

**REPORT ON THE
REQUIREMENTS FOR NEW AIR CONDITIONING
SYSTEMS**

IN THE

**WARIALDA MEMORIAL HALL
HOPE STREET
WARIALDA NSW**

FOR

**GWYDIR SHIRE COUNCIL
HOPE STREET
WARIALDA NSW**

Prepared By:

Barry C. Smith & Associates Pty Ltd
Mechanical & Electrical Services
Consulting Engineers

SOUTH COAST OFFICE

Bayview House
2 Illowra Lane
HYAMS BEACH NSW 2540
Telephone (02) 4443 2925
Facsimile (02) 4443 2935
Email: southcoast@bsaptyltd.com.au

SYDNEY OFFICE

29 Caroola Crescent,
NORMANHURST NSW 2076
Telephone (02) 9487 7488
Facsimile (02) 9487 7499
Email: sydney@bsaptyltd.com.au
WebSite: www.bsaptyltd.com.au

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1. INTRODUCTION

Barry C. Smith & Associates Pty Ltd has been requested by Gwydir Shire Council to prepare a report on the envisaged requirements for air conditioning the Warialda Memorial Hall located at Hope Street, Warialda.



The report is to review the hall, stage and adjacent areas, estimate the air conditioning loads, investigate suitable air conditioning systems for the areas and provide sketches of the proposed systems for the hall and stage. Budget estimates shall also be provided to assist council on their planning and budgeting for air conditioning these areas.

An inspection of the site was conducted and our findings and opinions are as documented in the following report. Our inspection was based on a visual, non-destructive inspection of the hall.

2. BASIS OF REPORT

This report has been prepared using the following as a basis of the contents.

- (1) Inspection of the site on the 28 September, 2017.
- (2) Amenities architectural design drawing prepared by Eddy Design.
- (3) Existing report prepared by BSA dated April, 2008.
- (4) Architectural drawing of the Memorial Hall dated 27 October, 1986.

3. DESCRIPTION OF THE SITE

The Memorial Hall is located on the corner of Hope and Hall Streets in Warialda.

The front of the building incorporating the Main Foyer and adjacent Offices faces south (Warialda Street). The rear of the building incorporating the Stage and adjacent Change Rooms faces north (rear Lane Way).

The east side of the building is on the boundary facing Hall Street and the west side is approximately 3.5 metres from the property boundary/adjacent property.

There are no existing air conditioning systems installed in these areas.



HALL & STAGE

A schematic diagram/layout of the main floor of the hall has been included at the rear of the report (Appendix A).

4. AIR CONDITIONING COOLING LOAD ESTIMATES.

We have performed a preliminary assessment of the cooling loads for the ground floor areas that are to be air-conditioned.

The table below is the air conditioning cooling load estimates for the areas. The air conditioning cooling load calculations/estimations are based on industry standard check figure rates (w/m^2) from AIRAH.

For the Main Hall we have based the cooling load estimates on an auditorium type occupancy. The type of occupancy and the higher number of persons are the reason the air conditioning loads are high in the hall.

Note the room names have been taken from the architectural drawings dated 27 October, 1986.

The cooling load estimates are as shown in the table.

2.

Zone	Estimated Total Cooling Capacity (kW)
Main Hall	90
Stage	16
Main Foyer	12.1
Dental Surgery (south/east)	3.9
Library (south/west)	3.9

5. REQUIREMENTS FOR NEW AIR CONDITIONING SYSTEMS

Main Hall/Stage.

Based on our inspection of the Memorial Hall and subsequent assessment of the air conditioning cooling loads we submit the following requirements for future air conditioning systems.

Based on the limited space available around the site (street frontage on three sides and 3.5 metres from adjacent boundary/property) we have not considered a reverse cycle “roof top packaged unit.”

We envisage reverse cycle “ducted split” air conditioning systems to serve the main hall and stage areas.

The outdoor air cooled condenser units will be located at ground level outside the west side toilets/change room.

