Hot water and heating heat pump interventions

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HWS Schematic

Trace heat Existing HWS supply pipe

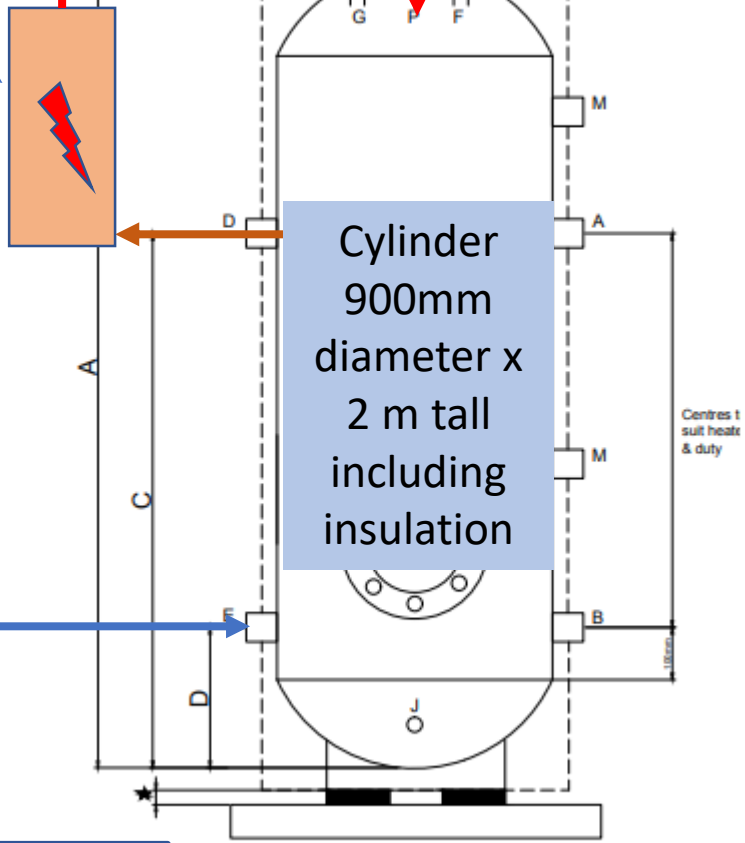
Small electric back up heater

Small heat pump heat exchanger next to cylinder

Primary pipe connection between small heat exchanger and HP

Heat pump can be local or up to 25 m from the cylinder

Existing HWS supply



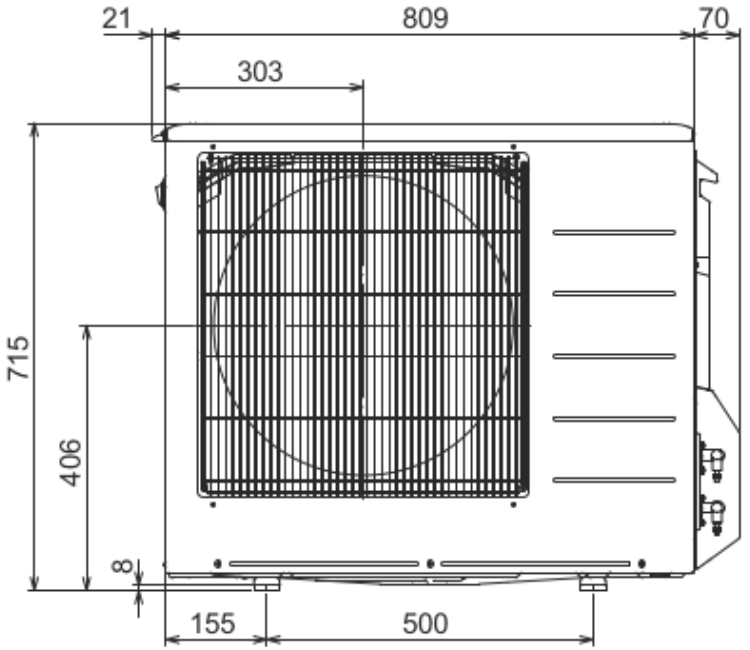
Cylinder 900mm diameter x 2 m tall including insulation

