Inspection 08/03/2017
Dakota House

De Havilland Drive, Weybridge, Surrey, KT13 OYP

Created: 8 Mar 2017
Last Updated: 10 Mar 2017
Prepared for: Temperature Control

48	100%	0
TESTS COMPLETED	OVERALL SCORE	ACTIONS REQUIRED

RESPONSIBLE PERSON	ACTIONS ASSIGNED
Chris Jepson	0 (0%)
Unassigned	0 (0%)

Prepared by Mike NANKIVELL F.Inst.R
Auditor: Mike Nankivell with Mark Hewett

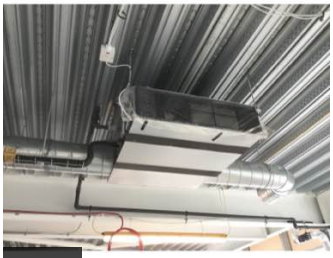
MITSUBISHI ELECTRIC

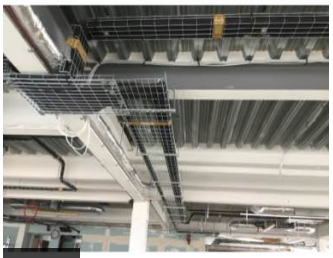
	RESULT	COMMENTS
INSTALLATION AUDIT POINT		
1.1 First Fix?	Pass	First fix is 100% complete
1.2 Second Fix?	Pass	Second fix is approx 80% complete.
1.3 Pre-commissioning?	N/A	Site is not yet at this stage.
1.4 Being Commissioned?	N/A	Site is not yet at this stage, completion expected mid to end April.


1.2 A

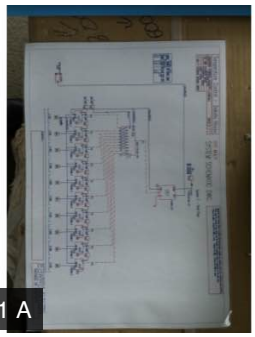

1.2 B


1.2 C

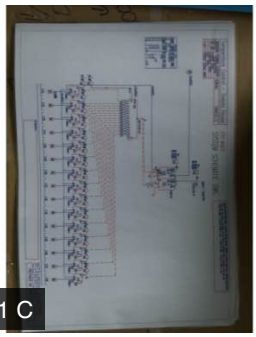

1.2 D

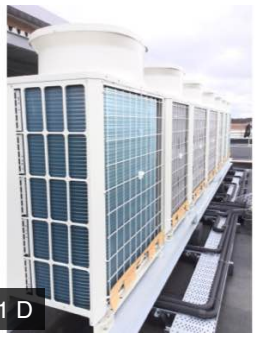

1.2 E

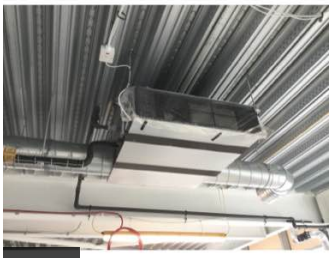
PROJECT OVERVIEW		
2.1 What system(s) has been installed?	Pass	VRF R2 with PEFY fan coils, Lossnay LGH 100, 3 AE200 Centralised Control - ground, first and shared for second and third. 1 x PWFY boiler unit for domestic hot water services. See typical schematics.


2.1 A

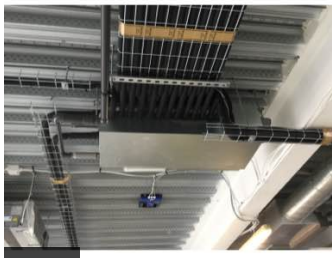

2.1 B


2.1 C


2.1 D

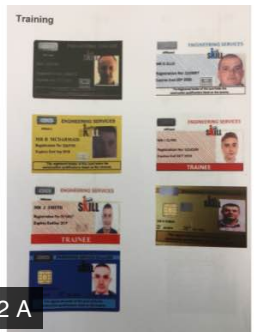


2.1 E



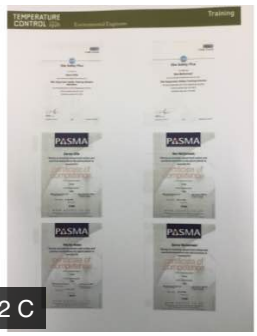
2.1 F

CONTRACTOR PERSONNEL ON SITE INFORMATION		
3.1 Site Manager/Project Manager	Pass	Chris Jepson - project engineer Darren Ellis - site Supervisor Comprehensive records relating to training and skill cards etc., were available in site office.
3.2 Installation Engineers	Pass	Daniel McDarmaid Ben McDarmaid Darren Ellis - Site Supervisor Comprehensive records relating to all site personnel were available in site office. Most evidence was taken from site record but actual sample skill cards also photographed.
3.3 Commissioning Engineers	N/A	Site not yet at this stage.