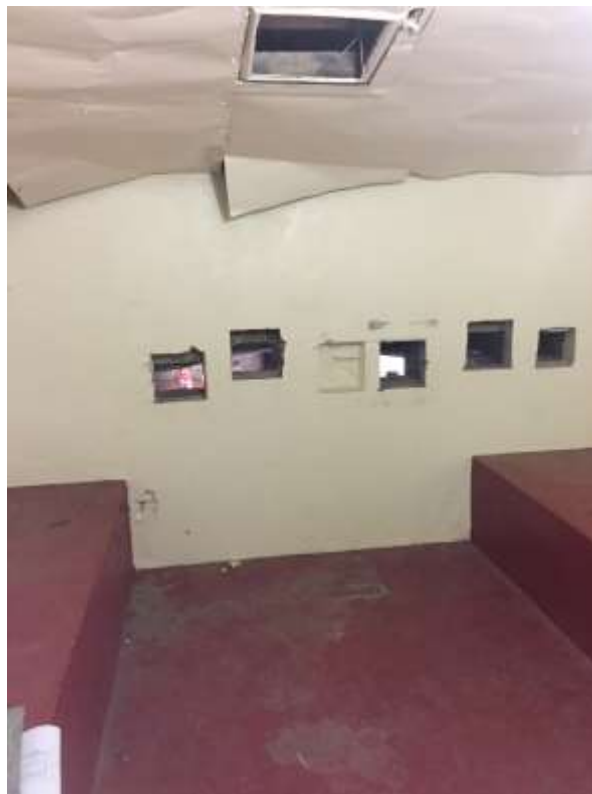


Proposed West Side Outdoor Plant Area

3.

With the unit located at ground level, a security screen/fence could be erected to provide some protection to the unit. (Refer to Appendix B for sketch/location).

For the hall we envisage the indoor fan coil unit being located in the old upper level projector room. The projector room would be turned into an air tight plenum room. Two new access doors/panels as indicated on the sketches would be required whilst the existing door would be removed and sealed air tight. The indoor fan coil unit would straddle the existing concrete upturns/seats in the projector room.



Upper Level Projector Room

Sheetmetal supply ductwork connected to the indoor unit would run from the projector room into the balcony area then turn up into and run in the roof space over the main hall. Flexible ductwork connected to the sheetmetal ductwork in the roof space will run to ceiling mounted supply air outlets or jet diffusers.

We envisage the supply ductwork over the balcony area will be enclosed in an air tight plenum room that will be open to the projector room. The balcony plenum will also incorporate acoustic return air grilles for the return air.



**Proposed Balcony Where Plenum To Be Constructed
(between exit doors)**

The outside fresh air component will be introduced via two roof mounted intakes. We envisage the sheetmetal ducts connected to the return air/filter box rising up through the projector room roof and connecting into two “gooseneck” type intakes.

The temperature sensor will be located within the return air system or space and the remote controller will be located in an office/staff area. Located adjacent to the wall controller or in the hall would be an adjustable illuminated push button timer.

For the stage we propose a standard smaller ducted system to serve this area. The unit will be mounted above the stage. Air will be supplied via sheetmetal and flexible ductwork and ceiling diffusers to the space. Air will be returned to the system in a similar manner.

Outside air will be introduced via sheetmetal ductwork rising up through the roof and connecting into a “gooseneck” type intake.

