

Project Documentation

**PROJECT INITIATION DOCUMENT
(PID)**

**UPGRADING OF HEATING AND VENTILATION
SYSTEMS
IN THE SOUTH WING
EAST PALLANT HOUSE, CHICHESTER**

Release:	Version 3
Date:	24-8-15
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Note: the completion of this document is required for medium and large projects as defined by the Project Type Matrix. The final version should be saved in a sub folder on the x drive under project management / project documentation.

Document History

Revision Date	Version	Summary of Changes	Reviewer(s)
10-8-15	1	First draft	Jane Dodsworth and Paul Over
17-8-15	2	Second Draft	SLT and Legal
24-8-15	3	Final Draft	Paul Over

Consideration by the Corporate Improvement Team

Date	Reviewing Officer	Comments for Consideration
18/8/2015	Joe Mildred	Minor additions to the PID suggested. Early consultation with the internal teams required to support delivery of the project as well as those directly affected by the works is recommended.

Approvals

This document requires the following approvals:

Name of person, group or committee
Cabinet - 8 September 2015
Council – 22 September 2015

Distribution

Name	Job Title
Cllr Bruce Finch	Cabinet Member for Support Services
Paul Over	Executive Director
Jane Dodsworth	Head of Business Improvement Services
Roland Robinson	Facilities Manager
SLT	Optional

Glossary of Terms

HVAC – heating ventilation air conditioning

AHU – Air Handling Unit

CIBSE - Chartered Institution of Building Services Engineers

VRF - Variable Refrigerant Flow

CDM 2015 – Construction Design and Management Regulations 2015

LOI – Letter of intent

NWOW - New Ways of Working

LPA - Local Planning Authority

HR – Human Resources

1. PURPOSE OF DOCUMENT

This Project Initiation Document (PID) sets out the work and resources required to define and implement a new HVAC system at EPH. Consulting Mechanical and Electrical Engineers, Pope Consulting Ltd have been commissioned to survey the current installation, identify deficiencies in the design, plant and controls and examine current monitoring data. The Consulting Engineers have now collated their data and completed their feasibility study which includes two options for consideration.

2. PROJECT DESCRIPTION

These proposals address the fundamental issues of maintaining comfortable working conditions in the open plan offices on both ground and first floors, which are predominantly south facing. Specifically, there have been complaints of draughts at ground floor level and of under heating at first floor level.

The results of the preliminary appraisal confirm that even following several mechanical upgrades since the commissioning of the original 1983 system, the latest in 2007 and the introduction of passive measures using glazing film and improving the quality of the window blinds to reduce solar gain, there remains inherent design and mechanical issues that are not resolvable without a thorough redesign of the system.

The purpose of this project is therefore to design and install a modern HVAC system suitable to meet the comfort needs of the occupants. The system will have in-built flexibility to adapt to changes in occupancy without compromising the capability of the system to control the environment conditions in the open plan areas.

3. BACKGROUND

The south wing of East Pallant House was first commissioned and occupied in 1983 and comprises two floors of offices, at ground and first floor level and a lower ground floor comprising Council Chambers, a Members room and welfare facilities. Also located on the lower ground floor are two plant rooms, one on the west side and one on the east side. There are two AHUs in each of the plant rooms. The AHUs are different sizes and one serves the offices and the other serves the committee rooms.

The offices above the plant rooms are occupied by Revenue and Benefits on the ground floor and Planning on the first floor. The current staff occupancy on both floors is 144. Both of the office open plan floors are served by two air handling units of equal size. These AHUs are located in two separate plant rooms, with each unit supplying half of the total air requirements of each floor. The committee rooms are supplied with fresh air from two smaller AHUs which are again located in separate plant rooms.

The feasibility study confirmed that the AHUs coupled with individual stand-alone wall and ceiling mounted air conditioning units serving the offices are unable to maintain comfort conditions in both open plan office spaces. The study found that the plant control systems are unsatisfactory, with the main building management system ineffective. The study also considered the volume of fresh air delivered by the plant to fall short of current CIBSE design guide occupancy recommendations.