3.2 A

3.2 B



3.2 C

3.2 D

3.2 E

3.2 F

3.2 G

3.2 H

3.2 I

DQP INSTALLATION ENGINEER

4.1 Does/Do engineer(s) have Skill Card available for inspection?	Pass	Details of skill cards were available in comprehensive records in site office. A copy of this is available upon request.
4.2 Does/Do engineer(s) have F Gas qualification?	Pass	All relevant engineers hold F Gas qualifications records of which are held in site office.
4.3 Does/Do engineer(s) have time served industry qualification(s)?	Pass	Engineers hold time served qualifications and full details are available in site office records.
4.4 Is/Are the engineer(s) a directly employed engineer(s) of the DQP Company?	Pass	All engineers on this site are directly employed by Temperature Control.
4.5 Has/Have the engineer(s) attended any Mitsubishi Electric courses?	Pass	Advised that Temperature Control engineers regularly attend Mitsubishi Electric courses.
PERSONAL PROTECTIVE EQUIPMENT		
5.1 Does/Do the engineer(s) comply with site PPE requirements?	Pass	Full PPE required on this site. Access to site is via site office where visitor book must be signed. Access to building is via turnstyle with fingerprint security system.

5.1 A

TOOLS AND TEST EQUIPMENT		
6.1 Oxy/Acetylene bottles and trolley and/or Mapp Gas	Pass	In evidence on roof.
6.2 Oxygen Free Nitrogen manifold	Pass	OFN manifolds witnessed on roof.
6.3 Vacuum Pump	Pass	Vacuum pump not in use on site but seen in Temperature Control vehicle.
6.4 Refrigerant gauge manifold	Pass	Refrigerant gauge manifold seen on roof.
6.5 Torr gauge	Pass	Torr gauge not in use on site but seen in Temperature Control vehicle.
6.6 Installation tools eg. cutters, flaring/swaging block, benders	Pass	Various installation tools seen on site.
6.7 Digital Multimeter	Pass	Digital Multimeter not in use on site but seen in Temperature Control vehicle.
6.8 Fire extinguisher	Pass	Site fIre extinguisher stations were seen on each floor, in addition Temperature had their own fire extinguishers positioned near work areas.
6.9 Non - brazing mechanical joint tools and installation equipment	Pass	Various tools and items of equipment seen in use.
6.10 110v transformers and leads (if applicable)	Pass	110v Transformers were available at various locations.


6.1 A


6.2 A


6.2 B

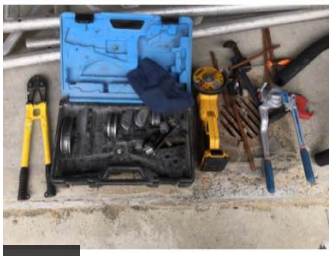

6.2 C


6.3 A

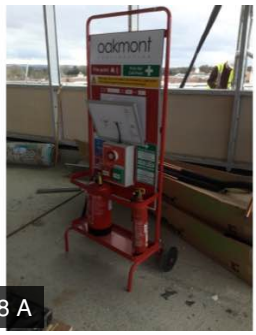

6.4 A


6.5 A


6.6 A


6.6 B

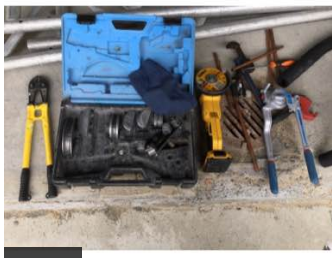

6.7 A



6.8 A

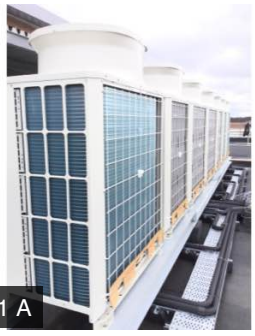

6.8 B

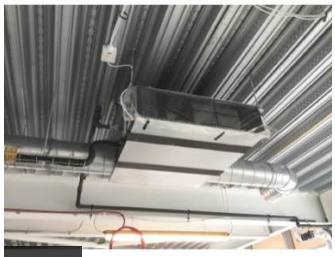

6.9 A


6.9 B


6.10 A

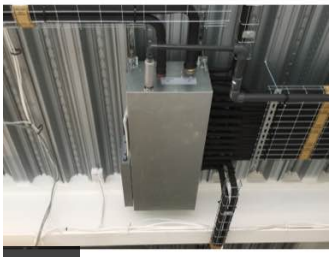
MATERIALS		
7.1 Are all materials suitable for the job they are intended for?	Pass	All materials are suitable for the project.
7.2 Are all the materials stored in a suitable environment with the ends capped off to prevent any moisture ingress?	Pass	A secure container on site is being to store materials such as copper pipe, pipe and cable trays, cabling and Armaflex etc. Stored copper pipe all had capped ends.