Existing Cold feed

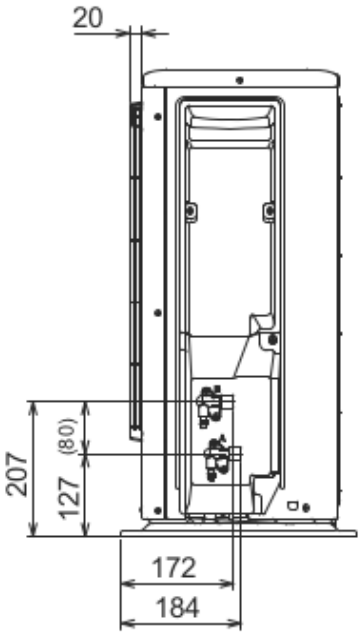
HWS heat pump
Option 1

QUHZ-W40VA

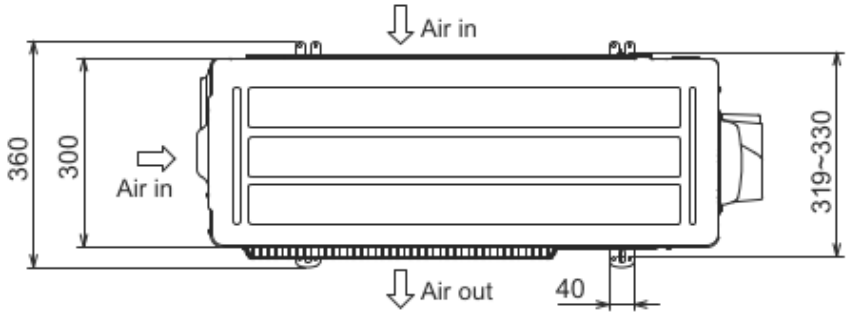
Front View



Side View



Upper View



2.1. Choosing the outdoor unit installation location

- Avoid locations where the unit is exposed to direct sunlight or other sources of heat.
- Select a location where noise emitted by the unit does not disturb neighbours.
- Select a location where easy wiring and pipe access to the power source is available.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that condensate water may be produced by the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit is exposed to oil, steam, or sulfuric gas.
- Make sure to hold the handles to transport the unit. Do not hold the base of the unit, as there is a risk that hands or fingers may be pinched and injured.

2.2. Outline dimensions (Outdoor unit)(Fig. 2-1)

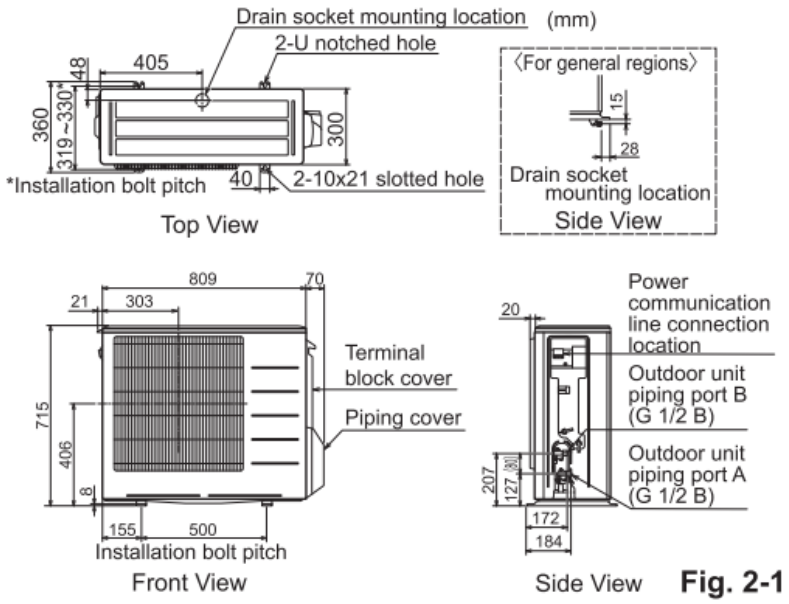


Fig. 2-1

*If discharge air is blown against a wall, the wall can become dirty.
*If the area is poorly ventilated and the discharged air becomes sucked in again, heating performance can be reduced by about 10%. Mounting of wind guides (product sold separately) can improve heating performance in certain cases.

