MICHAEL CHESTER & PARTNERS Consulting Civil and Structural Engineers
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Our ref: 13052 13 March 2014

65 SWINTON STREET LONDON WC1

STRUCTURAL STATEMENT CONCERNING DESIGN APPROACH TO ROBUSTNESS AND DISPROPORTIONATE COLLAPSE

EXISTING BUILDING:

The existing building is a 5-storey (4 storeys plus partial basement) Grade 2 listed Georgian house, with a 2-storey back addition. It is of traditional construction, generally comprising solid masonry external and party walls, with suspended timber joist floors and roof, and variously masonry and timber studwork internal partitions. Survey plans are contained in Appendix A.

The house was originally built as part of a terrace. It remains adjoined to the original terraced property to the left, and separated by the party wall. The original houses to the right were demolished at some time and replaced in recent years by a taller 6-storey concrete framed building. The original party wall on this side of the house remains, and the framed building has an independent party/flank wall built against it.

PROPOSED ALTERATIONS:

It is now proposed to refurbish and alter the property in order to convert it to provide hotel accommodation, with bedrooms at each level and Reception facilities at Ground floor. The footprint of the existing basement will be extended beneath the entire property, and the back addition will be raised in height to 5 storeys. Internal partition layouts will be altered.

Planning and Conservation considerations require that the existing timber floor structures are to be retained.

The proposed Change Of Use will move the building from Class 2A into Class 2B under Section 5 of part A3 of the Building Regulations.

STRUCTURAL PROPOSALS RELATING TO BUILDING REGULATIONS PART A3:

The constraints imposed by the proposed floor layouts, the nature of existing construction and the Planning and Conservation requirements preclude full compliance with normal Class 2B robustness measures, which include full horizontal and vertical tying and the provision of concrete floors.

The structural proposals therefore seek to improve the robustness of the building generally as far as reasonably possible. In this regard, it is of note that the proposed configuration of the accommodation, comprising only bedrooms on the upper floors (without cooking or other gas-fired facilities), suggests that the sensitivity to accidental damage will not be greatly increased from the existing condition.

cont'd..

Structural scheme plans contained in Appendix B illustrate the main structural alterations proposed. The strategy adopted in respect of A3 is generally as follows:

- no improvements can be made to the existing timber floor structures (but these will be checked for increased live loading requirements and strengthened as necessary),

- the existing timber roof will not be improved,

- the external walls of the building cannot be designed to resist an accidental lateral design loading of 34kN/m^2, and thus will be considered to fail in the event of an accident,

- both existing party walls are considered to be robust 'key elements' that will not fail,

- a grid of steel beams will be installed beneath each floor, to provide alternative support to part of the floor if affected by the failure of a loadbearing external wall panel, and to permanently replace the support previously provided by internal loadbearing partitions. These beams will be designed as key elements to resist an accidental lateral design loading of 34kN/m^2 applied to their face area and with end connections capable of resisting a factored axial tension of not less than 75kN,

- the grid of beams will be supported variously on the party walls and on a number of steel columns extending from foundation level to the underside of the top floor. These columns will be designed as key elements to resist an accidental lateral design loading of 34kN/m^2 applied to their face area and with end connections capable of resisting a factored axial tension of not less than 75kN,

- where possible, in two locations within the building around the stair, pairs of columns will be notionally braced together from foundation level to the underside of the top floor to provide some improved lateral rigidity,

- external and party walls will be anchored to the floors at each level using 30x5mm steel ties at 1200mm centres, cast into concrete padstones in the walls and screwed to the floor joists.

No further measures can be implemented.

