



Charlotte Historic District Commission Application for a Certificate of Appropriateness

June 8, 2011

ADDRESS OF PROPERTY	401 West Park Avenue, Wilmore Local Historic District	HDC 2011-051
SUMMARY OF REQUEST	Demolition and New Construction	
OWNER	Charles E. Mackey, et al	
APPLICANT	Charles E. Mackey	

Details of Proposed Request

The applicant is requesting approval for the demolition of the existing house at this address, and approval for the construction of a new single family house on the lot.

Current Status and Context of Property

Currently, there is a one story cross-gable roofed single family house on this lot, which was constructed in 1933. The house is listed as a contributing structure within the Wilmore Local Historic District.

Relevant HDC Design Guidelines

- *Demolition*
- *New Construction*

Relevant Secretary of Interior's Standards for Historic Rehabilitation

(As cited in the Charlotte Zoning Ordinance Section 10.210)

- (i) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
- (j) New additions and adjacent or new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Outstanding Issues

This house was recently inherited through an estate. The current owners live in Maryland.

The owners intended to have the house renovated, since it was in need of a lot of maintenance and repair. However, the inspection reports came back identifying so many structural and other issues with the structure, including mold infestation, that renovating the existing structure has become cost-prohibitive relative to the value of the house, and well outside what the insurance coverage on the house would cover.

After several conversations with the applicant, Staff has come to understand that the house could be demolished and replaced under the insurance coverage. However, this agreement with the insurance company is time-limited, and construction would have to begin in June for it to be covered.

As will all demolitions, the Commission would have to make a finding on whether the existing house is a contributing structure to the character of the Wilmore Local Historic District. Should the Commission find that the structure is contributing, a delay of demolition can be placed on the house for a period up to 365 days. However, as noted above, the imposition of a delay could result in the structure being removed in one year with a vacant lot being the result.

The owners are hoping that the HDC will, given the circumstances, make an exception to policy and allow for a review of the attached plans without a 90 day delay.

The attached plans are intended for review for a conceptual approval, so that they can proceed with final design drawings for the Commission to review in June.

UPDATE:

At the May 11th, 2011 HDC meeting, the Commission voted to find that this house is a contributing structure to the character of the Wilmore Local Historic District. Subsequently, the Commission imposed a 365 day delay on the issuance of a Certificate of Appropriateness for the demolition of the house.

At that meeting, the HDC requested that the Applicant provide a detailed engineer's report to better document the condition of the structure, in light of the request for demolition to be allowed to proceed. The report provided by the Applicant is attached.

After the discussion at the May HDC meeting, the Applicant is considering several options to proceed with this project. These will be outlined at the June 11th meeting.





ALL WAY

NO PARKING
HERE TO
CORNER
TOW-IN
→



May 31, 2011

Charles E. Mackey
14307 Kathleen Lane
Brandywine, MD 20613

Re: 401 S. Park Avenue, Charlotte, NC
Structural Inspection
HCCE - 0511093

Dear Mr. Mackey,

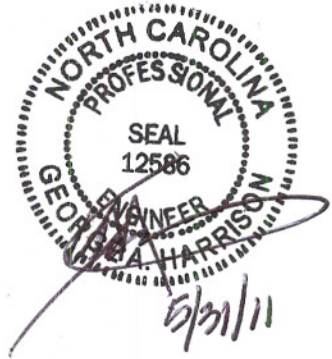
As requested, Harrison Consulting Engineers performed a structural inspection of the exposed wood framing at referenced site. It is our understanding the structural inspection was requested in consideration of potential damage as a result of a broken water pipe and subsequent leak into the vacant structure. In addition a meeting with Charlotte Historical District Commission (HDC) resulted in a request to determine the structural condition of the existing structure prior to any planned demolition operation occurring. As such, and as noted above, we conducted a through inspection of the framing and have the following comments for your review. It should be noted, at the time of our inspection all the interior faming members were exposed and accessible for inspection.

The structure consists of an original one (1) story wood framed structure with a converted attic space previously used as an efficiency apartment. The foundation consists of a below grade crawl space with a perimeter pier and curtain wall foundation and various interior dropped girders and mixed masonry and steel lally column supports.