2.3. Windy location installation

When installing the outdoor unit on a rooftop or other location where the unit is exposed to strong wind, do not face the air outlet of the unit directly into the prevailing wind direction.
Strong wind entering the air outlet may impede the normal airflow and it may result in a malfunction.

- Installation is not possible when there are obstructions on three of the four sides.
- If the obstruction at the front (discharge side) enables ventilation (such as a wire mesh), installation is possible for the conditions “When there is no obstruction at the front (discharge side)”. If the obstruction at the front does not enable ventilation (such as the outer wall of a building), install for the conditions “When there is an obstruction at the front (discharge side).

■When there is no obstruction at the front (discharge side) (Top view)**(Fig. 2-2)**
The area above the unit must be open (clearance of at least 1 m or more).

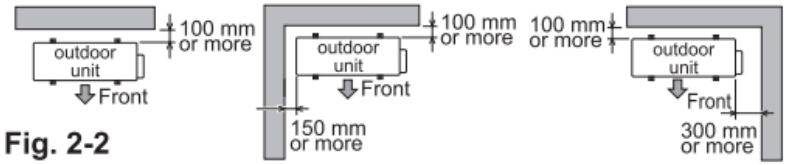


Fig. 2-2

■When there is no obstruction at the back (suction side) (Top view)**(Fig. 2-3)**
The upward direction must be open (at least 1 m or more is available).

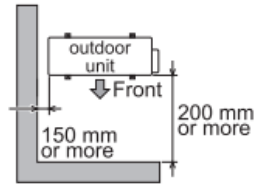


Fig. 2-3

■When there is an obstruction at the front (discharge side)**(Fig. 2-4)**

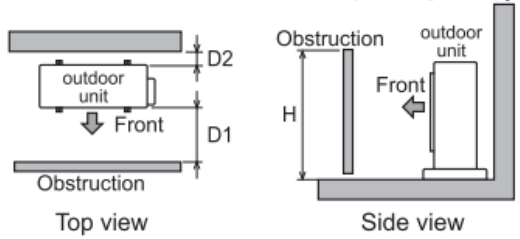
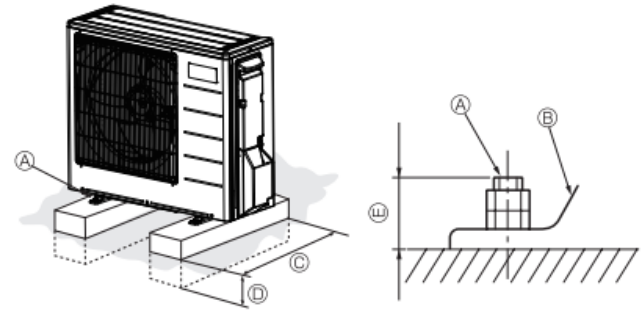


Fig. 2-4

The required clearance (D1 and D2) varies depending on the obstruction height (H).
If wind guides are mounted, see the table below.
Note that the operating noise levels may increase for certain installation conditions.

Obstruction height (H)	Required clearance (D1/D2)	
	Without wind guides	With wind guides
1200 mm or less	200 mm or more/100 mm or more	185 mm or more/30 mm or more
More than 1200 mm	300 mm or more/100 mm or more	350 mm or more/30 mm or more

3. Installation procedure



Ⓐ M8 bolt
Ⓑ Base
Ⓒ As long as possible
Ⓓ Set deep in the ground
Ⓔ Max.30mm

Fig. 3-1

- Be sure to install the unit in a solid, level surface to prevent vibration noises during operation. (Fig. 3-1)