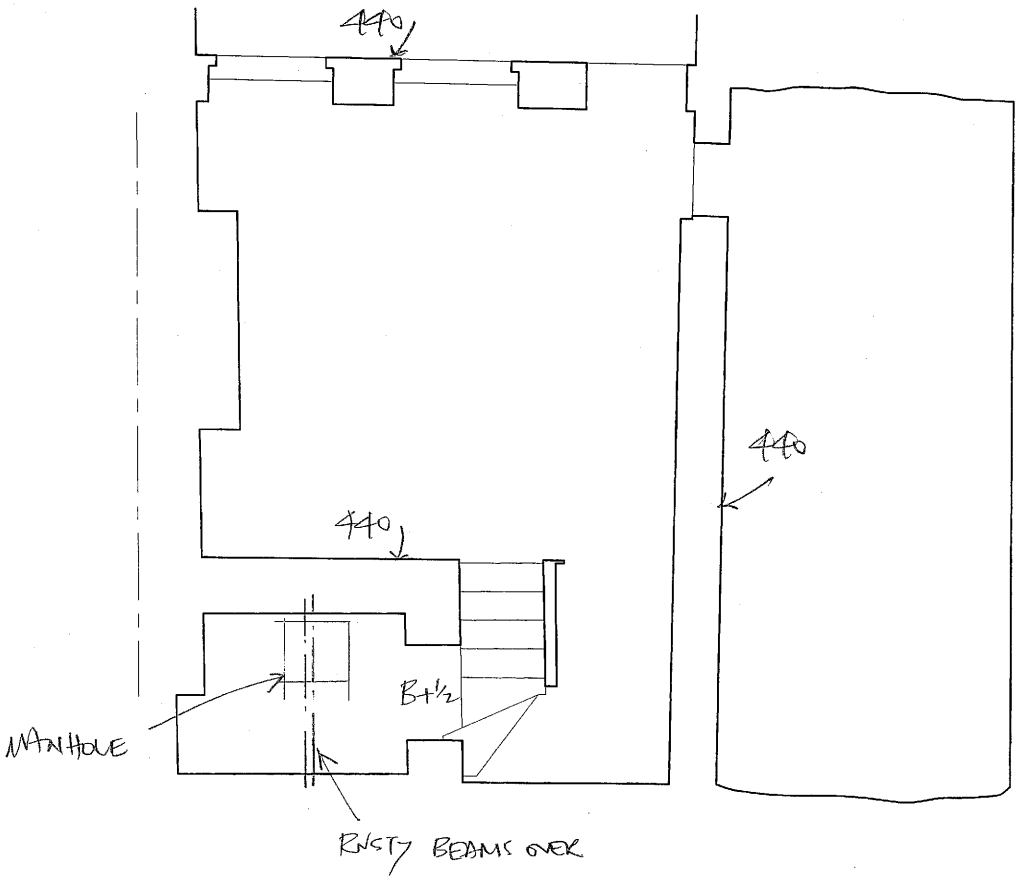
Signed

Bob Moore
for and on behalf of Michael Chester & Partners LLP

APPENDIX A:

EXISTING BUILDING SURVEY NOTES

BASEMENT



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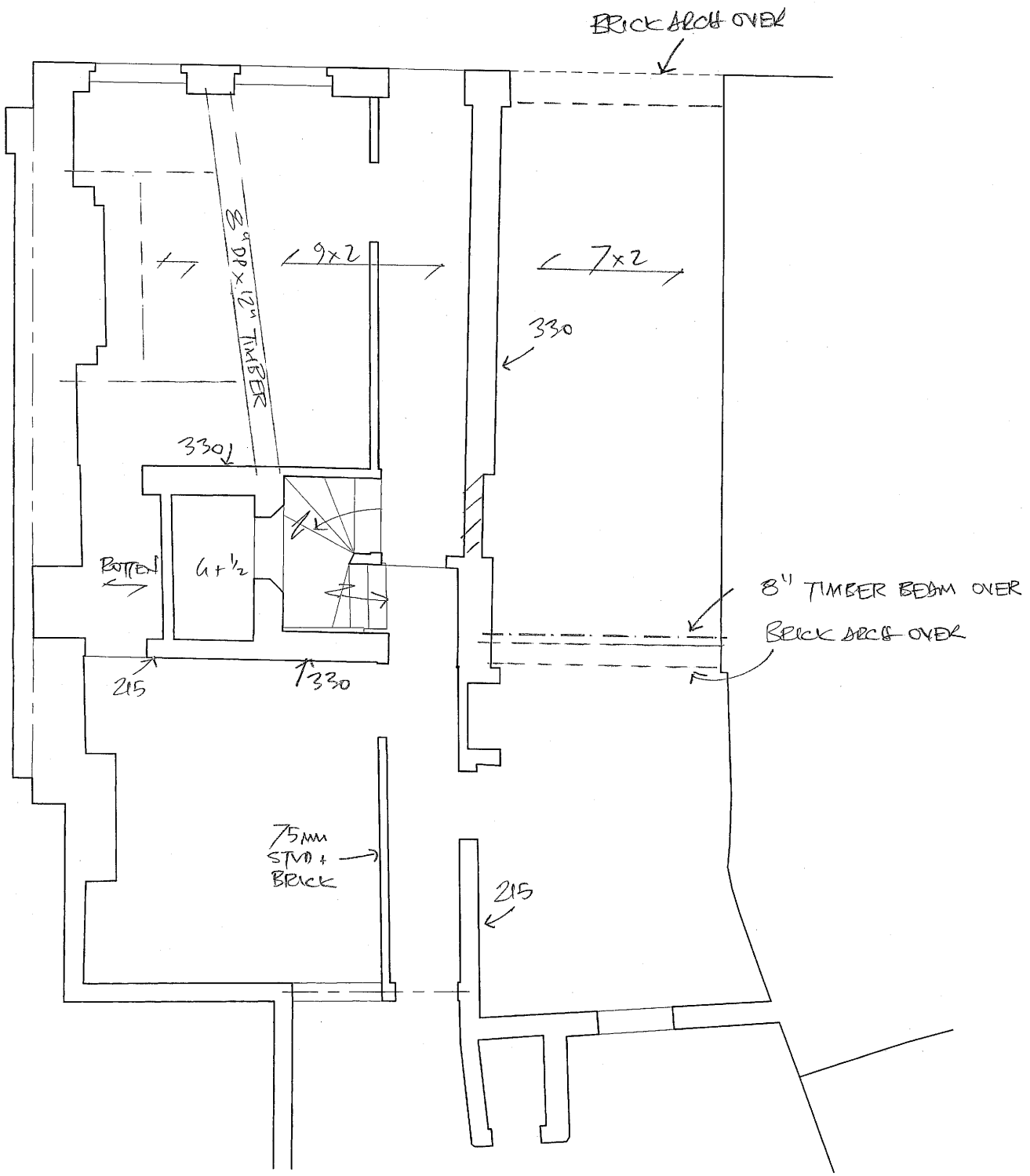
GROUND FLOOR