In general, we found the main structural frame to be in acceptable material and structural condition. The main structural frame includes the roof rafter system, the ceiling and floor framing and the walls. The foundation support system is in need of remediation and is not in as good condition as the remainder of the house, however the foundation support system can be upgraded to ensure long term stability.

Attic and Roof System:

The roof system consists of a gable roof with 2x6 rafters spaced at two (2') feet on center. There is a main ridge which runs side-to-side across the house with a large gable on the rear and a smaller gable end on the front. The rafters are generally braced on knee walls inset from the perimeter walls. Where the gable lines intersect, the valley rafters, which are also 2x6 members, are braced at the intersection of the knee walls. Typically the valley rafters are also braced at a second location along their length.



The roof decking consists of 1x6 planks nailed across the rafters. For the most part, and particularly in consideration of the age of the structure, the 1x6 decking is in acceptable condition. There are intermittent areas where the deck is in need of repair.

The rafter to knee wall connection also needs to be augmented to ensure proper support. Currently the knee wall is face nailed to the knee wall studs. It is recommended a 2x block be also face nailed to each stud below the rafter connection to create a bearing support condition between the rafter and the wall.

The valley bearing support locations also need to be reviewed and augmented. Valley rafters are main structural elements and can develop significant bearing loads. For the most part, the valley rafter bearing loads are bound on single 2x8 ceiling joists. In addition, the ends to the valleys at the wall bearing points are generally either supported by a single stud or in some cases at an unsupported top plate condition. We noted a small sag along the front valley rafters and it is our opinion the sag was caused by insufficient support of the valley rafters. These areas should be reviewed and re-supported.

Lastly, the attic floor consists of 2x8 joists spaced at 16" on center. The joists span approximately 16' feet on one side and approximately 15' feet on the opposite side, both bearing across the center hallway wall. In consideration of the knee wall roof bearing line supported on the ceiling joists in combination with the required design load condition for the efficiency apartment, the joists are in an overstress condition. If the renovation plan includes living space in the attic, the actual loading across the attic floor will need to be reviewed for acceptance. In addition, the entire existing floor decking material should be removed and replaced with new plywood or OSB decking throughout. In particular, the decking in the area around the leak is not in acceptable condition.

As far as the material condition of the rafters and the attic floor framing, it appears the framing remains in acceptable structural condition with minimal areas of distress. We conducted pick tests throughout the attic space on both rafters and floor members with no detrimental areas noted. In addition since the water leak occurred in the kitchen/bathroom area at the attic level, we collected a representative sample of moisture content readings in the roof and attic floor. In all cases, the moisture readings were well below the acceptance level of 18% moisture content.

First Floor System:

As noted the first floor ceiling consists of 2x8 joists spaced at 16" on center. Due to the age of the structure, the joists and studs are all larger than today's actual lumber sizes. This additional material size increases the structural capacity of each member and collectively the framing system.

The first floor walls consist of 2x4 studs spaced at 16" inches on center with ten (10') foot tall ceilings throughout. If the renovation project moves forward, mid-height stud blocking should be added to increase the structural capacity of the walls for out-of-plane buckling. There are a

couple of areas, primarily in the back right half of the house where the sill plate has rot and is need of replacement. The studs appear to be in acceptable material condition, including those in the area where the water leak occurred. Moisture readings in the sills and the studs were all in acceptable range and less than 18 % moisture content. Discoloration is prevalent throughout, however overall the wood material condition appears acceptable.

The floor framing consists of 2x8 floor joists spaced at 20" on center. The floor system is supported below on several intermittent foundation girder lines which are addressed in the report below. Overall the material condition of the floor framing is structurally adequate and functional. Pick tests of the wood appeared acceptable with no major issues noted.

The floor decking is damaged and in disrepair. As with the attic, it is recommended the existing floor decking be removed and replaced with plywood or OSB floor deck. The new decking should be glued and screwed or nailed to the joists.

The structural capacity of the floor system is dependent on the foundation support system below. Once the renovation plan is in place, the structural capacity of the floor should be reviewed based on the final floor and foundation layout. In any event, where parallel walls are located, double floor joists should be installed to ensure proper support. Bearing point loads which occur in the roof and attic framing above should also be specifically addressed within the first floor framing system.

Foundation System:

The existing foundation system consists of a variety of original piers, including masonry and steel lally columns, new cmu masonry piers and original and new framing girders, both dropped and flush.