<Foundation specifications>

Foundation bolt	M8
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

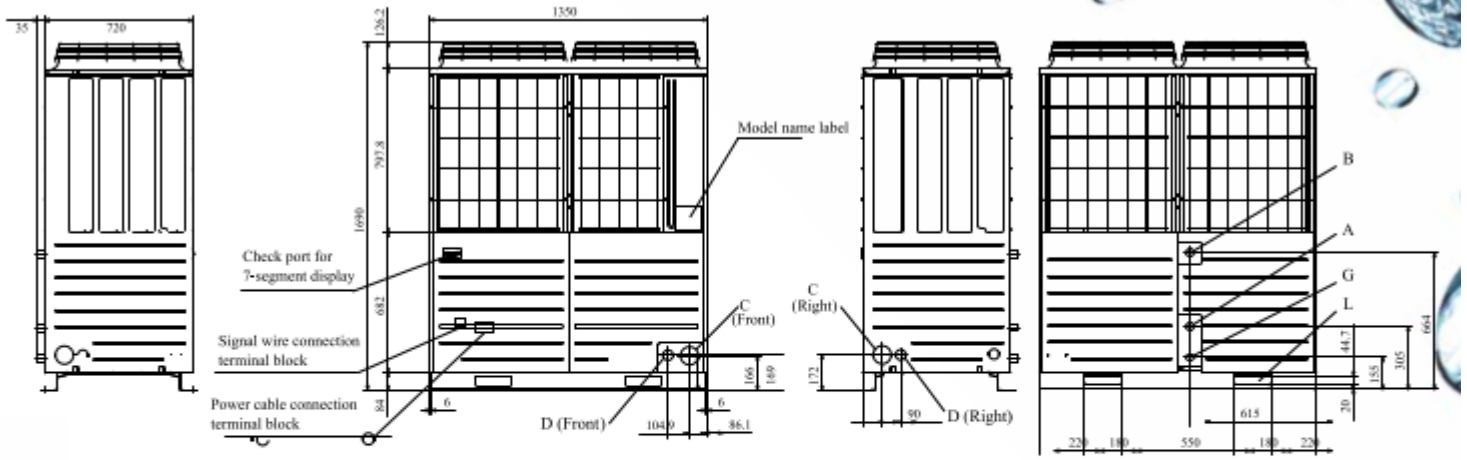
- Make sure that the length of the foundation bolt is within 30 mm from the surface of the base.
- Secure the base of the unit firmly with 4×M8 foundation bolts in solid locations.

⚠ **Warning:**

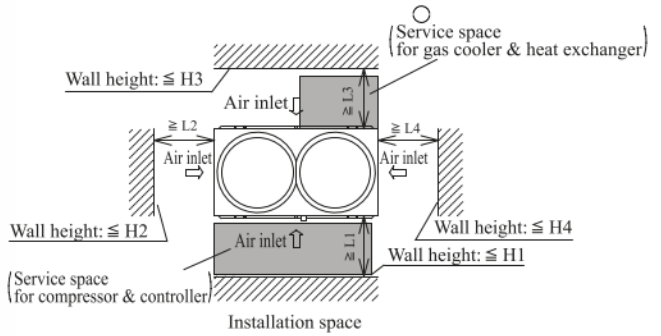
- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage by earthquakes, extreme weather conditions. An improperly installed unit may fall down and cause damage or injuries.**

HWS heat pump: Option 2

Model : **ESA30E**



Installation space (Service space)



Installation space

Dimension \ Installation example	1	2
L1	800	800
L2	10	10
L3	800	800
L4	100	500
H1	500	1500
H2	No limit	No limit
H3	1000	1000
H4	No limit	No limit