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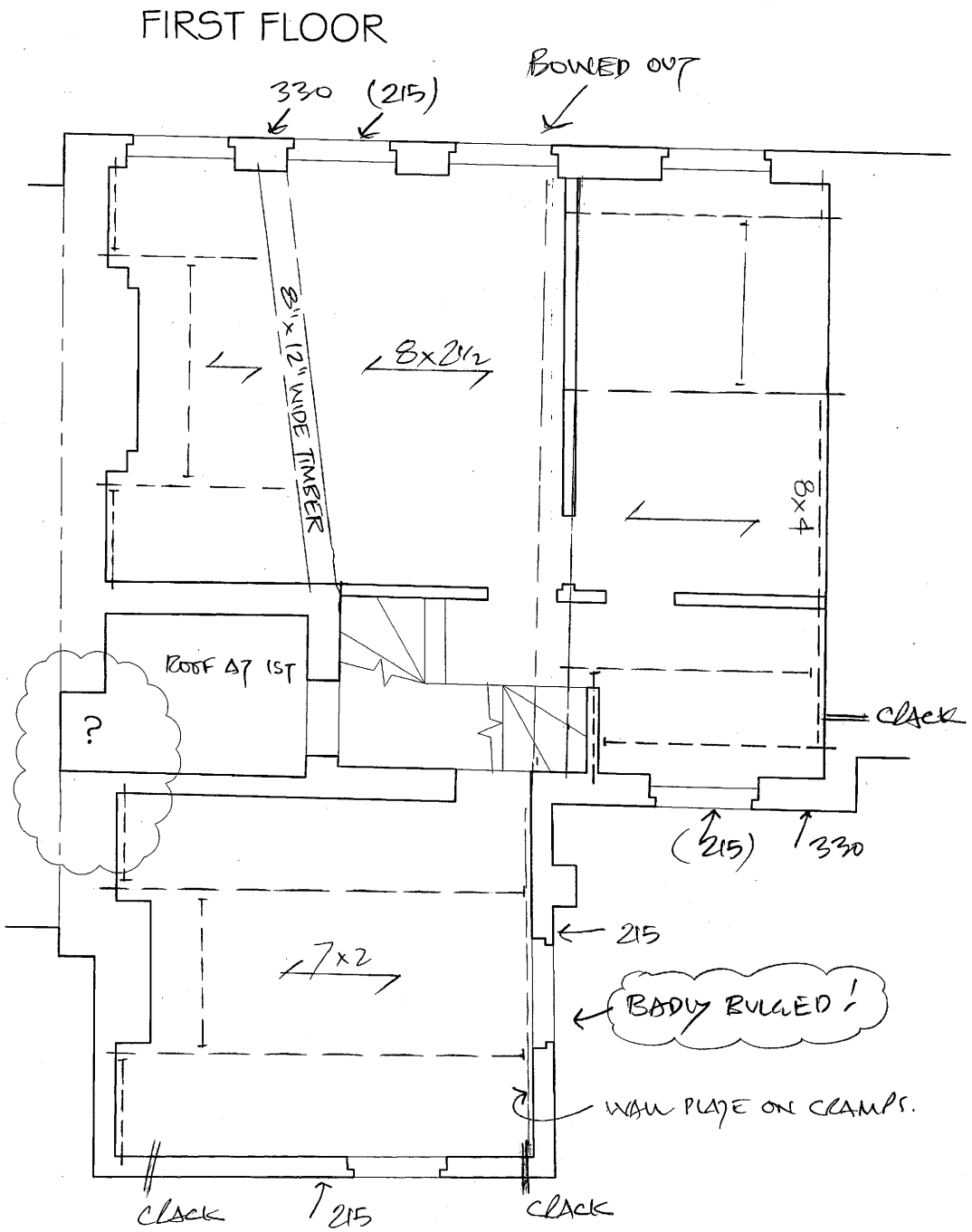