However, the study did confirm that the Committee Room AHUs were suitable for purpose, but new controls would be required.

This PID therefore includes two fundamental design options (plus “Do Nothing”):

- Do Nothing: This option is not supported in the Consulting Engineer’s feasibility study. Defects and deficiencies with the current installation have been identified which confirm that the current system in its present form is unable to meet current ventilation standards, eliminate draughts or resolve under heating issues. The study therefore concludes that the current system will not be able maintain acceptable comfort conditions in these areas and Members are advised not to approve this option.
- Option 1 utilises the existing AHU plant and ductwork in the current configuration which includes the replacement of the current supplementary air conditioning stand-alone plant with modern air conditioning equipment and a new building management control system. The new plant would condition and direct the flow of air vertically, thereby locally raising or lowering the room temperature and also reducing the potential for draughts. However, there would still be an issue with meeting current ventilation recommendations as the east side plant room has limited access to an external fresh air supply and cannot be physically adapted to deliver the required volume of fresh air. This is because spatial restrictions prevent additional ventilation ductwork being introduced into the internal lower ground floor plant room which supplies half of the fresh air requirements. The estimated cost for this option is £110,000.
- Option 2 includes the replacement of the two larger AHUs with a single AHU. The unit will be located externally on the first floor flat roof adjacent to the current HR office. The installation would also include modern air conditioning equipment as described in Option1 above. However, the primary use of the air conditioning units would be to provide cooling and not heating. New controls including a new building management system would complete the installation. This option would address the shortfall in air volume described in option 1 above and could provide room heating should the gas boilers fail. The estimated cost for this, the recommended option, is £186,300.

4. PROJECT OBJECTIVES AND SUCCESS CRITERIA

4.1. Outputs

A modernised HVAC System that is operational prior to the start of the cooling season 2016, providing heating and cooling to the following areas:

- A refurbished installation providing heating and cooling to the lower ground floor committee rooms.
- New HVAC plant providing heating and cooling to the ground floor open plan offices.
- New HVAC plant providing heating and cooling to the first floor open plan offices.
- The new plant will replace air plant that is in excess of 30 years old with new

4.2. Outcomes

Compliance and obsolescence:

- The new system will deliver current and future occupancy levels with the current recommended standard of 10 litres/person of fresh air.
- With heat recovery and bypass dampers, the system will deliver the required tempered fresh air back into the building within the parameters of between 23°C and 26°C.

Environmental benefits:

- The system will reduce drafts
- Provide comfortable working environment as temperature and air quality will be controlled by the building management system and measured for carbon dioxide levels respectively.
- The new conditions should improve productivity.

Economic benefits:

- The new system should provide an economic cost benefit to the running costs of the building as a result of plant efficiency and better control. However, some of these energy savings will be lost through betterment i.e. The deficiencies with under heating the building will be resolved. As part of the monitoring process the total energy costs for EPH will be monitored to determine the benefits as a result of implementation of the new system.
- A comfortable working environment will help enable a more efficient use of the council's two largest open plan office spaces in line with the objectives of the NWOW project. This will create the potential to make better use of the existing office space creating additional income and reducing costs.

4.3. Outcome Measures

Economic benefits:

- Energy cost savings in the region of 5% per annum. The total energy cost for 2014/15 was £82,500. Therefore, there is a potential £4,125 annual saving in energy costs.

4.4. Dis-benefits

There are, however, associated dis-benefits:

- The plant is very expensive for the amount of energy that will be saved.
- There are a number of risk issues in opening up the roof extensively and taking new ducts down through the concrete structure. Therefore some out of hours works are necessary and this will increase costs.
- Some occupants of the second floor offices will have their views obstructed. Staff are aware of the limited availability of space to site this unit and due to noise factors it may be necessary to relocate staff to a quieter room.
- The new plant will be only 1.2m from the second floor office's opening windows. It will be heard when the windows are open and may be heard when the windows are closed. Note: staff already hear the existing cooling units outside the window.
- The additional ducts are going to occupy extra floor space at second floor level.