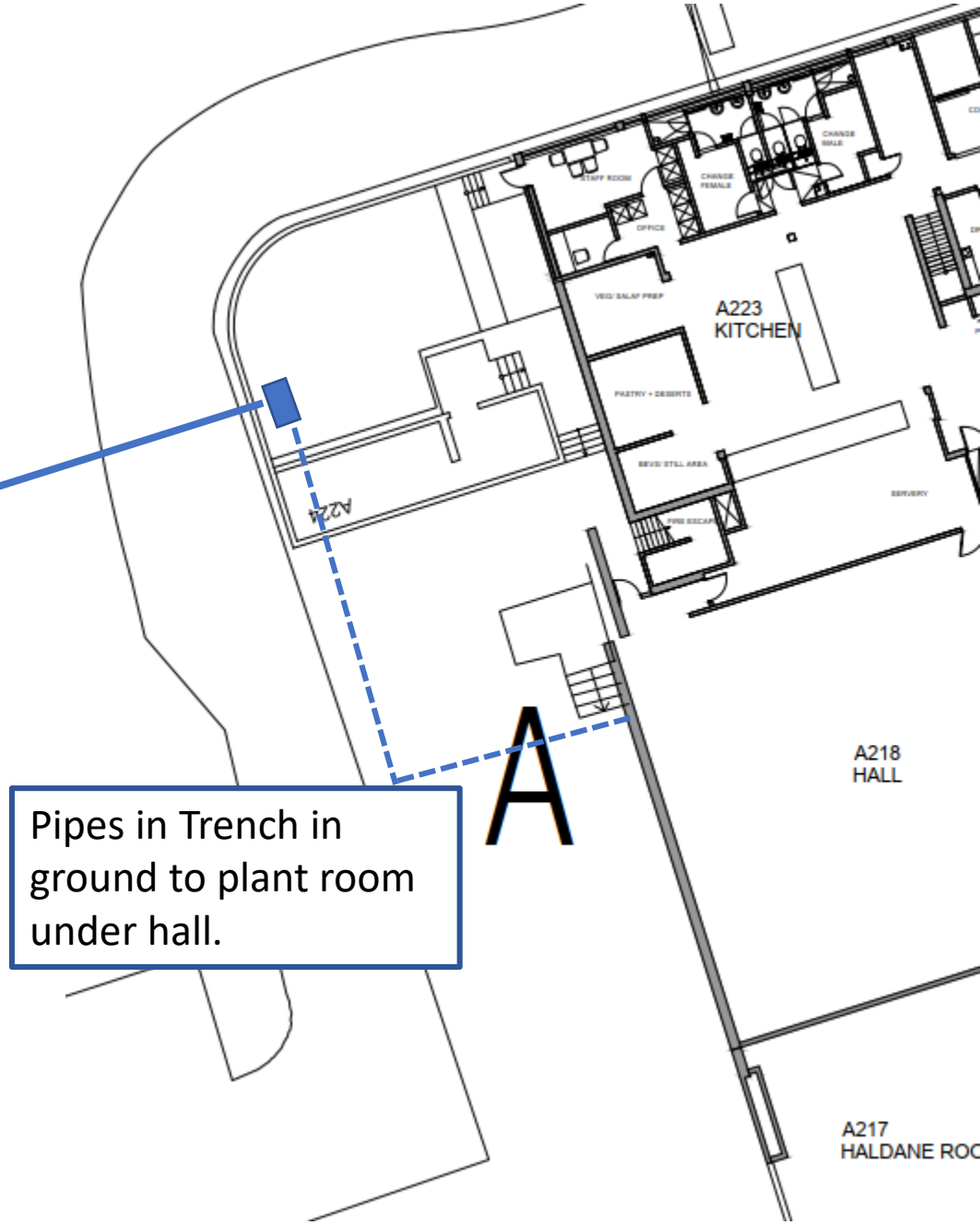
Note
(1) Be sure to fix the unit with anchor bolts
(2) Be sure to keep space above the unit at least 2m
(3) the connection of water pipes (Feed water inlet, Hot water outlet, Drain water outlet) should be done on site locally.
(4) The holes for power cable inlet, and connection wire outlet from heat pump unit to tank unit are half-blanked.
Therefore please punch out the hole by cutting the residual portion and use it.
(5) In heavy snow region, please take following measures in order for the air inlet/outlet port and the bottom part of unit not to be covered with snow
① Place the unit on the rack in order to make the bottom of unit higher than the snow surface.
② Install a snow prevention hood on the outlet port of the unit.
③ Install the unit at the space under the eaves or the snow prevention roof.
(6) If ambient temp becomes below 0ºC, it may cause break of water pipes and damage on the unit due to freezing
Be sure to apply anti-freezing heater to feed water piping , hot water piping and drain water piping in order to prevent from freezing.
(7) Be sure to keep enough service spaces of more than 800mm in front of the unit service panel for easy inspection of the unit and replacement of components.
When piping work is done, be sure not to interfere the pipes with the unit service space.
If the service space cannot be kept, please install the piping below the unit by placing the unit on the rack.