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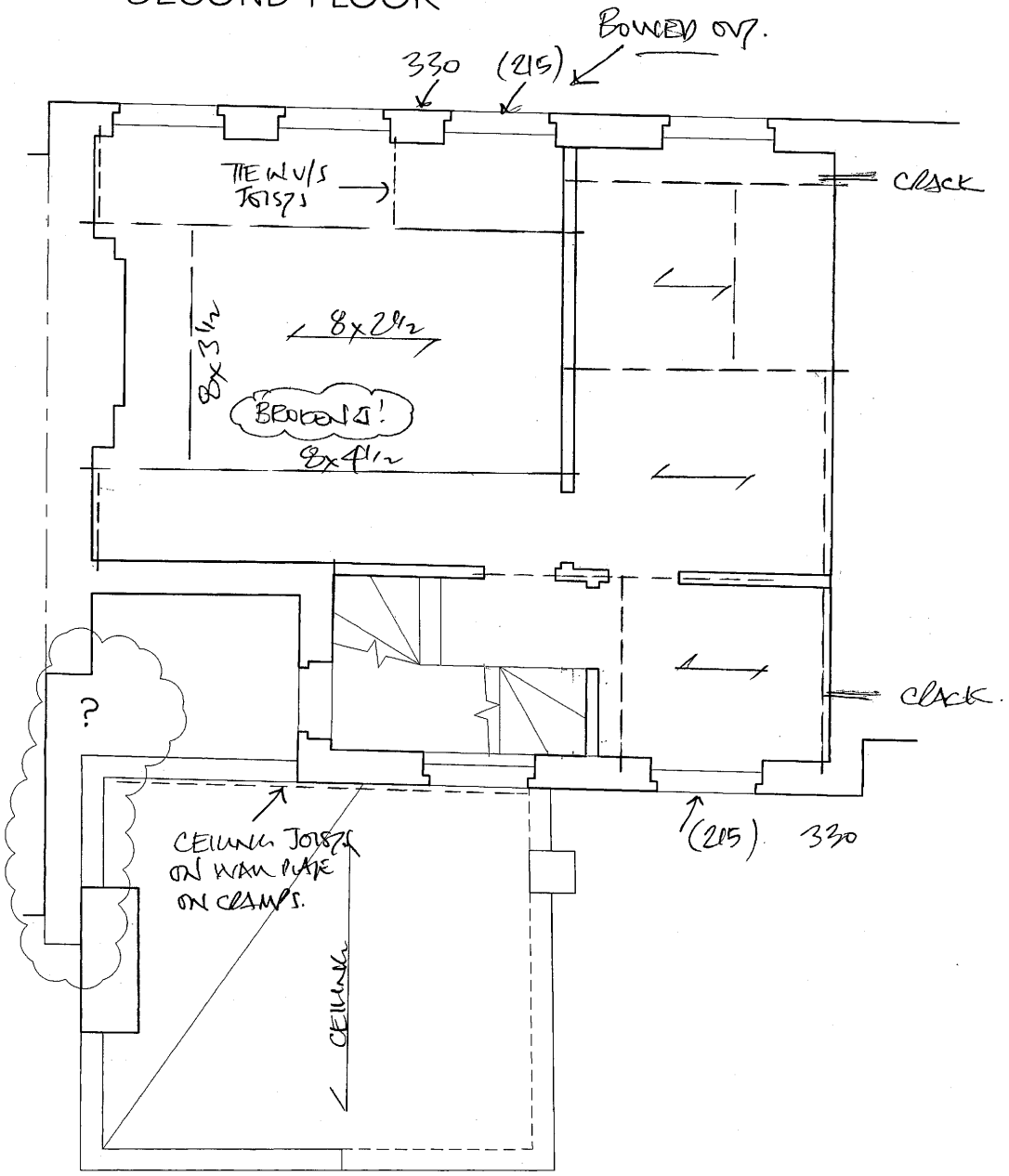
SECOND FLOOR



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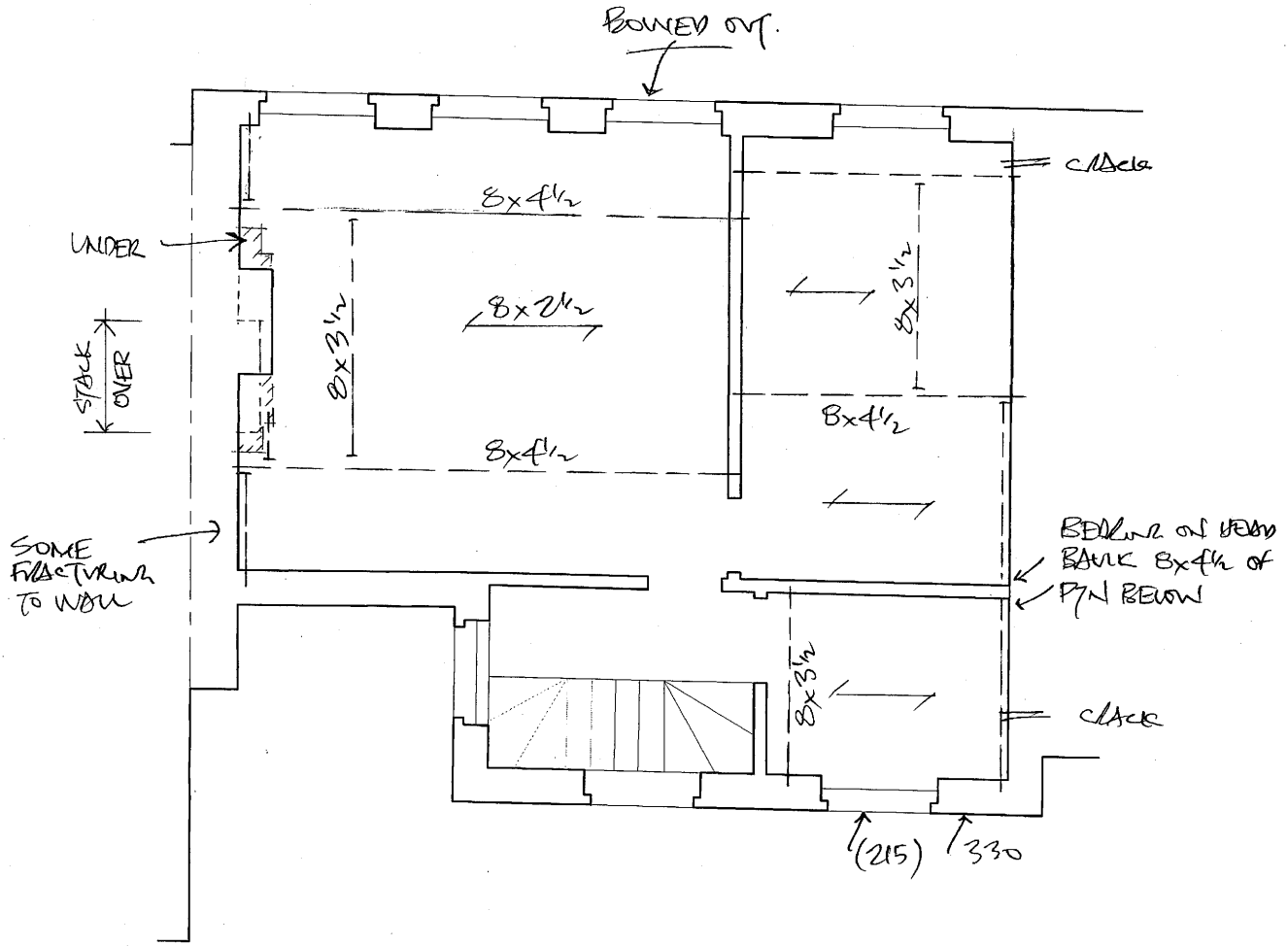
THIRD FLOOR