There appears to have been two (2) main girder lines extending from the front foundation wall to the rear wall. These girder lines were supported on brick masonry piers. In addition, an original girder line extends side-to-side under the wall adjacent to where the stairs were originally located (the original stairway was removed at some point). This girder line is also supported on original brick masonry piers.

At some point, whether at the time of original construction or at a later date, several dropped double (2) 2x6 girder lines supported with steel lally columns were added. In some cases the steel lally columns have effectively failed and are tilted across the bearing point.

There is at least three (3) newer dropped girder lines installed, two (2) which are in alignment along the right side approximately eight (8') feet of the perimeter wall, with the other located along the left side in the center area. The two (2) lines on the right side consist of new 8" x 16" masonry piers with three (3) ply 2x10 girders spanning across. The girder along the front of this line has separated across the end support and needs to be augmented with additional 1/2" diameter bolts to bring or mate the individual members back in contact. In addition, the center masonry

pier should be removed and re-installed as a 16" x 16" pier, or at least consistent with the first pier in the line which is a 16" x 16" base pier with a 8" x 16" extension above. This existing 8" x 16" pier is leaning and not Code compliant.

There is one (1) original brick masonry pier that is not functional and has no bearing on the girder above. This pier should be removed and re-built.

Overall, it is recommended that the entire foundation framing and pier support system be re-evaluated and remediated including removing all the existing steel lally columns and replacing those with masonry piers where needed. The two (2) main front to back girder lines both have interior spans approaching sixteen (16') feet between piers. This should be addressed and remediated.

The perimeter foundation wall appears to be in acceptable condition with no signs of cracking or settlement. In addition, the band beam appears to be in acceptable condition.

There is water and moisture issues within the crawl space that if not addressed will create detrimental structural conditions over time. As noted, the crawl space is excavated below grade. A sump pump pit was noted, however we could not determine if it is functional. In particular the right rear corner of the crawl space had standing water. Moisture readings in the wood framing members throughout the crawl space were above normal and in some cases as high as 25%. The excess water is likely the result of the extended water leak and should be addressed and the entire crawl space completely dried.

Side Shed Roof and Floor System:

In addition to the main structure, there is a small side shed roof and interior space off the back right side. This particular structure should be removed and re-built as it consists of a patch work system of framing members and is not structurally sound.

Conclusion:

As noted throughout the narrative above, overall the existing main wood frame structure is in acceptable material and structural condition. Due to the age of the structure and general obsolescence there are scattered areas in need of remediation and in particular the floor sheathing in both the main first floor and the attic efficiency area. The roof decking has several areas in need of repair.

Structural support improvements can be made to better support the roof and the floor framing throughout. In particular the foundation floor support system should be evaluated and repaired as noted. We also recommend a foundation water remediation contractor be contracted to improve the environmental condition within the crawl space before structural issues are encountered.

We appreciate the opportunity to provide you with this inspection report. If you should have any questions, please feel free to call at any time.

Sincerely,

A handwritten signature in dark ink, appearing to read 'GAH', followed by a large, sweeping horizontal oval stroke.

George A. Harrison, P.E
Harrison Construction and Consulting Engineers, P.A.

HARRISON CONSULTING ENGINEERS

2244 COLONY ROAD
CHARLOTTE, NC 28209
704.280.1913

INVOICE

DATE	INVOICE #
5/31/2011	0511163

BILL TO:

CHARLES E. MACKEY
14307 KATHLEEN LANE
BRANDYWINE, MD 20613

PROJECT:

05110936 - PARK AVE INSPECTION

DESCRIPTION	HOURS	RATE	AMOUNT
SITE VISIT, STRUCTURAL INSPECTION AND ENGINEERING REPORT	5	150.00	750.00
TOTAL			\$750.00



CONSTRUCTION &
CONSULTING ENGINEERS

MAKE ALL CHECKS PAYABLE TO: HARRISON CONSULTING ENGINEERS
TOTAL DUE IN 15 DAYS. OVERDUE ACCOUNTS SUBJECT TO A SERVICE
CHARGE OF 1% PER MONTH. THANK YOU FOR YOUR BUSINESS!

Charlotte Historic District Commission - Case 2011-051