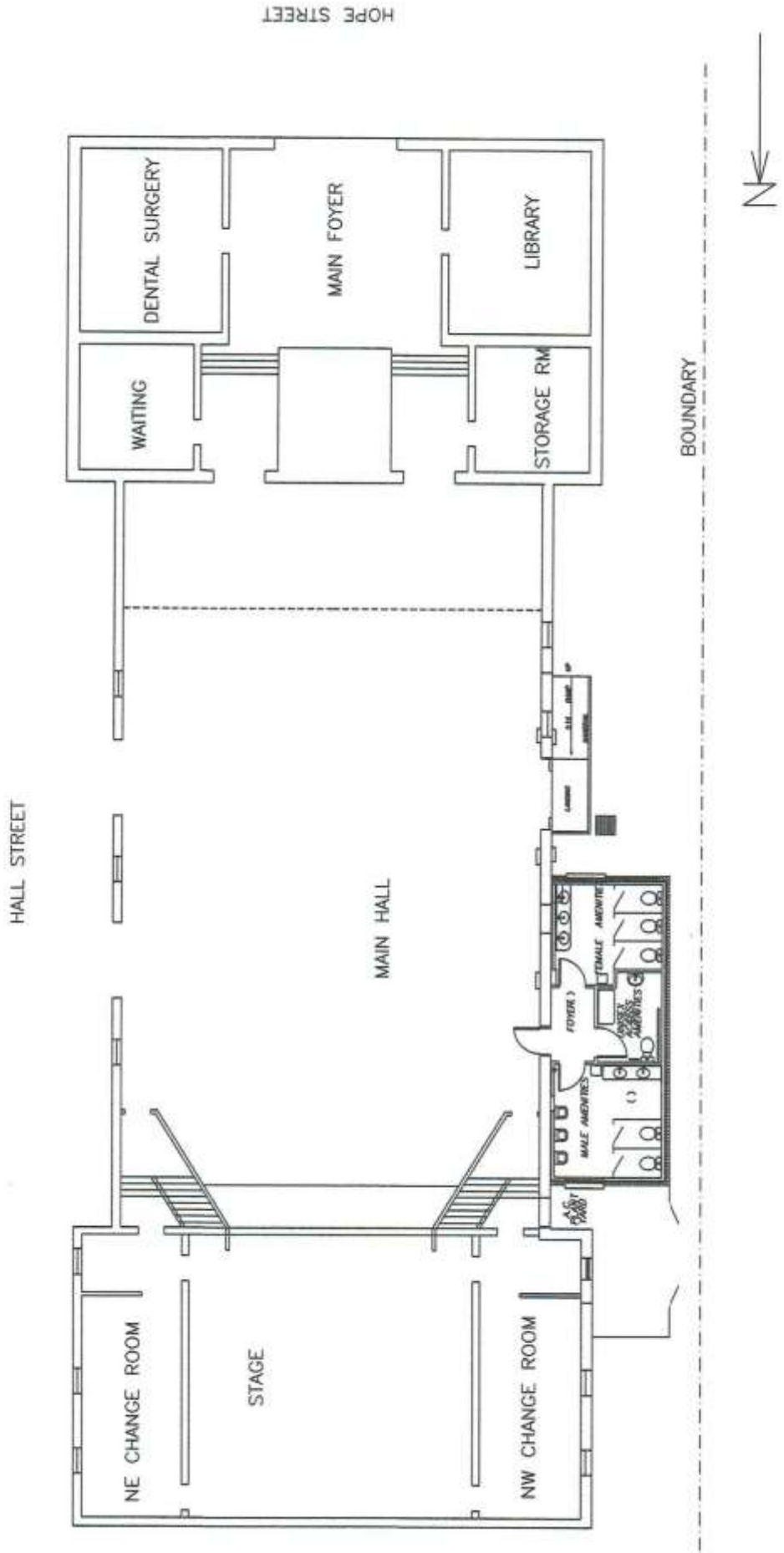
The sketch of these systems is attached in Appendix C at the rear of this report.

Dental Surgery, Library & Main Foyer.