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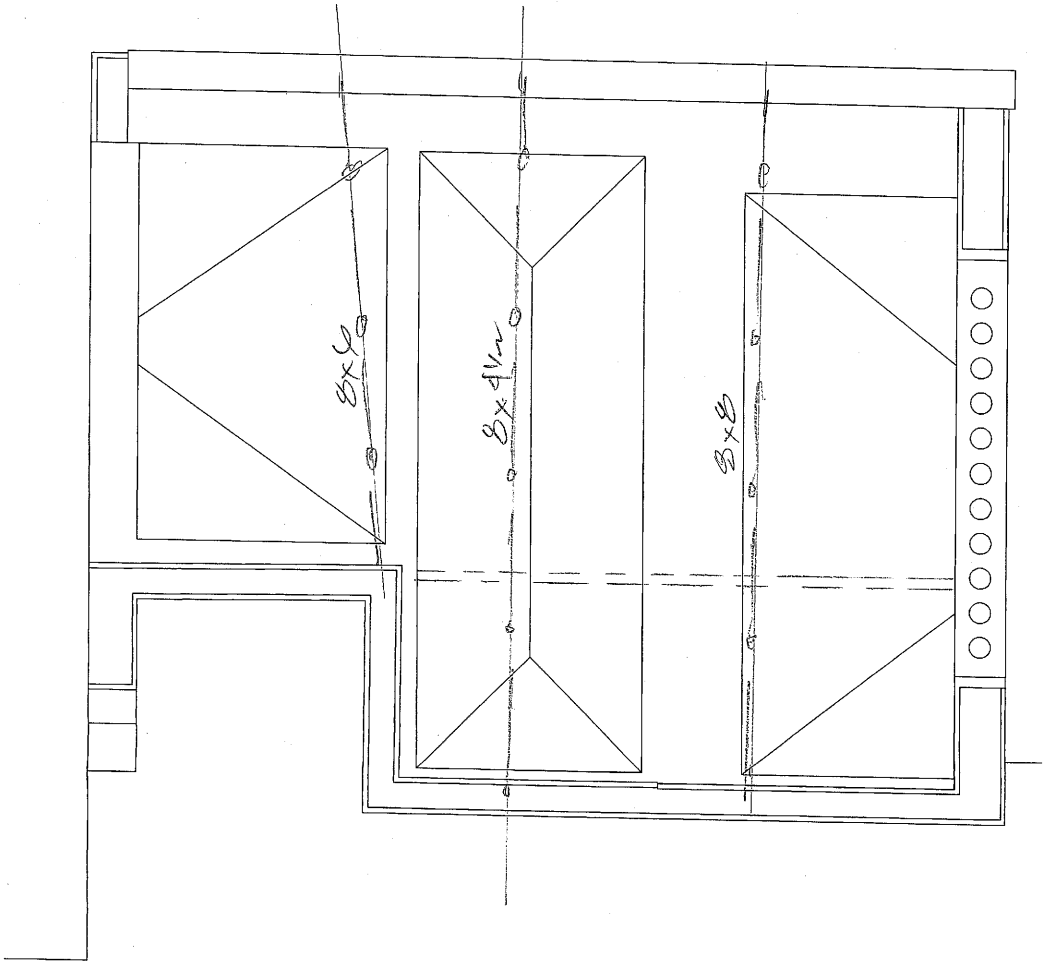
ROOF PLAN

CEILING J : 2½ x 2 + DIAG'S.



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APPENDIX B:

STRUCTURAL SCHEME DRAWINGS

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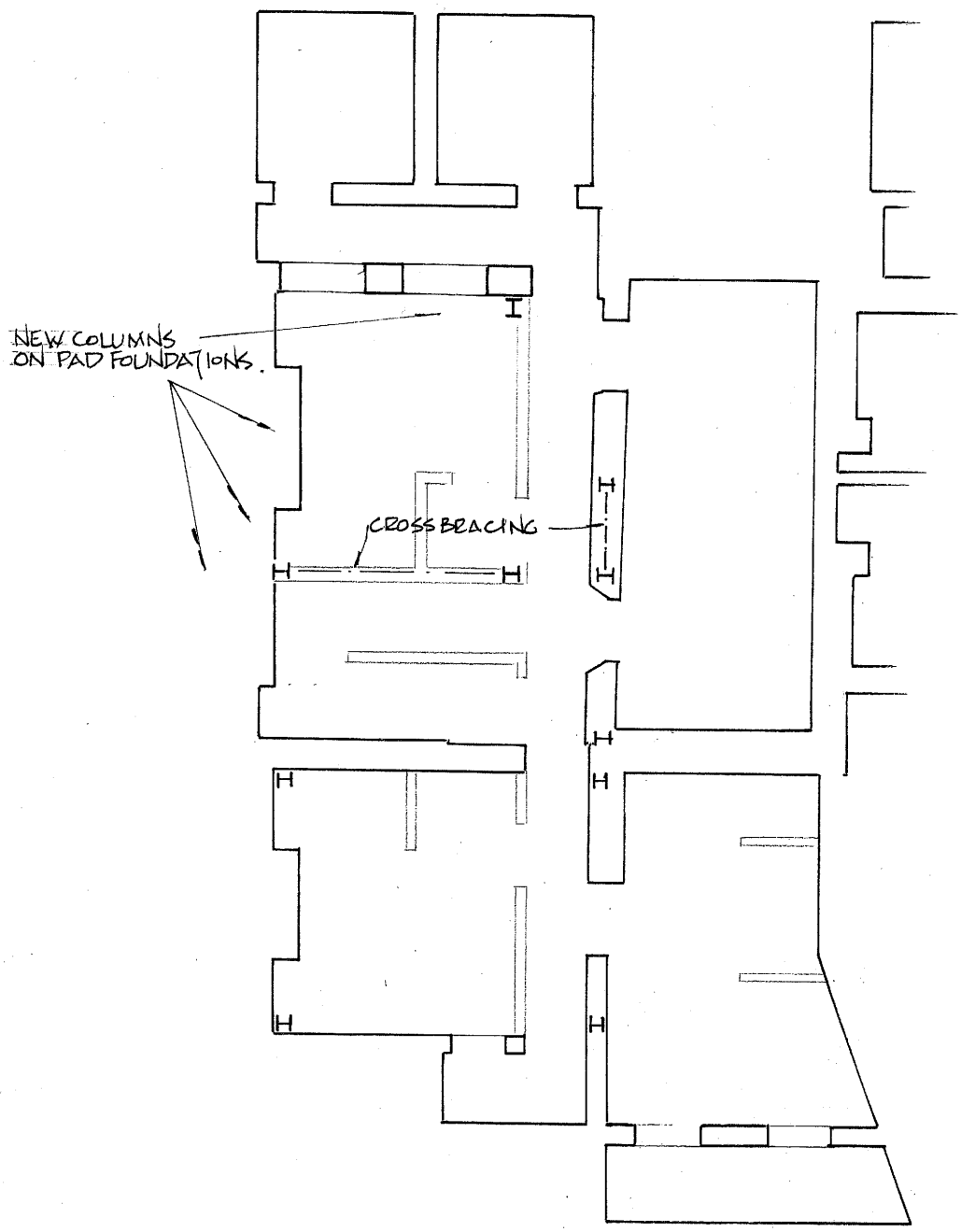
BASEMENT



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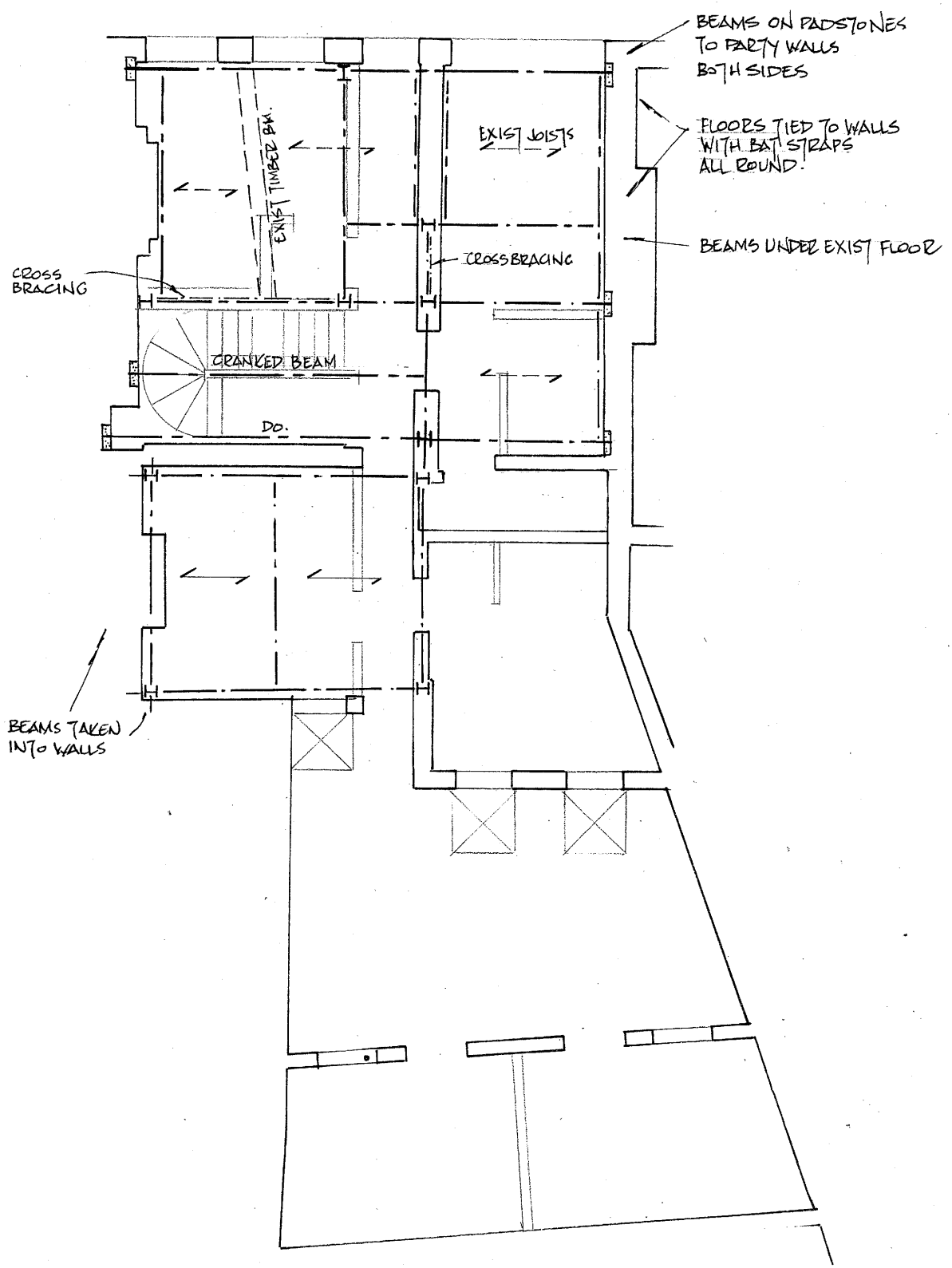
GROUND FLOOR



