

THE PIRATE CASTLE  
OVAL ROAD

AHU SPECIFICATION  
and  
ACOUSTIC INFORMATION

RECEIVED  
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### 2.1.2 Design Criteria

For specific design criteria refer to the room data sheets, however the following data is generally applicable:

- Winter External Temperature: -4°C
- Winter Internal Temperature: 19°C
- Toilet extract: 10 ACH
- Services noise NR40

### 2.1.3 Utilities

The works will make use of existing utility connections, however modifications/extensions of the existing connections will be required, of which details are provided in the design intent drawings. The works shall include modifications/extensions to the following:

- Incoming gas connections
- Connections to existing foul drainage system

### 2.1.4 Heating plant

All installations, including commissioning and testing, shall generally be to BS 5449. The heating plant shall consist of the following elements:

- Gas fired condensing boiler installation to comply with CIBSE Applications Manual AM 3.
- Ground and first floor low temperature hot water circuits within the extension.
- Controls associated with above.
- Electric perimeter heaters in canal level boat deck extension.

A separate boiler dedicated to heating the extension building shall be provided and located in the existing boiler room along with all associated equipment including circulating pump, expansion vessel and control valves. The flue and condensing drain may be routed in similar fashion to the existing installation through the external wall of the boiler enclosure.

The spaces in the extension will be heated by a combination of low temperature hot water (LTHW) radiators and electric radiators (panel or towel rack type), which will be individually controlled by thermostatic radiator valves (to BS EN 215-1) in the case of LTHW radiators and local combined thermostatic and time clock controllers in the case of electric radiators. Pipe work shall distribute from the new boiler plant at high level and drop locally to connect to each radiator.

Radiators shall be to BS EN 442-1, -2 and -3, and wall-mounted radiators shall be fixed 50mm minimum from the supporting wall and 100mm minimum above finished floor level.

There will also be an electric fan heater adjacent to the canal level exit door to minimise the effects of cold in-draughts when the door is partially opened, and a low level fin tube heater (with trench grille) mounted in a step at ground level in the activity space.

Works shall include all flushing and sterilization of pipe work.

### 2.1.5 Ventilation

Ventilation plant shall be provided to satisfy the occupancy criteria specified in the room data sheets. All components shall be 'type-test' certificated in accordance with the appropriate British Standard. The plant will be mounted externally at roof level and as such:

- Units for external installation shall have weather-proof casings and water-tight and water-shedding roofs.
- External electrical equipment shall be protected to IP 55W (minimum) of BS EN 60529. All wiring shall be contained in galvanized conduit.
- All joints between casing compartments, access doors and pipe work, ductwork and electrical wiring entry points shall be water- and vapour-sealed.

The plant will comprise the following elements

- Supply section with motorized inlet damper, panel and bag filter, thermal wheel heat recovery device, thyristor controlled electric heating coil, fan section and room and atmosphere side attenuators.
- Extract section with fan section, thermal wheel heat recovery device and room and atmosphere sound attenuators.
- Insulated and damage-protected ductwork at roof level to roof penetrations as indicated on design intent drawings.

The unit will be switched on and off by a manual controller within the main hall with low and high speed settings (50% and 100%), and the unit will also contain a packaged controller to operate the heat recovery device and electric heater battery in sequence to maintain a minimum room condition of 19°C.

The plant shall be designed to meet the stringent noise criteria as dictated by Camden Council, of which details may be found in the Arup Acoustics Noise Survey Report.

Air will be supplied at high level within the space via ductwork and diffusers as indicated on the design intent drawings.

#### **2.1.6 Extract systems**

Ventilation plant shall be provided to ensure an extract rate from all toilets and showers as required in the room data sheets. The plant shall comprise packaged twin extract fans, ductwork and connections to extract grilles as indicated on the design intent drawings.

The extract systems shall be controlled using a combination of room light switches and a run-on time clock.

#### **2.1.7 Domestic hot and cold water services**

Domestic hot and cold water circuits will be extended from the existing services to serve shower and toilet areas in the extension. The system is illustrated in schematic form on the design intent drawings, but the contractor shall be responsible for agreeing final distribution routes with the architect. Works shall include all valves and fittings along with full system flushing and sterilisation prior to handover.

Materials and fittings shall be listed in WRAS "Water Fittings and Material Directory".

#### **2.1.8 Sanitaryware**

Installation and commissioning of free issue sanitaryware provided by others.

