,

Apple Junction Design Services, PLC



Daniel K. Moss, P.E.
Senior Structural Engineer

Attachments: sketches
pictures



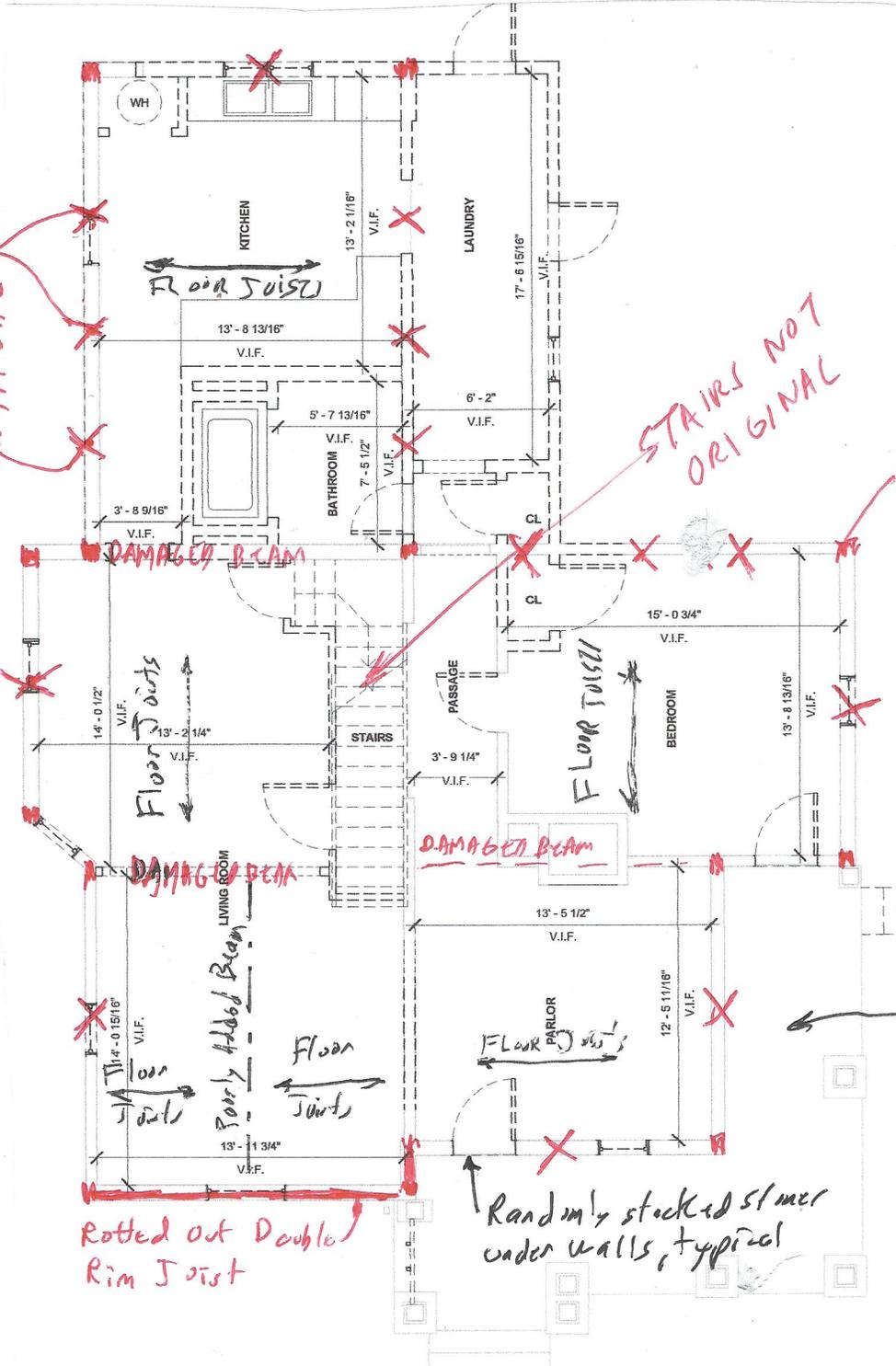
APPLE JUNCTION DESIGN SERVICES, PLC

3622 Mayflower Place
Nashville, TN 37204
Phone/Fax: (615) 383-5016
Cell Phone: (615) 337-5296
E-mail: dkaymoss@comcast.net