- There will be some visual intrusion externally from the additional high level ductwork at second floor level. Preliminary advice received from Planning Officers suggests that planning consent will be required. However, Listed Building consent will not. Therefore a planning application will be made to site the new AHU and ductwork on the flat roof adjacent the HR south facing offices.

4.5. Out of Scope

- The scheme will leave a system that is capable of accommodating the increased occupancy expected as a result of NWOW. However, the scheme does not include all areas within East Pallant House that may be affected as part of the NWOW roll out programme.

5. PROJECT CONSTRAINTS

This project will be completed prior to the start of the 2016 cooling season, subject to planning consent being granted. To achieve this there will be a requirement for out of hours and weekend working.

However, due to the ability to use Wi-Fi ICT technology and the ability of staff to work remotely, it is not envisaged that space will be required for decanting from the building throughout the duration of the works.

Staff resources have been identified who will take the lead in delivering this work.

6. PROJECT ASSUMPTIONS

The Consulting Engineers are currently finalising Option 2 on the assumption that Cabinet will approve this proposal.

The Project will be notifiable under the CDM 2015 regulations

That planning consent is granted by the LPA.

7. PROJECT COSTS

7.1. Project Delivery Costs

Internal support will be required from within the Buildings and Facilities Service. Support from other Business Support teams will be required to maintain communication and liaison links across all services and user groups including the visiting public.

East Pallant House Heating and Ventilation Works

Schedule of works

Item	Description
1	Installation of indoor VRF room units to Ground and 1 st Floors Installation of refrigerant pipework below raised floors and re-instatement of floors and carpet. Installation of VRF BC controllers and routing of pipework to external condensing unit. Installation of new external condensing unit including new base works and new power supply
2	Re-site five roof condensing units
3	Re-route two vent pipes to new discharge
4	Form new steel supports on roof bearing on steel structure
5	Crane air handler to roof
6	Supply and install new heat recovery air handler with integral controls
7	Form up-stand openings to roof flashed to slate tiles
8	Extend insulated LPHW pipework from LG floor to roof plant
9	Extend new power supply from LG floor to roof plant
10	Install weathered roof ductwork with attenuators
11	Install supply and return ductwork through building with dampers and grilles
12	Builders work associated with internal ductwork
13	Commission supply and return air systems, controls and air plant.
14	Disconnect and strip out existing redundant air plants, ductwork, pipework and DX cooling systems
15	Forming maintenance access at second floor (These works have been advanced to enable engineers to access the roof safely. Should the scheme not progress these works have temporarily been funded from the R&M budget).
16	New Building Management System
17	Structural advice
18	Contingency sum
19	Site management costs and supervision

The estimated cost of these works is £186,350

7.2. On-going Costs Following Project Completion

Maintenance Costs

Maintenance cost details will follow completion of the final design. However, due to the introduction of new plant and as the environmental tests to assess air quality will remain unchanged there will not be any significant changes to the service maintenance budget.

8. OPTIONS SUMMARY

The NWOW Project Steering Group has recognised that there are various options going forward and set out three options for consideration:

1. Do Nothing:
This was not considered appropriate as the existing air handling plant and ancillary air conditioning systems and controls are no longer considered fit for purpose.
2. Option 1:
To upgrade existing equipment and AHU plant serving the ground floor and first floor and introduce more efficient air conditioning units.
3. Option 2:
To remove two AHUs and air conditioning equipment and replace with a new AHU with new air conditioning units, as per Option1 and providing additional fresh air to the ground floor and first floor offices.

The recommended option to Cabinet is Option 2 be implemented and resources be allocated as per the Principal Designer's proposals.