#### **2.1.9 Gas installation**

Gas distribution system to serve new boiler installation in accordance with Statutory requirements and Corgi regulations including valves, fittings etc and connections to boiler.

Gas mains shall be provided in accordance with:

## 2.2 Mechanical equipment performance specification

### 2.2.1 Boiler plant

Type	-	Wall mounted condensing boiler.
Number	-	1
Rating	-	25kW (to be confirmed by contractor).
Water temperatures	-	Typical 80°C flow, 70°C return.
Dimensions	-	Confirm to Architect.
Accessories	-	Controls, circulating pump, expansion vessel.
Standard equivalent to	-	Keston "Celcius 25".

### 2.2.2 Air handling plant

Type	-	Externally mounted supply and extract with heat recovery.
Number	-	1
Air flow rate	-	800 l/s.
Maximum intake Lw	-	See table below
Maximum exhaust Lw	-	See table below
Maximum break out Lw	-	See table below
Heat recovery device	-	Sensible thermal wheel (70% efficiency).
Electric heater battery	-	12 kW, 3 phase, thyristor control.
Maximum dimensions	-	Refer to plans for indicative dimensions. Contractor to coordinate with Architect.
Control	-	Manual room ON/OFF controller with 2 Speed control (50% and 100%). Room temperature sensor.
Standard equivalent to	-	Flaktwoods.

In order to meet the local requirement of Camden council, limiting noise levels for roof-top plant are as follows:

	Octave Band Centre Frequency, Hz							
	63	125	250	500	1k	2k	4k	8k
Casing radiated sound power levels	64	66	60	58	50	48	39	33
Fresh air intake radiated sound power levels	58	56	49	51	41	40	33	30

Exhaust air discharge sound power levels	74	66	44	39	35	40	40	40
Maximum total radiated sound power levels	75	70	60	59	52	49	43	41

NB: From a review of manufacturers' standard plant performance, it is anticipated that additional sound attenuators will need to be installed on the plant fresh air intake and discharge, and an additional acoustic enclosure will be required, in order to mitigate sound power levels to those specified.

### 2.2.3 Extract fans

Type	-	Surface mounted twin unit with duct connection.
Number	-	3
Air flow rate	-	Refer to plan drawings.
Maximum noise level	-	NR 40.
Control	-	Room light switches and run-on timer.
Dimensions	-	Contractor to coordinate with Architect
Standard equivalent to	-	Nuaire "Opus Twinfan".

### 2.2.4 Radiators

Type	-	Hot water wall mounted.
Number	-	7
Finish	-	To be coordinated with Architect.
Typical output	-	2-3 kW.
Control	-	Thermostatic radiator valve.
Dimensions	-	Contractor to coordinate with Architect
Standard equivalent to	-	Stelrad.

### 2.2.5 Electric fan heater

Type	-	Vertical flow air curtain type
Number	-	1
Rated output	-	2 kW
Control	-	Manual ON/OFF
Dimensions	-	Contractor to coordinate with Architect
Standard equivalent to	-	Dimplex

### 2.2.6 Electric panel/towel radiators

Type	-	Oil filled.
Number	-	3 Towel, 5 Panel
Rated output	-	1 kW.

## Pirate Castle – Building Services Room Data Sheet.

### Street Level Main Hall

**Reference: SL 18**

#### **Environmental Conditions**

Environmental conditions control system

Radiator TRV

AHU room temperature sensor

Trench heater TRV

Winter Temperature

>18 °C

Occupation Criteria

100 people

Mechanical ventilation

8 l/s per person

#### **Power**

Socket outlet type

Metalclad, plastic 13A switched, Comms outlets

Socket mounting

surface mounted, 2 sockets/box, 1 socket/box,

2 comms outlets/box,

Plastic Dado trunking

Number of sockets

2 x Metalclad, 4 x plastic dual socket outlets, 4 x

plastic single socket outlets, 2 x comms outlets

Metal, White plastic

Finish for sockets

none

Local supplies for mechanical plant

Motorise Roof

Special power requirements

RCD

Leak Detection

#### **Lighting**

General lighting/lux

200 lux

Luminaire Type

9 x Linear Fluorescent (Ref. No. B1)

3 x Linear Fluorescent (Ref. No. B2)

1 x Surface Mounted Fluorescent (Ref. No. D2)

Lamp type

T5, TC-TEL

Task lighting (desk/wall/floor)

wall, 1 x spotlight (Ref. No. F)