Kitchen /A block:
Option 1

One unit mounted on wall with top level with brick

Kitchen /A block:
Option 2

Unit mounted on ground within kitchen garden. This will serve the kitchen and B block

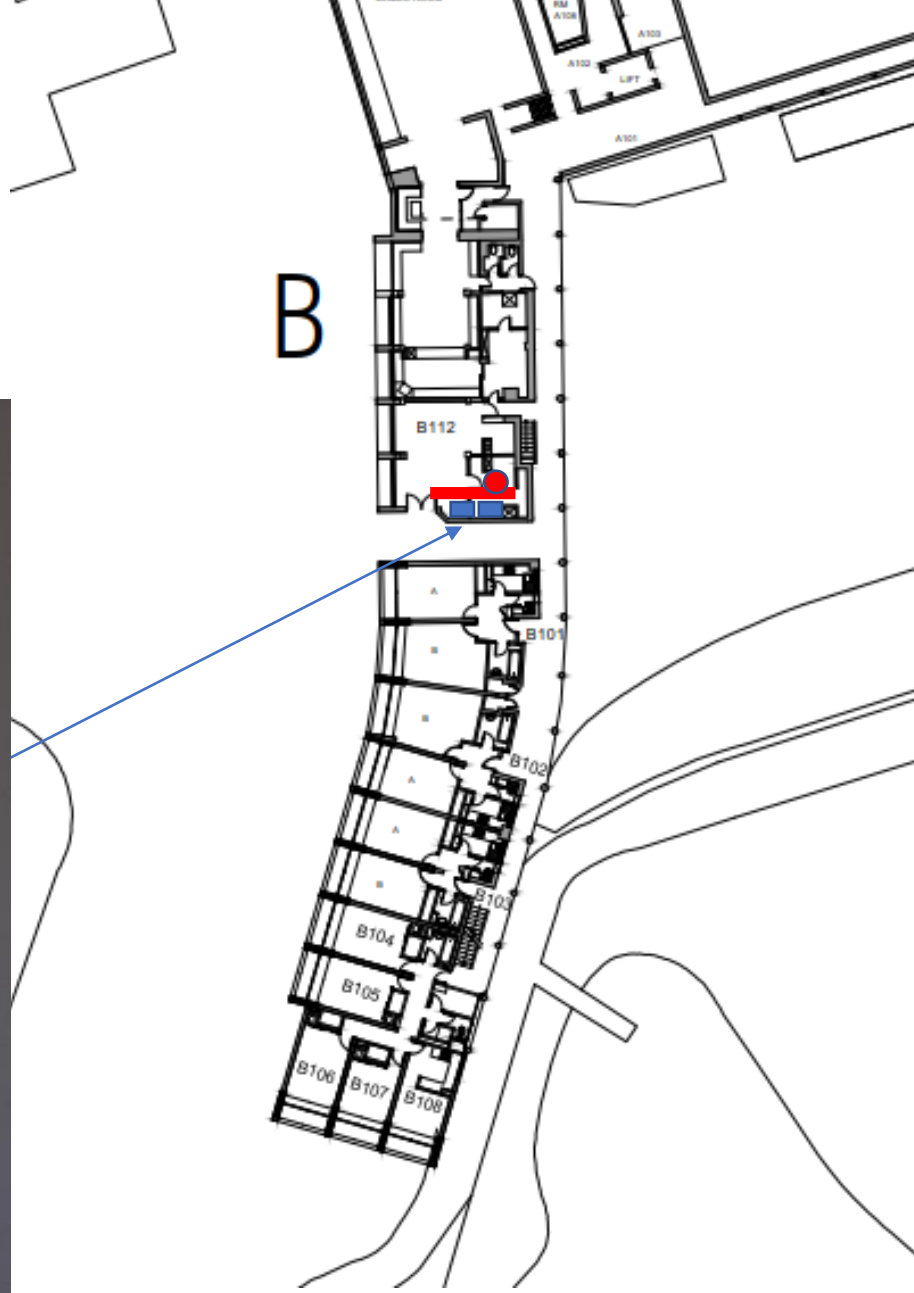


Pipes in Trench in ground to plant room under hall.