APPARENT ORIGINAL ROTTED
WOOD POSTS UNDER RIM
TYPICAL

STAIRS NOT
ORIGINAL

APPARENT BRICK
PILASTERS AT
CORNERS - DETERIORATED
TYPICAL



Apparent randomly
stacked studs under
slabs, typical

Randomly stacked studs
under walls, typical

EXISTING FIRST FLOOR PLAN
1/4"=10"

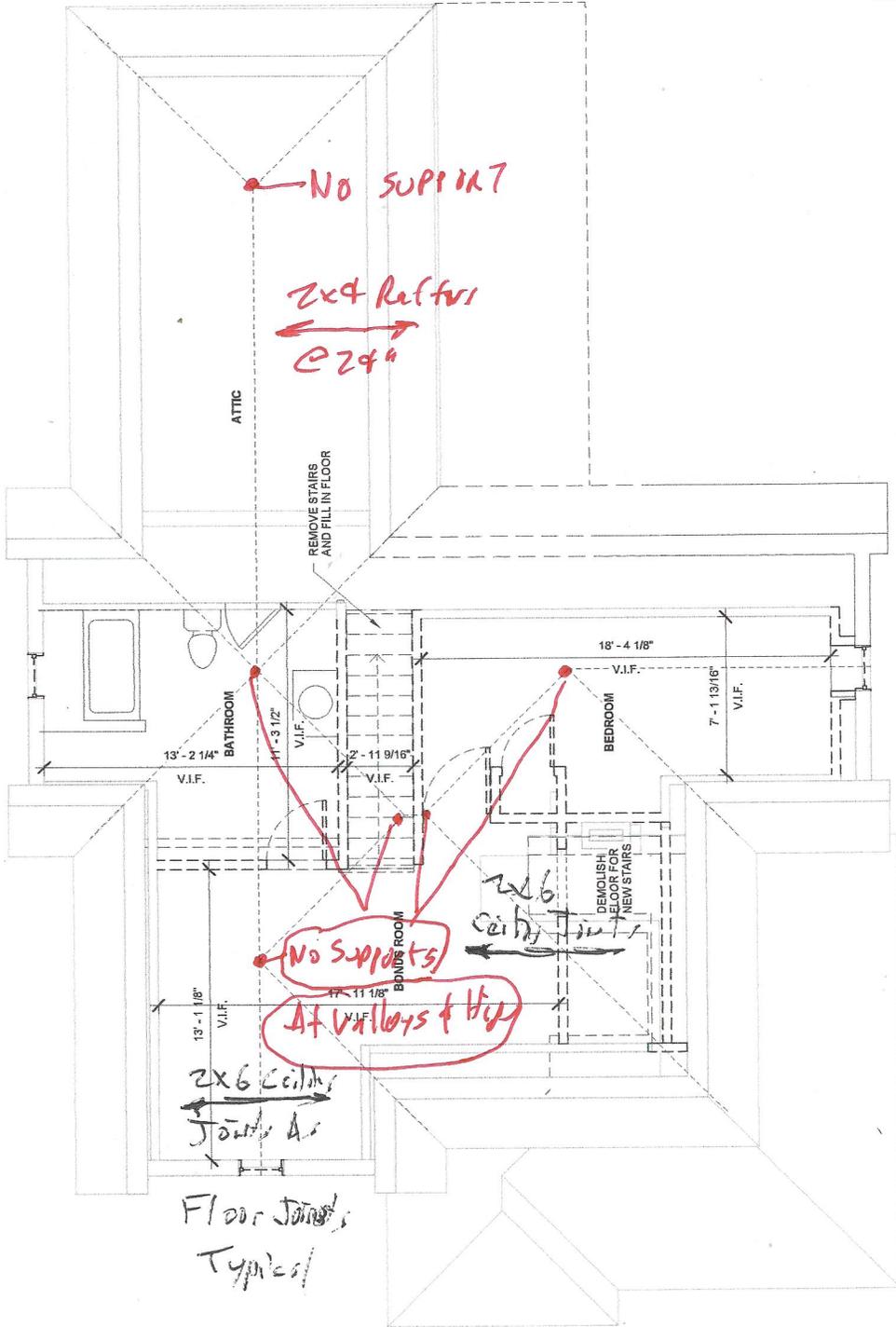
FIRST FLOOR PLAN

1203 Forrest Avenue
Nashville, TN 37206
April 28, 2012
AJOS Proj. 12-04 21-000
Sheet 1 of 2



3622 Mayflower Place
 Nashville, TN 37204
 Phone/Fax: (615) 383-5016
 Cell Phone: (615) 337-5296
 E-mail: dkaymoss@comcast.net

APPLE JUNCTION DESIGN SERVICES, PLC



EXISTING SECOND FLOOR PLAN
 1/4"=1'0"

1203 Forrest Avenue
 Nashville, TN 37206
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 AJS Proj. 12-0421-000
 Sheet 2 of 2



Loose stones as skirting under front wall



Added beam was poorly supported by ledger at single joist at front left



Left side floor joist frame into center beam w/poor supports



Loose stones as skirting under left wall
Double rim joist has moved outward away from ends of left floor joists



Second floor joists are actually only original 2x6 ceiling joists that also show signs of past charring from fire. Walls only have single top plates and no headers over windows. Rafters rest on ribbon board on top of ceiling joists.





Poorly repaired floor system at location of original fireplace between study and dining room. There is termite damage in beam under wall also.



Additional areas of loose stones as skirting. No actual support under double rim joist was noted.



Apparent original brick pilaster at one corner of left bay window.



Poor support under main beam where floor joists change direction.



Another original brick pilaster at one of the corners



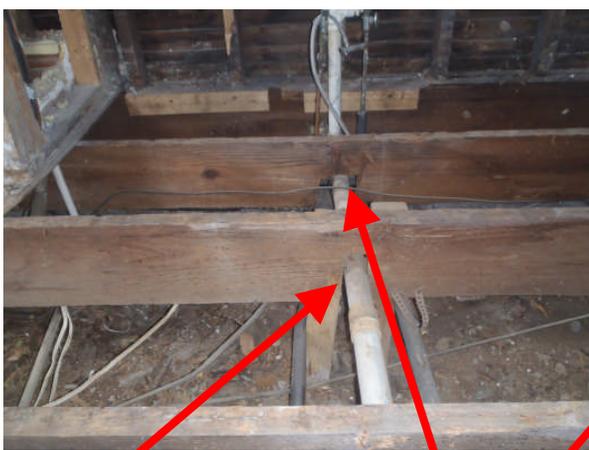
More areas of stacked stone skirting—no actual foundation.