Emergency lighting

Self-contained emergency luminaire, 1 lux

average

Emergency lighting operating mode

Switch-maintained

Specialist Lighting

none

Lighting Control

Switch

#### **Fire Detection / Fire Control**

Fire extinguishing equipment

Refer to architect's drawings

Fire alarm – sounder/beacon/loudspeaker

Build-in Sounder

Fire detection – smoke/heat/breakglass

Smoke/breakglass

Fire alarm interfaces

none

#### **Sanitation/Public Health**

Basin

none

Hot Water

none

Cold Water

none

Drainage

none

Water Closets

none

Gas

none

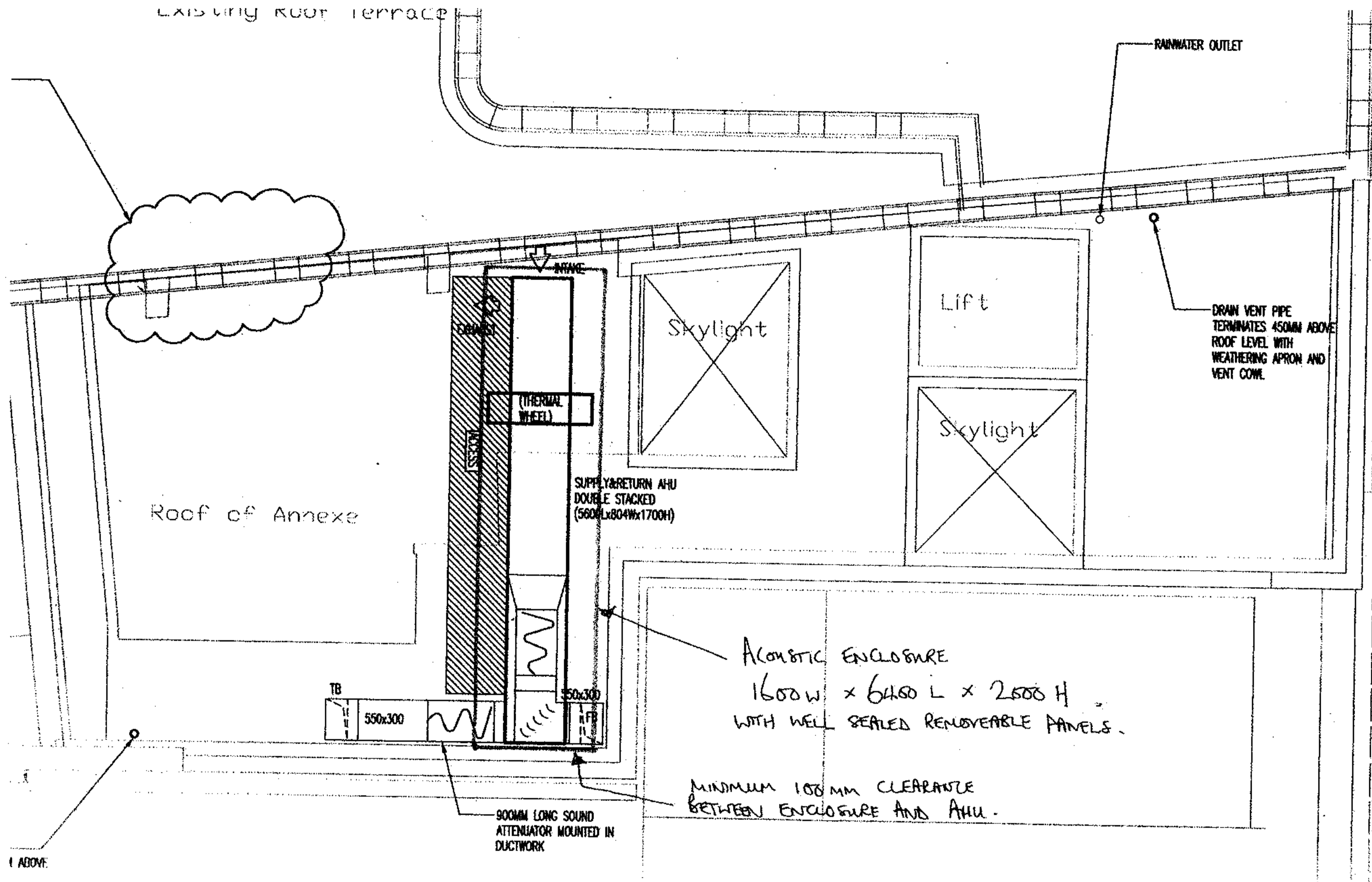
Floor gullies

none

#### **Acoustics**

Noise Criteria level in relation to building services.