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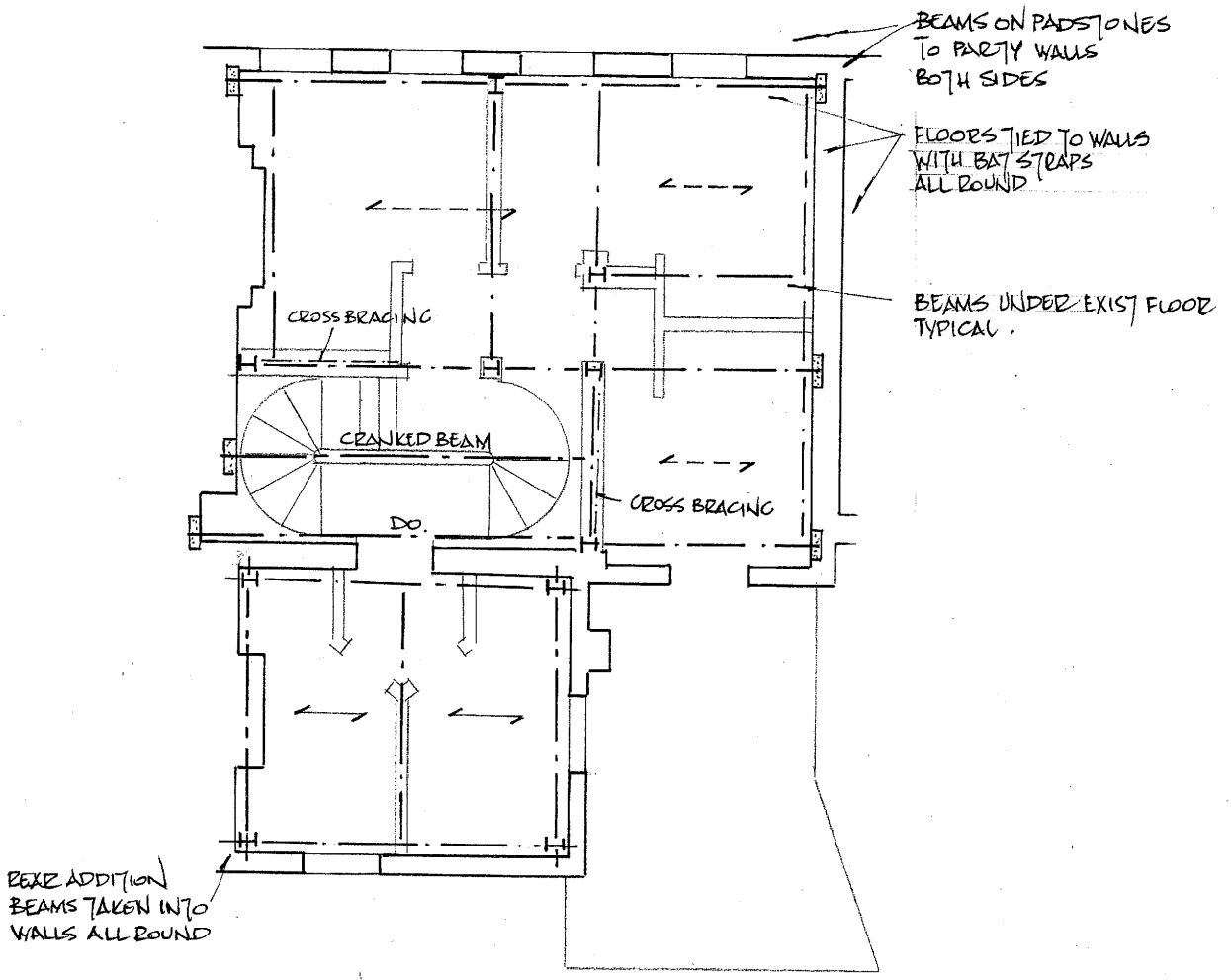
1ST FLOOR (2ND FLOOR SIMILAR)



