October 9, 2018

Mr. Robert Doyle

77 Huron Avenue

Cambridge, MA 02138

bobdoyle@informationphilosopher.com

**RE: 77 Huron Avenue, Cambridge, MA**

Dear Mr. Doyle:

This report documents our observations made on October 2, 2018 during our visit to the referenced address.

This report is based on our observations, qualifications, and information provided to us during this visit. It does not claim to be an itemization of all structural problems and is intended only to provide the client with a general idea of the typical structural concerning problems observed during the walk-through inspection.

This visit was conducted as a walk-through without destructive tests and limited to portions of the structure which were exposed.

For the purposes of clarity and orientation, the left, right, front, and back relate to the observation of the building from the street looking at the front of the building.

Some pictures appear less dramatic than the description. They often do not reflect the importance of the damages but must be used for location. We recommend that the report be read while visiting the site with the pictures taken during our site visit to better understand the conditions. See pictures 1 through 15.

All the following observations and recommendations relate only to structural items.

OBSERVATIONS AND RECOMMENDATIONS

The purpose of this visit was to observe the work which had taken place in the basement for the two beams damaged by insects.

Note that we did not provide plans and our information in our previous report was for pricing only.

Upon looking at the beams we noticed they had been replaced with 3-2x10LVL’s. Unfortunately, many of the beams were spliced between supports, which is improper construction practice. See pictures 6, 8, and 12 through15.

Upon running some quick calculations, we found that the 2-2x10LVL’s would be sufficient for the load to which they are subjected.

On the contrary, the beam spanning nine feet plus or minus which is spliced in two areas leaving only one continuous 2x10 is dramatically under designed. The way to address this condition could be to introduce a new column and footing to support the beam at or close to mid span or to sister the beam on the exterior with steel channels properly supported on the columns.

Some of the column plates were improperly connected to the footings. See pictures 1 through 3.

The support on the columns could be done by using two steel angles properly bolted to the columns having the proper size to work as a cantilever to support the reaction of the channels.

We also noticed that the footings were improper where the footings were exposed and we recommend that proper footings are introduced. See pictures 4, 5, 7, and 9 through 11. Proper footings should not be less than 2’ x 2’ x 1’6” and must also be born on good undisturbed bearing soil which at times may call for deeper footings.

Note that one of the footings has settled so much that the plate under the beam can be removed by hand.

All members, footings, plates, columns, and beams must be properly connected to each other.

II. RECOMMENDATIONS

Recommendations given in this report are for estimates only and must be properly calculated and detailed.

As previously recommended, as required by the Massachusetts State Building Code, structural plans be drawn indicating the structures as they existed at the time of the investigation including all new reinforcements necessary to bring the structures up to Code. Such plans would be useful in that:

* They would allow necessary permits to be obtained for the repair work.
* They would provide a good way to estimate the work to be executed.
* They would document the executed work for future reference, such as an event of later alterations to the building.

It is also important that the structural engineer visit the site during construction to verify its compliance with the plans and structural recommendations.

It will also be very important to keep copies of all documents, contracts, checks, permits, etc. to prove to a future potential buyer of your house that although movements can be seen on the house structural problems have been resolved.

Please let us know if you would like a proposal for our services.

This report addresses only those structural problems observed during the walk‑through which are brought to our attention and documented above as per the scope of our visit. Since few structures were exposed during the visit, other structural problems may be concealed behind finishes, plaster ceilings, and walls. We did not implement proper computations and do not claim that all the observed structural members are of the proper size and properly transmit the load from floor to floor.

The structural engineer is not responsible for determining the existence of insect infestation, environmental hazards, and waterproofing.

This report and analysis is based upon observations of the visible and apparent condition of the building and its major components on the date of this inspection. Although care was taken to perform a proper and thorough inspection, we make no representation regarding the existence of latent or concealed defects. No warranty or guarantee is expressed or implied with any structure. We do not take responsibility for the capacity of stairs, banisters, and handrails. This report is made only in the best exercise of our ability and judgment.

Conclusions in this report are based on the normal working life of various structural items. Predictions of life expectancy and the balance of useful life are not necessarily based on industry and/or statistical comparisons. It is essential to understand that actual working conditions can alter the useful life of any item. Previous use or misuse, irregular maintenance, faulty manufacture, unfavorable conditions, unforeseen circumstances and acts of God can make it impossible to state precisely when a specific item would require replacement. The client should be aware that certain components at the referenced property may have functioned normally at the time of the inspection, but due to their nature may have deteriorated rapidly without notice.

Time spent in legal or insurance related items or subpoenas for fact-findings sent by you or the other party (parties), if needed, will be billed on an hourly basis and charged to you.

Structural work recommended herein requires design and supervision from a structural engineer. Our office specializes in structural construction and can be contracted for further investigations and the preparation of structural plans referred to above.

If you disagree with any issues pertaining to this report, please contact our office and send us a marked-up copy with your comments.

Should you have any questions, or if you need further structural involvement, please feel free to contact us.

Please contact our office by phone, fax, or letter. If you would like to send an email, please contact our administrative assistant.



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**RE: 77 Huron Avenue, Cambridge, MA**

For Professional Services

Invoice Number: **18-1121.00**

Structural inspection

October 2, 2018 and report $420.00

Photos/processing (15)

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BALANCE DUE THIS INVOICE $**PAID**

*Please Indicate Invoice Number on All Payments*