NR40



Pirate Castle  
AHU Acoustic Enclosure  
114448 / AJ

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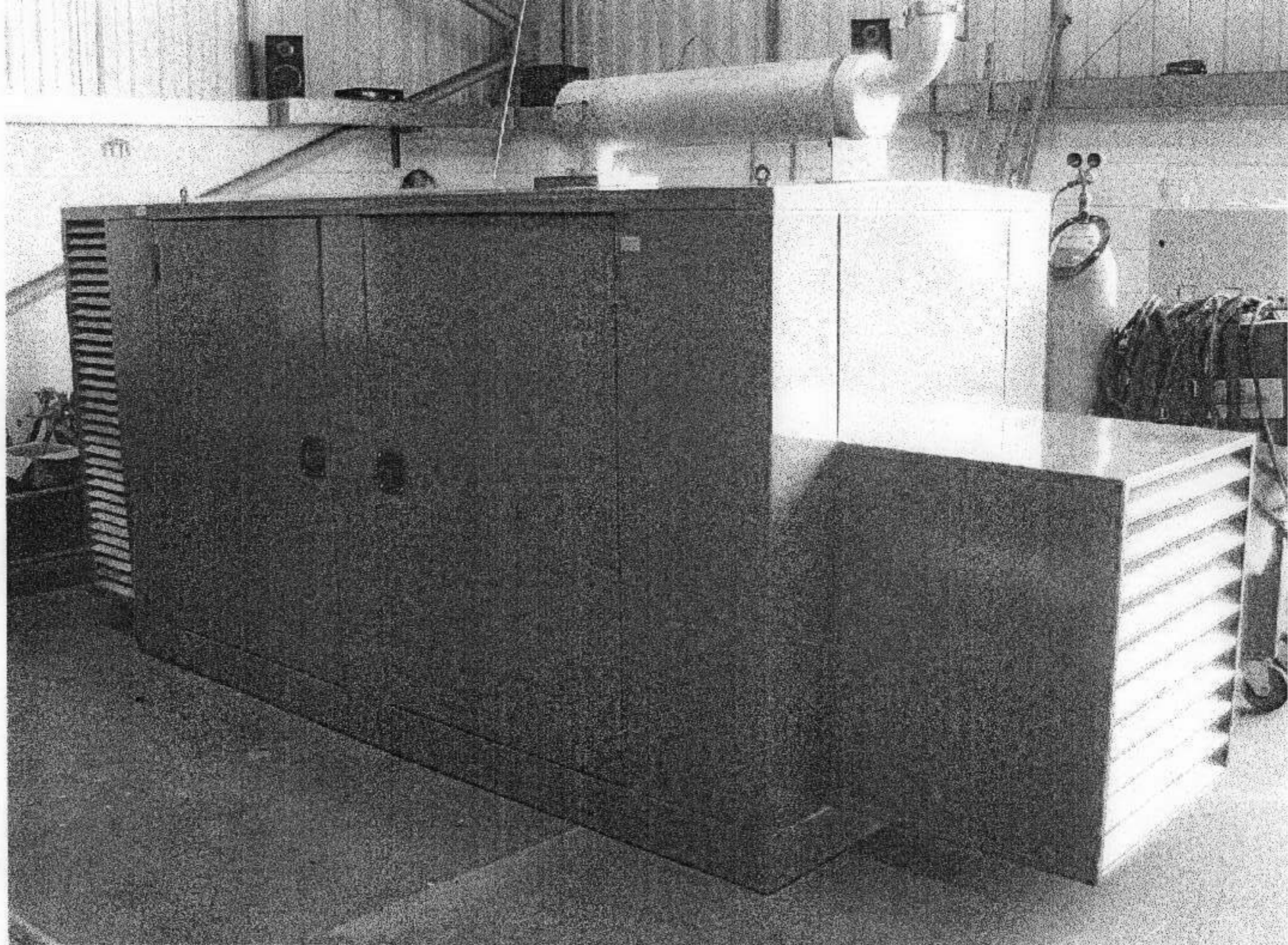


IMAGE OF AN ACOUSTIC ENCLOSURE