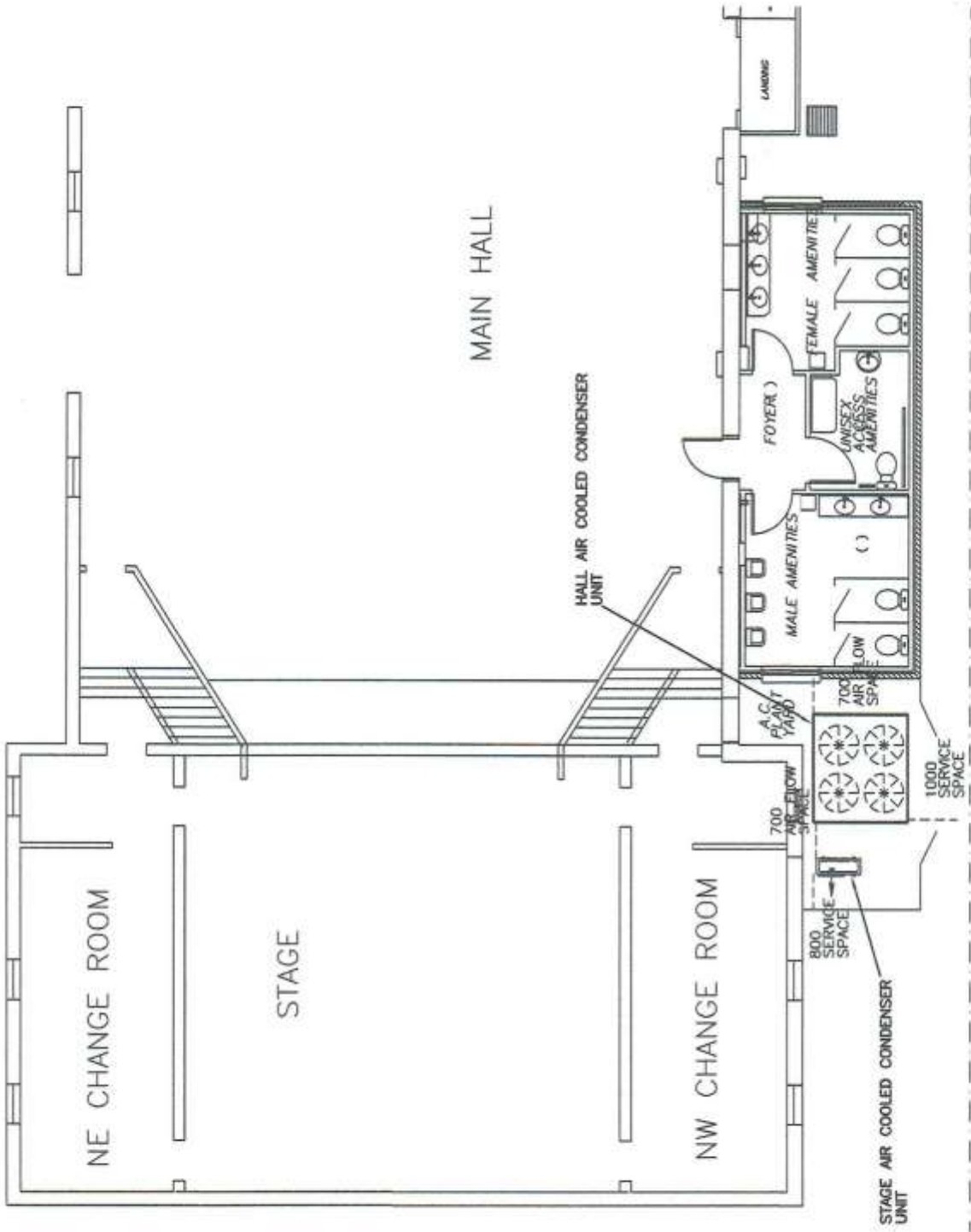
We envisage wall mounted “single and multi” split air conditioning systems to serve these areas. The outdoor air-cooled condenser unit sections will be located at ground level on the western side of the building.

The fresh air component is via existing openable windows in these areas.