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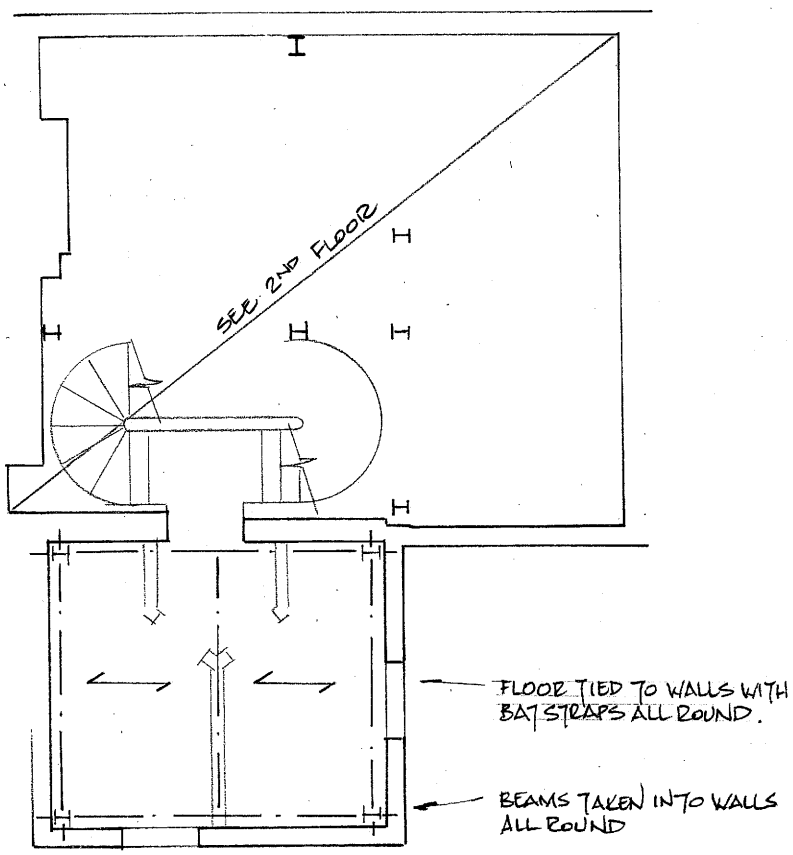
MEZZANINE



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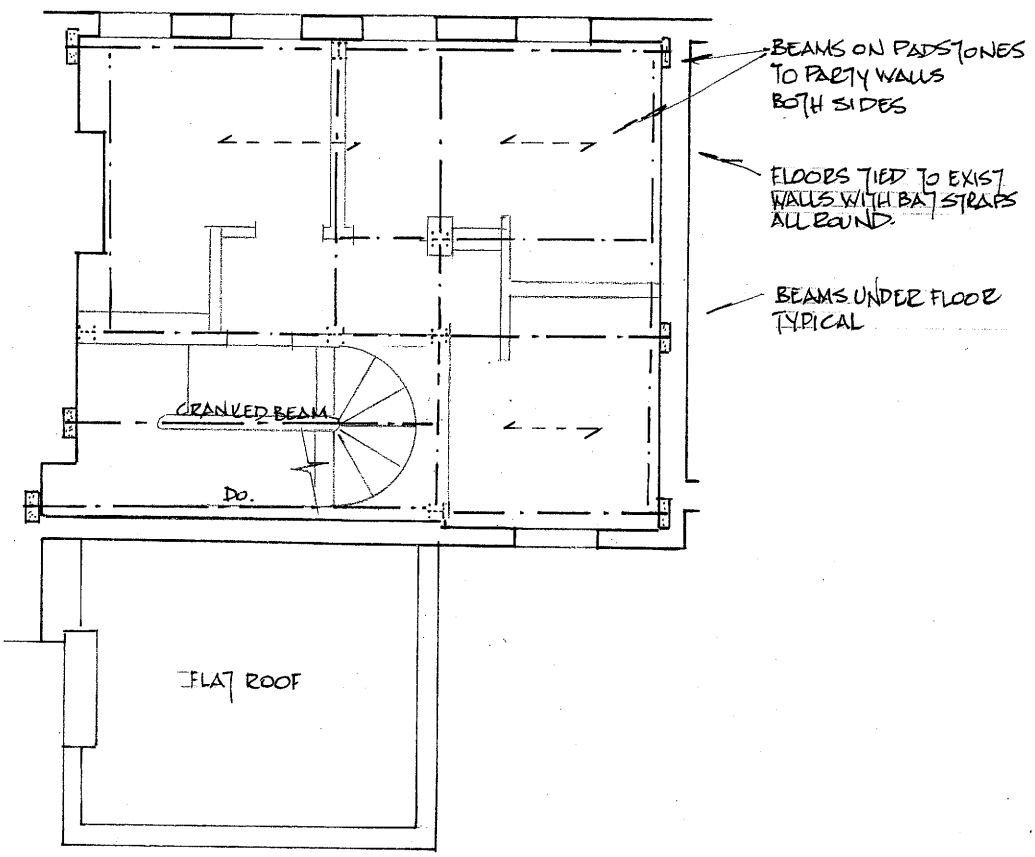
THIRD FLOOR



NO NEW STRUCTURE ABOVE 3RD FLOOR