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THE LION CHAMBERS

PROPOSED CREATIVE CO-WORKING & LEARNING SPACE IN GLASGOW

Heritage Roots

— Reflect, Celebrate & Revive —

PROPOSAL & CONSERVATION SUMMARY

MSc ARCHITECTURAL DESIGN FOR THE CONSERVATION OF BUILT HERITAGE

UNIVERSITY OF STRATHCLYDE - GLASGOW

CONSERVATION DESIGN PROJECT - ELINA MARIA YLIMAKI - 2020 / 2021

LION CHAMBERS CONSERVATION STRATEGY SUMMARY

INVESTIGATIONS

Ownership and boundaries have to be established including any party wall agreements. A new structural report should be undertaken by a structural engineer on a floor by floor basis with regards to the foundations and the structural integrity of the columns and the structural envelope and its load- ing capacity to conclude what strengthening is needed.

Petrography and chemical analysis have to be undertaken of the concrete. An asbestos survey must also be completed before any commencement of works if deemed safe by a structural engineer. The pigeon and rat infesta- tion also has to be cleaned up before the commencement of work.

DRY OUT THE BUILDING

Dehumidification is required to remove excess water in the various building materials. A printed building wrap on scaffolding with dehumidifiers can be one solution to start drying out the building.

STRUCTURAL REPAIRS

Subject to the structural engineer's report and conclusions, there are a number of strengthening solutions. For example:

- Corroded bars (that may be fully exposed or noticed when opening up) can be cleaned up with abrasive cleaning to remove corrosion and treated with a rust inhibitor.
- Carbon fibre or steel bands: Adding new reinforcement is not an easy task. Columns that have corroded can be wrapped with carbon fibre or steel bands.
- A damaged column can be reinforced with non-structural patch repairs and full height steel plates, bolted and glued with epoxy resin.
- Cross bracing •Strengthening of individual structural elements.
- Employ structural steelwork.
- Prestressing, i.e. additional reinforcement added to existing beam then post-tensioned.
- Electrochemical processes, e.g. re-alkalisation, cathodic protection (if moisture levels of the concrete walls can be reduced. Building to be ventilated and dried out with mechanical means first.

BASEMENT

The existing foundations should be exposed and inspected. The contractor should excavate trial pits to determine the exact foundation type, dimen- sions and ground conditions. Depending on the conclusion, the basement retaining walls may have to be rebuilt. In addition, the whole basement should be tanked and insulated.

CONCRETE REPAIRS

Subject to the structural engineer's report, any repairs that are undertaken to the concrete may be structural repairs or surface repairs.

*Cutting Out:* Cutting out to sound substrate and patch repair. The materials should match as closely as possible the original concrete, the use of current propriety repair mortars with high long term shrinkage.

*Crack Repairs:* Their cause must have been fully diagnosed before a repair attempt. If water is seeping through, it may be best to allow the crack to self-heal. This is called autogenous healing, where the crack is filled by cal- cite by a natural process. Very fine cement grout to be used in crack repairs if not structural.

*Concrete Surface treatment:* i.e. anti-carbonation coatings. (Carbonation depths has to be established after detailed tests.) The surface could also receive a cement render after repairs has been done to further protect the concrete as it used to originally. This could be a lighter bone white colour rather than a pale yellow which it was originally or a traditional grey con- crete colour. However, some historic images shows a fairly light coloured cement render to the surface. Test samples should be provided by the con- tractor.

ROOF

The roof will possibly need a complete replacement of broken roof cover- ings to keep the building watertight, removal of plants, including removal of its roots. Introduce a sedum roof system to parts of the roof to increase bio- diversity in the city and also introduce new roof insulation on top of the con- crete roof to help reduce its carbon footprint. The Turret Install new copper sheeting to the turret.

New insulation above the concrete turret roof to be fitted. The copper spiral should be cleaned, repaired & restored. Any corrosion should be removed. The copper spiral can be corrosion protected with benzotriazole (BTA) fol- lowed by protective wax coatings. COSHH regulations have to be observed using BTA products. (Source: *Practical Building Conservation- Concrete, English Heritage- Odgers, Martin, Wood, 2012*)

WATERGOODS

Replacement of eroded rainwater pipes and blocked drains. Larger pipes may be needed due to climate change, which may have a cosmoetivisual implication.