9. PROJECT APPROACH

- The project work will be delivered by the NWOW Project Steering Group
- The project outcomes will be reported to Cabinet as a post project evaluation report

10. PROJECT PLAN

Task No.	Task/Milestone	Completion Date	Responsible Owner	Dependency
Stage 1 Design				
A	Cabinet and Council approval of the scheme.	September 2015	Buildings and Facilities Services Manager	Feasibility report to be completed by Principal Designer
B	Detailed design proposals completed by the Principal Designer	September 2015	Appointed Principal Designer and Controls Engineer.	Information to be supplied by the Controls Engineer
C	An application for Planning Consent will be submitted to the Local Planning Authority.	September 2015	Appointed Principal Designer	Cabinet approval of the scheme.
D	Final design proposals completed by the Principal Designer	November 2015	Appointed Principal Designer and Controls Engineer.	
E	Award of Planning Consent	November 2015	Appointed Principal Designer	

Stage 2 Procurement				
A	Produce full Invitation to tender (ITT) documentation – Non EU tender	November 2015	Principal Designer and JB/RW	Cabinet and Council approval and award of Planning Consent
B	Tender period	November/December 2015	Tenderers	
C	Tender Evaluation	January 2016	Principal Designer and JB/RW/DSt	
D	Award Contract	January/Feb 2016	Legal Services	Nomination of a Preferred Contractor
E	Sign Contract	January/February 2016	Legal Services	
Stage 3 Mobilisation				
A	Lead- in period	February 2016	Contractor	Signed contract or LOI
B	Prepare per start information	February 2016	Principal Designer	
C	Site set up and mobilisation	March 2016	Contractor	
Stage 4 Contract Works				
A	Start on site external works	March 2016	Contractor	Signed contract or LOI
B	Key stages internal works	April 2016	Contractor	
C	Practical completion	May/June 2016	Contractor	
D	Start of defect period	May/June 2016	Contractor	Practical Completion
Stage 5				
A	End of defects period	November 2016	Contractor & Principal Designer	
	Making good defects	November 2016	Contractor & Principal Designer	
	Project Evaluation	May/June 2017	Principal Designer/ B&F Serv. Mgr.	

11. PROJECT TEAM

- The Senior Responsible Officer will be the Head of Business Improvement Services, supported by the Buildings and Facilities Manager who will oversee the execution of the project.
- The Contract Administrator and Principal Designer under CDM 2015 will be the appointed Consulting Engineer, who will oversee the installation and commissioning aspects of the project.

- The NWOW Project Steering Group will be responsible for the integration of this project into the NWOW roll out programme with specific remit to manage staff displacement and out of hours phasing and resourcing as a result of the intrusive nature of the installation.

12. COMMUNICATION

- The Project Designer will arrange monthly contractor meetings to discuss design issues, measure and monitor performance and agree contract valuations. These meetings to be reported to the Steering Group for review.
- Members and CMT will receive updates via the monthly Members Bulletin and project briefings.
- Internal communication via intranet updates will be provided at key transition stages and the teams that will be directly affected by the works will be engaged with at an early stage.

13. RISK LOG

Risk No	Risk Description	Likelihood Unlikely Possible Probable Certain	Impact Minor Significant Serious Major	Planned Actions to Reduce Risk	Responsible Officer
1	Expectations on the effectiveness of the proposed system are realistic and achievable	Probable	Serious	Produce an full M&E design with a fully interfaced control strategy	Principal Designer and Controls Engineer
2	The requirement for Planning Consent delays the scheme from proceeding to procurement in November 2015	Possible	Significant	Include for full consultation with LPA during the design stages	Principal Designer
3	The project will not be delivered prior to the start of the cooling season (May 2016)	Possible	Significant	The programme must be driven by the Project Team, Principal Designer and Contractor. Liquidated damages are to be included in the contract particulars.	Project Team, Principal Designer and Controls Engineer
4	Project costs exceed budget due to extra costs associated with out of hours working	Possible	Significant	Project Phasing to be part of the tender evaluation quality assessment.	Project Team, Principal Designer
5	Decanting of staff becomes necessary due to disruption of	Unlikely	Minor	As 3 above – progress to be monitored by the	Project Team

	staff or due to H&S concerns.			project team and PD	
6	Project is delayed due to key equipment not delivered as per programme	Possible	Significant	Contract procedures i.e. award of contract /LOI will allow the contractor to order key equipment in advance with just in time planned delivery.	Principal Designer and Controls Engineer
7	Structural works are excessive in order to mount the plant on the proposed roof area	Possible	Serious	Early involvement of Structural Engineer.	Principal Designer and Structural Engineer