B Block B1

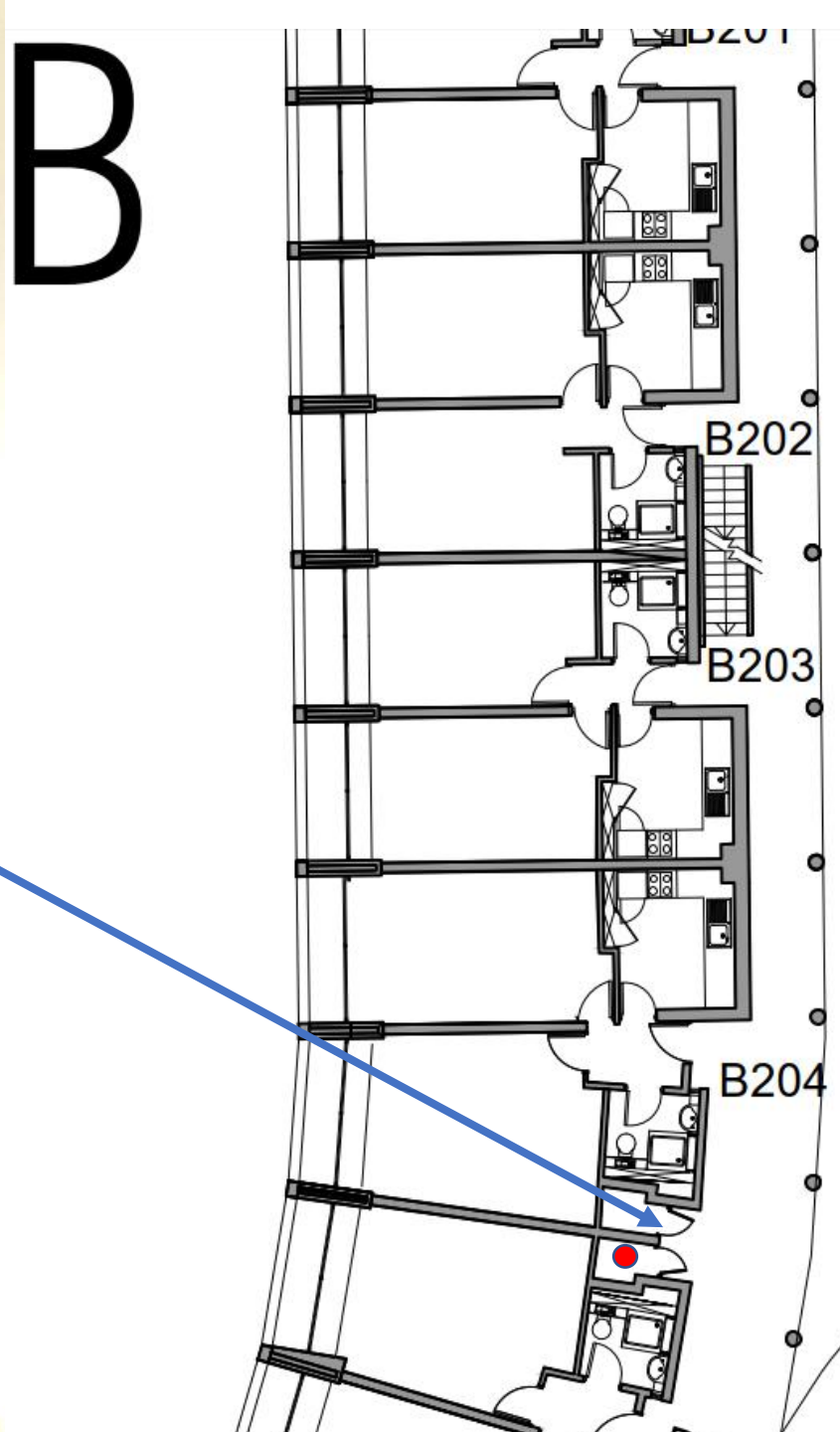
Louvre to create a plenum behind

Option 1: Two units side by side: One serving cylinder in this area and the other in booth for B2.