Poorly added supports under rear floor joists



Rear floor joists notched for water line and poorly patched and supported.



See caption above.



Poorly stacked stone skirting at rear—no actual structural foundation.



More areas of stacked stone skirting—no actual



Original wood post at right side to support double rim joist



See caption above.



Poorly supported beam at right side under load bearing wall



Original wood post at right side to support double



Deteriorated brick pilaster at corner at right side



Original wood posts at right side to support double rim joist



Deteriorated brick pilaster at corner at right side



More wood posts at right side of fireplace



Another deteriorated brick pilaster at right side



Original wood post at right side to support double



Poorly supported header at hearth of fireplace



2x4 rafters with 1x ridge board, typical



Intersection of valley rafter and hip rafter not supported, typical



Rafters not properly patched where chimney was removed in roof system at left



Knee walls rest on ceiling joists instead of true structural supports



Another unsupported intersection of rafters



Left dormer wall is not framed properly

May 3, 2012

Mr. Brett Diaz
Paragon Group
408 Taylor Street, Suite 202
Nashville, TN 37208

RE: Economic Feasibility to Reuse or Rehab the existing one story single family house structure located at 1203 Forrest Avenue, Nashville, TN 37206

Prior Research Documents

Prior to our field visits we studied the Structural Review & photographs by Daniel Moss, Structural Engineer, that were made after the existing interior & exterior finishes were removed from the existing structural framing. Our office had measured & drawn the existing house prior to the removal of the finishes so we are familiar with the "visible" nature of the house.