THERMAL INSULATION

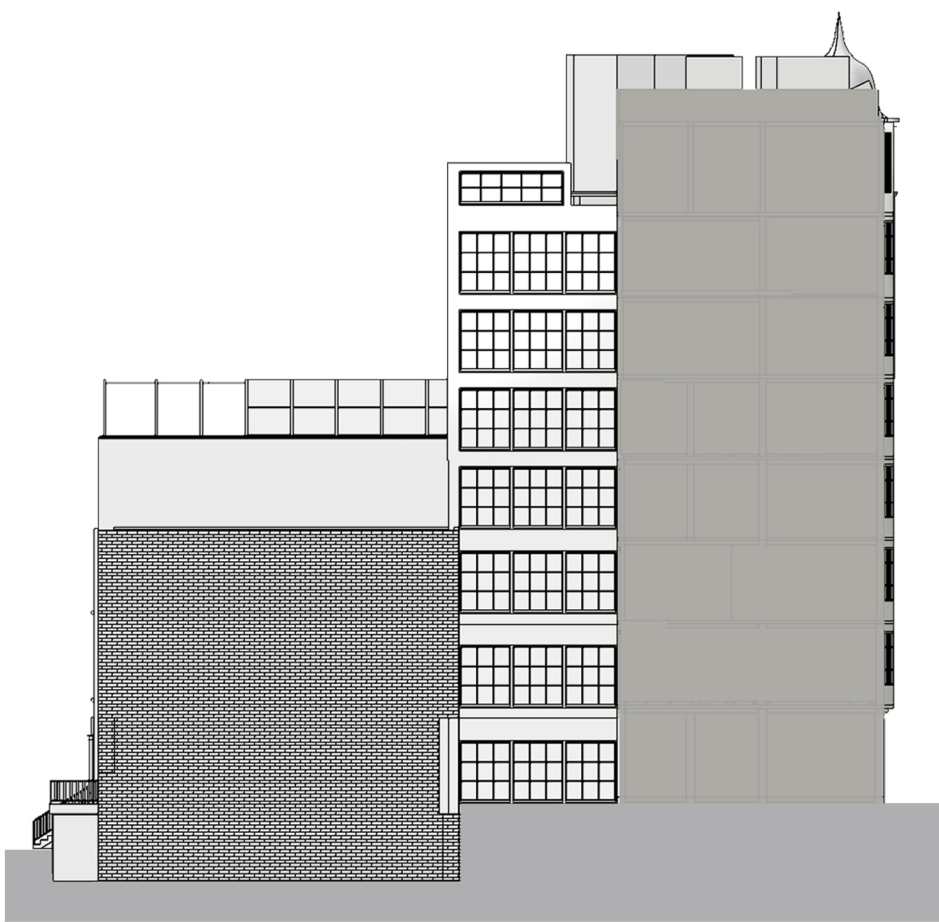
Internal insulation to concrete walls is proposed with wood fibreboard to achieve good U-values to reduce the carbon footprint.

WINDOWS

The sash windows in the Georgian building should be fully renovated. How- ever, if they are beyond repair subject to a site survey, they should be re- placed with new double or triple glazed sash windows to help reduce the carbon footprint. The windows in Lion chambers should also be upgraded to reduce its carbon footprint.