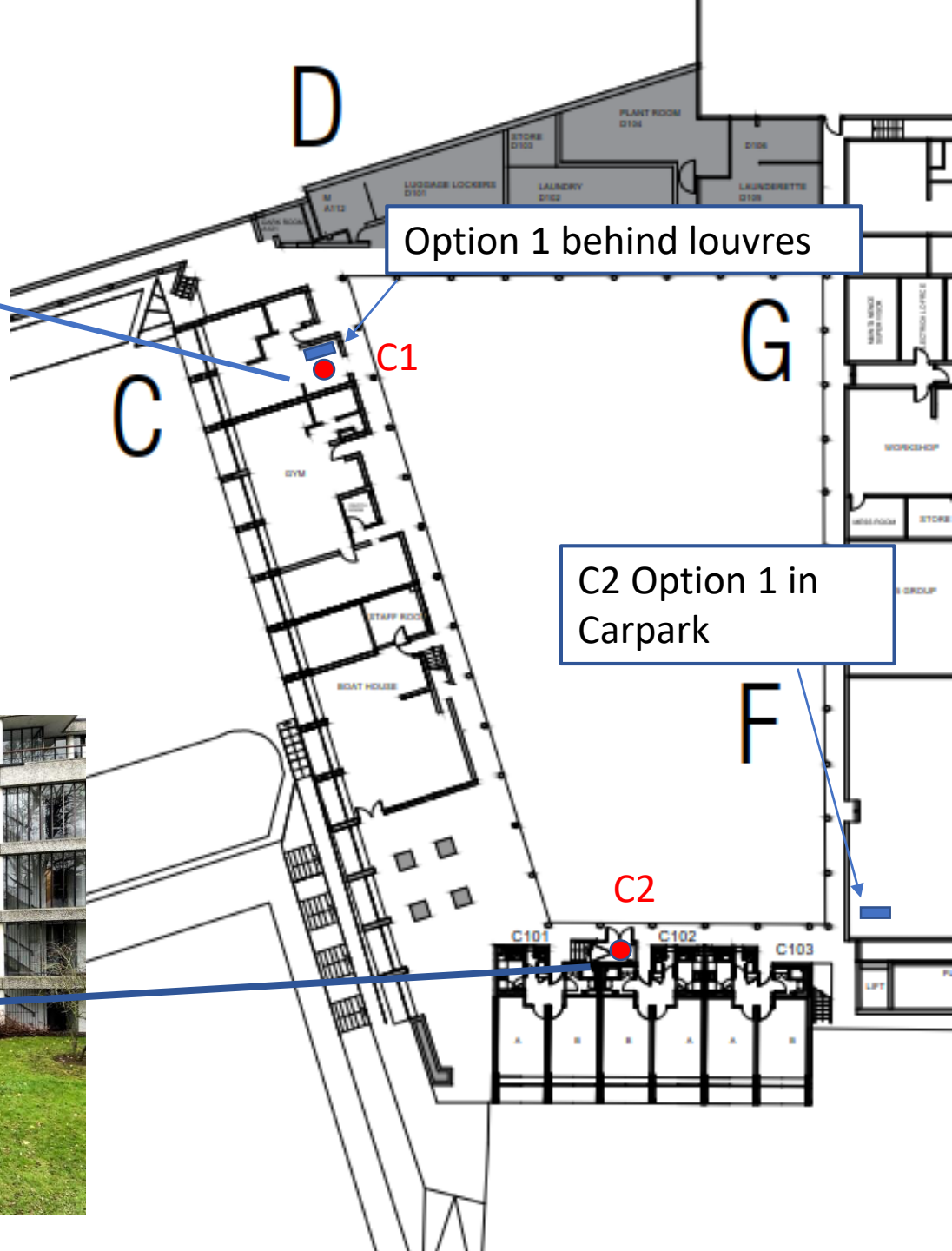
B Block B2

Plant room with Cylinder fed from HP in B1 or Kitchen garden



C Block

Cylinder C1 in locker room



Cylinder C2 under stairs

E, F, G, H Block

EFGH each have their own systems local to the off takes to the HWS feeds. The heat pumps in Blue and cylinders in Red are in the carpark areas.

Option 2 Heat pumps in bin stores to serve CDEFG

M and CM short walls to hide units from playing fields