Observations

I have made three site visits to the house since the finishes were removed to ascertain the severity of the structural & architectural damage that has been uncovered & if it is physically and/or economically possible to save the remaining structure.

Summary Opinion of Reuse or Rehab

I would like to elaborate on the Structural Engineers report. Refer to the First Floor Plan of his report.

While most of the existing wood framing structural members of the house are in need of replacement, the wing, at the top of the floor plan (Kitchen, Laundry/Bathroom) has deteriorated to the point where there is no question that it should be removed. With the exception of a few wall studs there are no salvageable building components in this wing. It is my opinion that the Reuse or Rehab of this wing is neither physically nor economically possible.

The Reuse or Rehab of the remaining part of the house may be marginally physically possible but is not economically feasible due to the amount & sequencing of the work that would need to be done to bring the house up to minimum building code standards. While the Structural Engineer's report listed most of the problem areas & listed the items that needed to be replaced, it did not address "how" the work could be done. Unlike new construction, Rehabilitating this severely deteriorated & damaged structure is questionable because of the sequencing & phasing of controlled demolition, lateral/vertical stabilization, rebuilding & final leveling of every individual section of the exterior & interior foundation, wall, ceiling & roof. Additionally the entire floor structure of the 1st & 2nd floors needs to be removed & replaced as well. Prior to replacing the 1st floor structure the crawl space must be excavated in its entirety to meet building code clearances between grade & bottom of structure.

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**ARCHITECTURE
PLANNING
INTERIOR DESIGN**

Estimate of Probable Cost

Below is an estimate of cost associated with Rehabilitating the existing remaining structure & exterior finish to bring the structure up to a "Rough Framed" state as it exists now in its partially demolished state.

A. Foundation- 178 linear feet (Structural Engineer Estimate= +\$40,000.)

Includes the following:

Supporting the exterior walls of the house

Removal of existing foundation

Excavating the crawl space

Adding a new foundation of concrete footings, CMU foundation walls & piers

B. Exterior Wall- 178 linear feet x 12' high = 2314SF x \$15/SF=\$34,710

Includes the following:

Remove & replace damaged rim joists, studs, floor plates, top plates

Remove siding & replace with OSB Sheathing for shear, water proofing, cement siding

C. 1st Floor- 1441SF x \$5/SF=\$7205

Includes the following:

Remove & replace floor joists and add plywood subfloor

D. 1st Floor Ceiling- 1441SF x \$3/SF=\$4323

Includes the following:

Remove & replace all ceiling joists and add plywood sheathing

Replace Roof Joist bearing plate with 2x framing properly supported

E. Roof- 2336SF x \$3/SF=\$4323

Includes the following:

Removing existing roofing, damaged joists

Add missing vertical roof supports

Subtotal= \$90,561

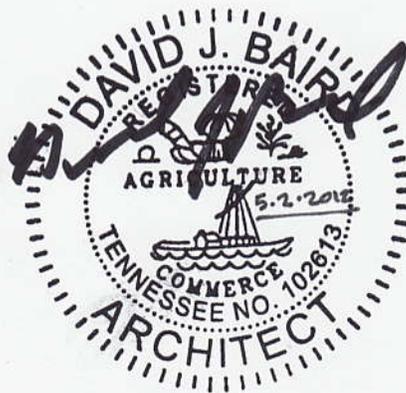
Contingency 10%=\$9056

Total= \$99,617

Report Prepared by:

David Baird, Architect

Tel: 615-585-9410



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