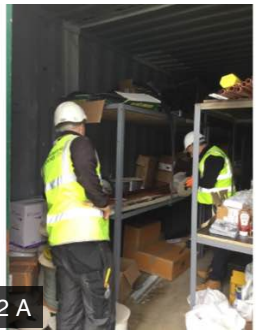

7.1 A


7.1 B

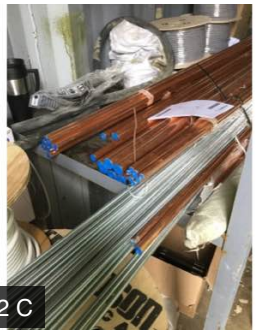

7.1 C


7.1 D


7.1 E


7.2 A

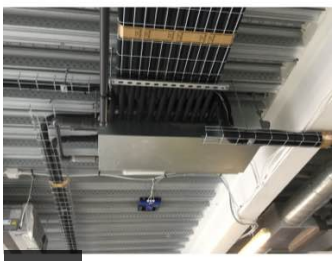

7.2 B


7.2 C

SYSTEM INSTALLATION - PIPEWORK		
8.1 Has ACR grade copper pipework been used?	Pass	ACR grade copper pipework has been used throughout.
8.2 Have allowances been made to keep pipework clean and tidy?	Pass	Every effort has been made to keep pipework (and all materials) clean and tidy.
8.3 Has the use of OFN been witnessed during brazing?	Pass	No brazing was in progress during audit but OFN was witnessed as in use on site.
8.4 Have all unfinished copper pipework ends been capped/sealed off?	Pass	No unfinished copper pipework was seen during audit but copper pipe being made ready for use was seen to be capped.
8.5 Is the support infrastructure adequate enough to support the refrigerant pipework and to acceptable distances?	Pass	The support infrastructure is adequate to support the refrigerant pipework and to acceptable distances.
8.6 Has the support infrastructure been installed neat and tidy?	Pass	The support infrastructure is particularly neat and tidy given the number of sets required to keep the pipework as high as possible. Refrigerant pipe supports also feature labels at regular intervals displaying the refrigerant gas type in the pipework.
8.7 Has the pipework been installed neat and tidy?	Pass	The pipework throughout this site has been installed to a very high level of neatness.
8.8 Has the Armaflex insulation been installed neat and tidy with adequate vapour seal?	Pass	All Armaflex is installed in a tidy fashion with adequate vapour seals throughout.


8.1 A


8.2 A

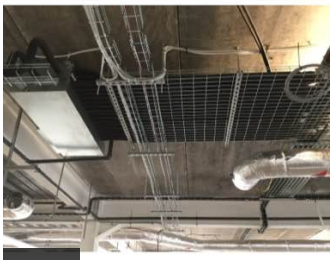

8.2 B


8.2 C


8.3 A


8.4 A


8.5 A


8.5 B


8.5 C


8.6 A


8.6 B

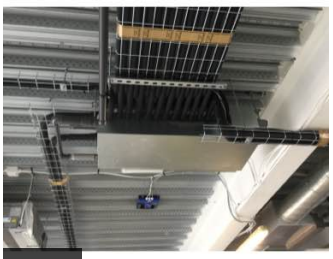

8.6 C


8.6 D


8.7 A


8.7 B


8.7 C


8.7 D


8.8 A


8.8 B

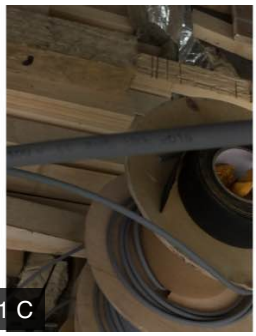

8.8 C


8.8 D

SYSTEM INSTALLATION - WIRING		
9.1 Has M-Net communication cable been installed using >1.25mm 2 core screened cable?	Pass	1.5mm 2 core screened communication cabling has been used.
9.2 Has M-Net communication cable been installed away from mains cables?	Pass	M-Net communication cable has been installed away from mains cables.
9.3 Have isolators been installed adjacent to I/U's?	Pass	Isolators seen installed adjacent to indoor units.
9.4 Have isolators been installed adjacent to O/U's?	Pass	Isolators seen adjacent to outdoor units (not obvious in photographs).
9.5 Have isolators been installed adjacent to BC's (if applicable)	Pass	Isolators seen adjacent to BCs.