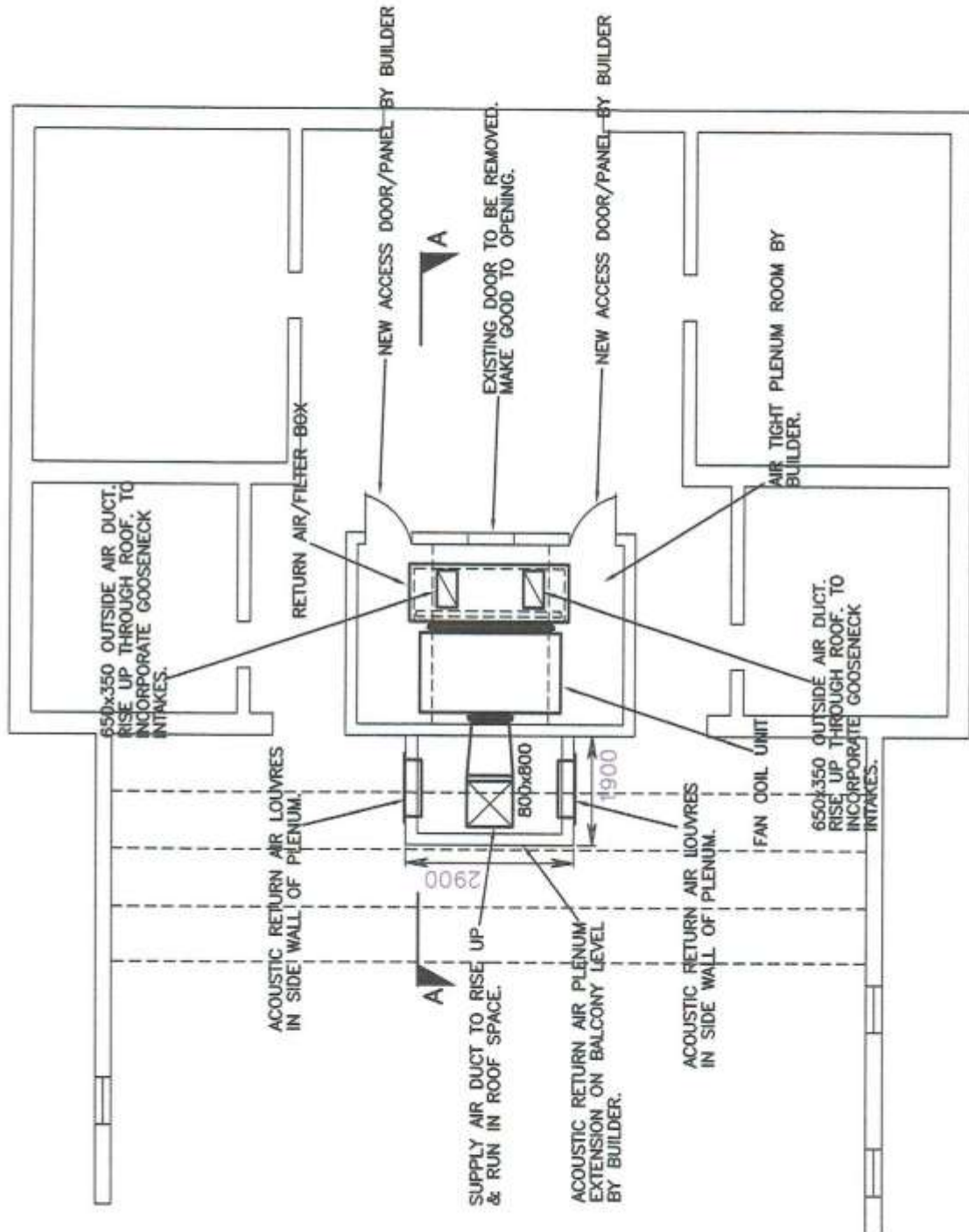
APPENDIX A



APPENDIX B

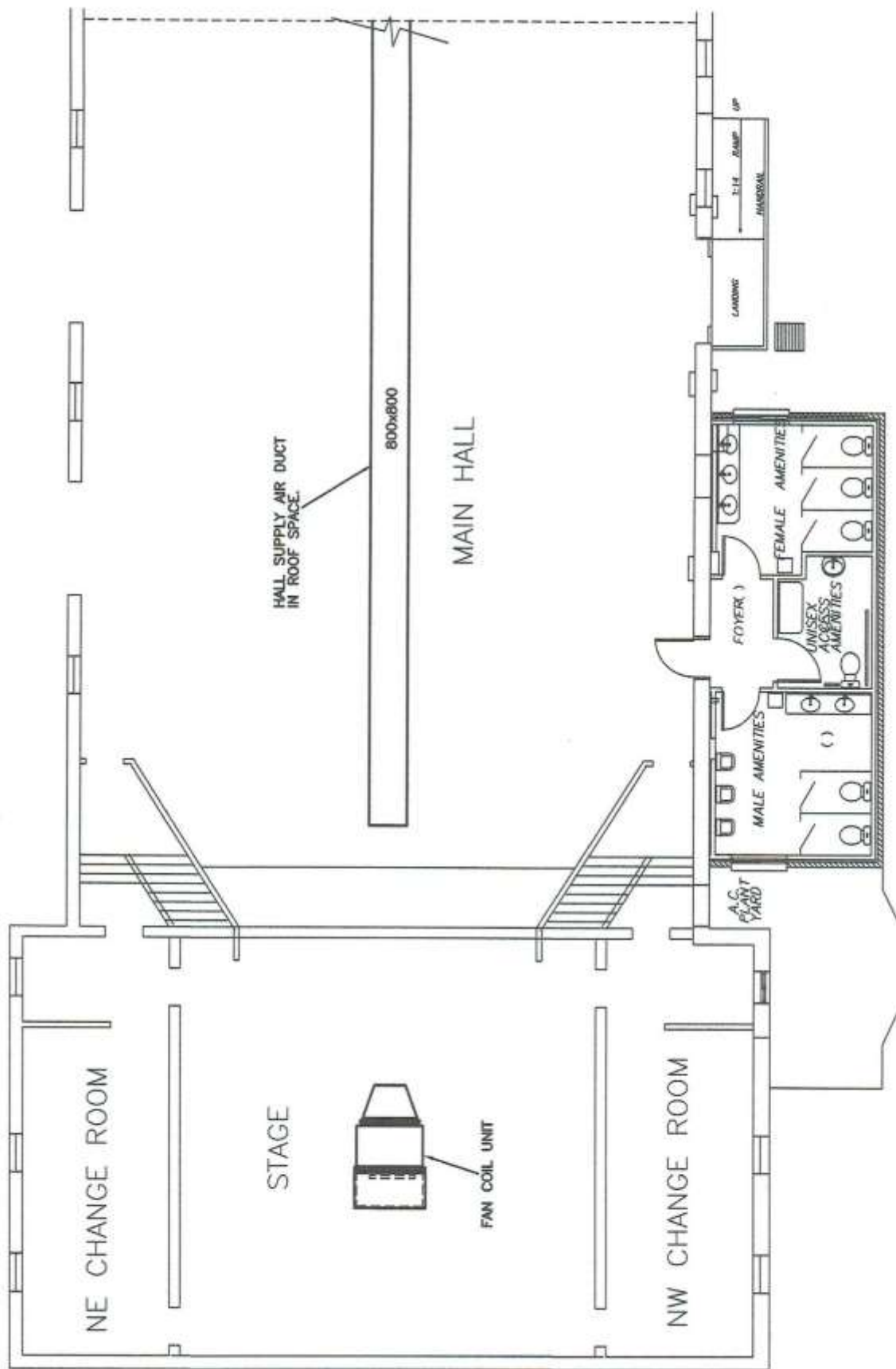