PROPOSED SOUTH WEST ELEVATION TO WEST REGENT STREET



PROPOSED ELEVATION- REAR OR BUILDING



PROPOSED NORTH EAST ELEVATION TO BATH LANE



PROPOSED ELEVATION FROM HOPE STREET

MATERIALITY



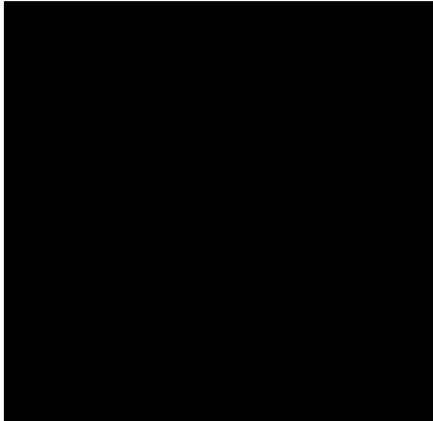
COPPER



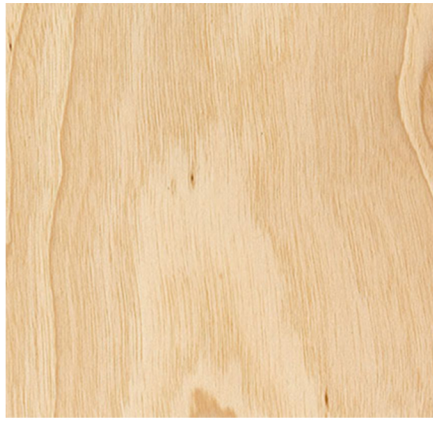
COPPER MESH TREE BRANCHES



CONCRETE



BLACK METAL



WOOD AND WOOD VENEER



SEDUM ROOFS

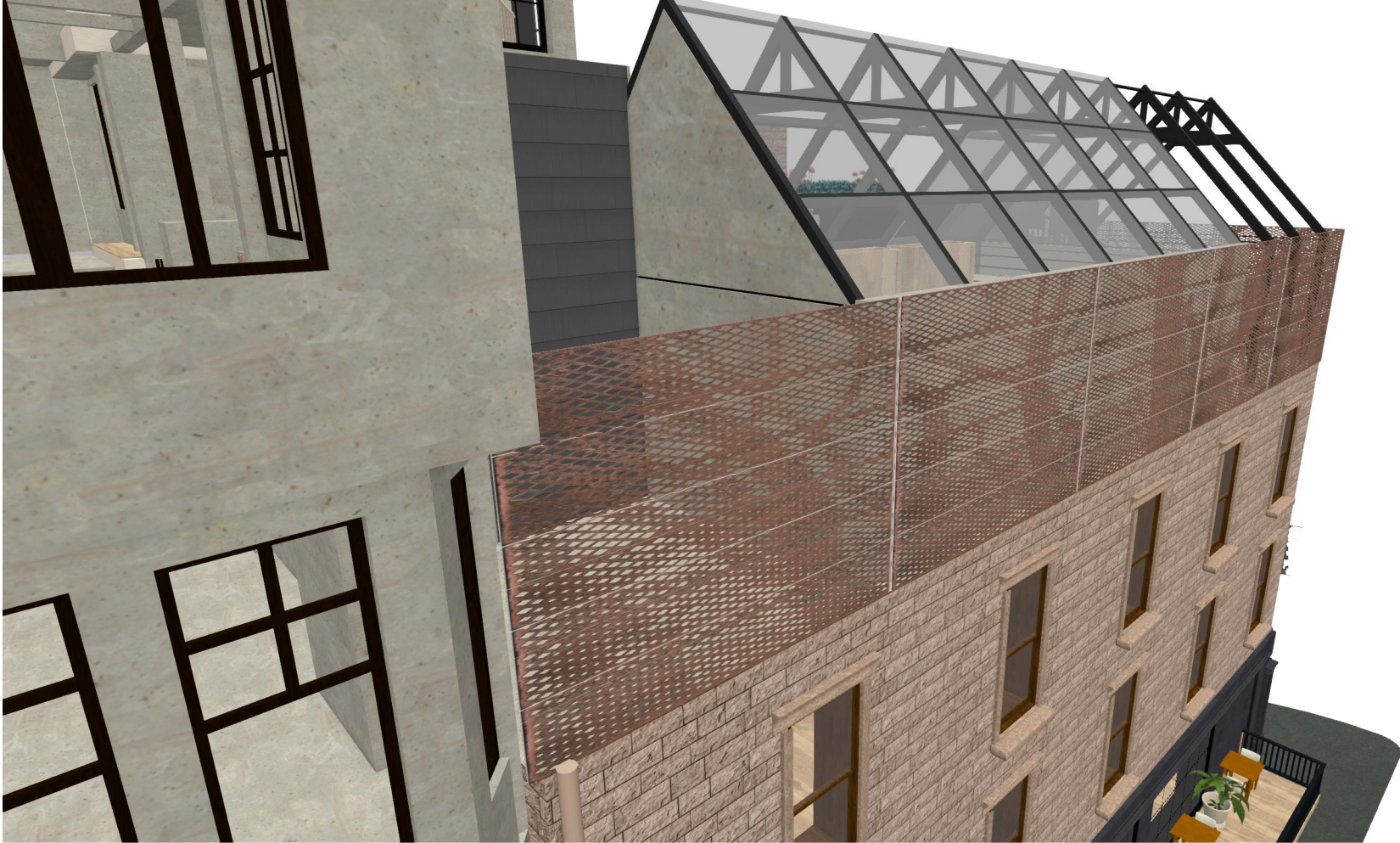


GLASS & GLASSBLOCKS

EXTERIOR VIEWS



NEW EXTERNAL DINING AREA TO HOPE STREET



BIRDS EYE VIEW OF THE GREENHOUSE AT THE NEW GARDEN ROOF TERRACE



NEW EXTERNAL DINING AREA TO WEST REGENT STREET