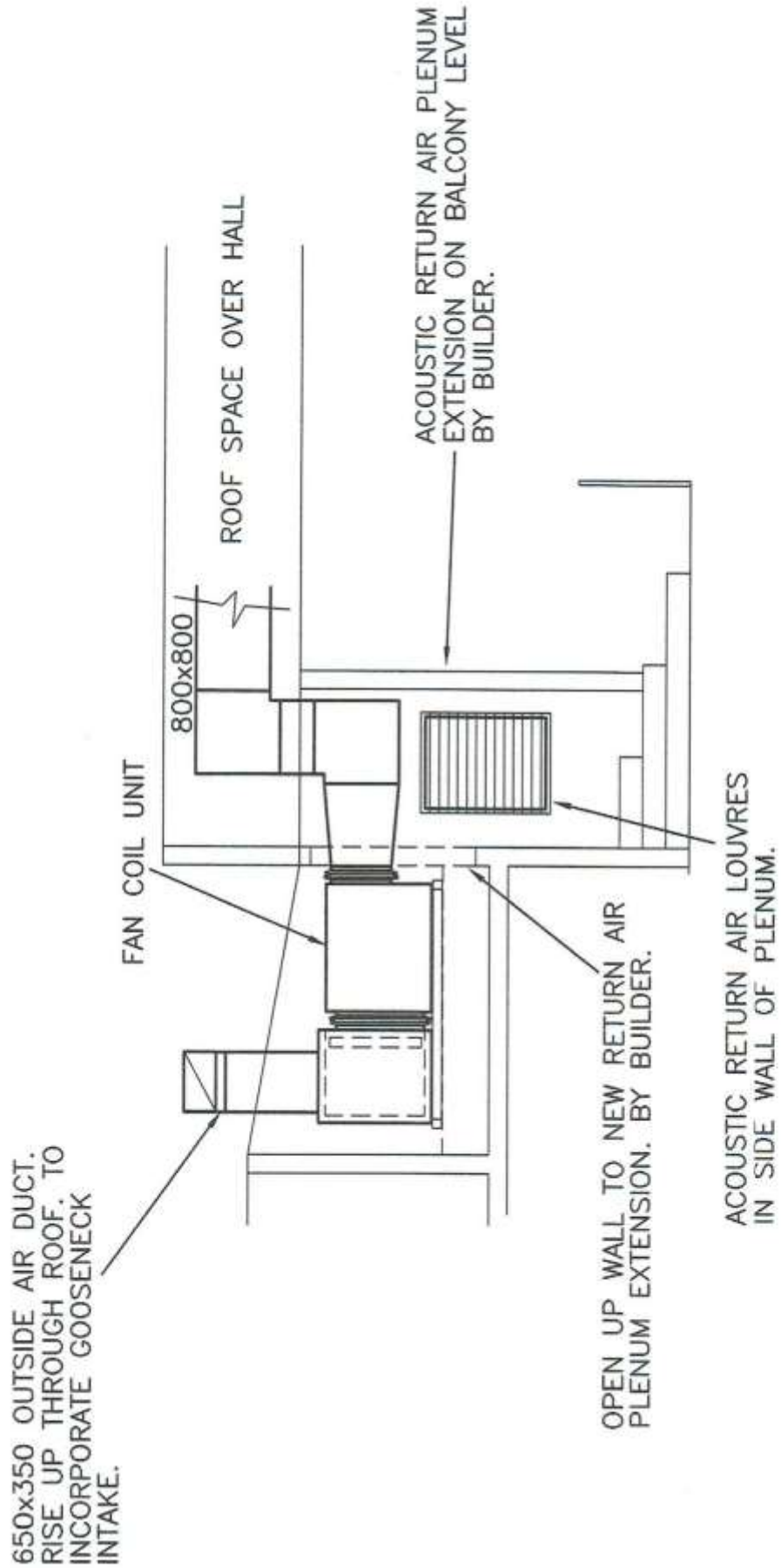
CONDENSER UNIT LOCATIONS



PLENUM PLANTROOM PLAN
(INDOOR FAN COIL UNIT IN PROJECTOR ROOM)

APPENDIX C





SECTION A-A