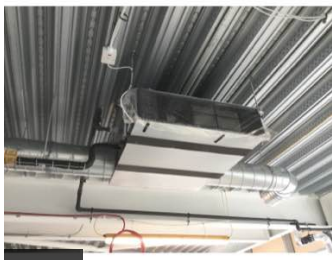

9.1 A

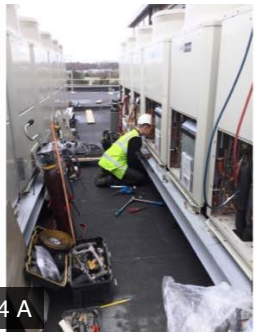

9.1 B

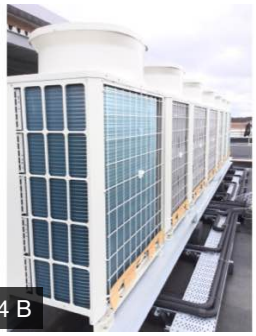

9.1 C


9.3 A


9.3 B

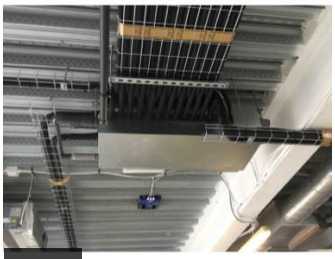

9.3 C


9.4 A


9.4 B


9.4 C


9.5 A


9.5 B

SYSTEM INSTALLATION - CONDENSATE DRAINS		
10.1 Has the condensate drain pipework and/or infrastructure been installed neat and tidy?	Pass	Condensate drain pipework is all well installed and tidy.
10.2 Has the condensate drain pipework and/or condensate pumps been installed to allow access for cleaning and maintenance on the I/U's	Pass	Installation enables access for cleaning and maintenance on I/U's
10.3 Has the condensate drain pipework been installed with a gradual fall throughout?	Pass	A gradual fall is evident.
10.4 Is condensation removed via condensate pumps, gravity or a combination of both?	Pass	Condensate drains are all gravity - no pumps.
10.5 Where has the condensate pipework been terminated?	Pass	Condensate pipework terminates in various toilets.


10.1 A


10.1 B


10.1 C


10.1 D

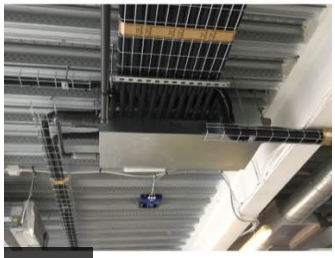

10.2 A


10.3 A

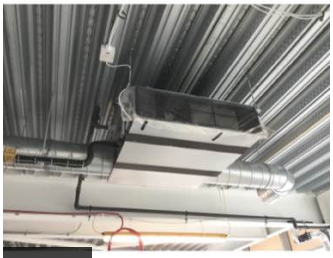

10.5 A

SYSTEM INSTALLATION - ACCESS		
11.1 Have the BC boxes been installed so that they are accessible for Service and Maintenance? (R2 only)	Pass	BC boxes are positioned such that good access for service and maintenance is available via suspended ceiling panels.
11.2 Have the I/U's been installed so that they are accessible for Service and Maintenance, eg filters and control boxes?	Pass	I/U's have been installed such that good access is available via suspended ceiling panels (not yet installed).
11.3 Have the O/U's been installed so that they are accessible for Service and Maintenance?	Pass	Good access is available to outdoor units on the roof.
11.4 Have the O/U's been installed so as to negate any short cycling issues?	Pass	There would be no short cycling issues with the outdoor units as positioned.


11.1 A


11.1 B


11.2 A

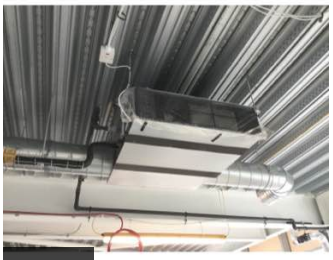

11.2 B


11.3 A


11.3 B


11.4 A

SYSTEM INSTALLATION - ENVIRONMENT		
12.1 If the installation environment is dirty and dusty, has every precaution been taken to protect and seal the I/U's?	Pass	All installed indoor units seen had protective covers to protect and seal the units.
12.2 If the installation environment is dirty and dusty, has every precaution been taken to protect the O/U's?	N/A	The environment in area of outdoor units is not consider dirty or dusty



12.1 A

SYSTEM INSTALLATION - COMPLETED		
13.1 Was strength testing procedure witnessed or test record shown?	N/A	Site not at this stage.
13.2 Was leak pressure testing procedure witnessed or test record shown?	N/A	Site not at this stage.
13.3 Was evacuation test procedure witnessed or test record shown?	N/A	Site not at this stage.
13.4 Was additional refrigerant charge witnessed or calculation shown?	N/A	Site not at this stage.
13.5 Was electrical test certificate shown?	N/A	Site not at this stage.
FAIL AND/OR ADVISORY SUMMARY		
14.1 Fail Points	Pass	No fail points - an exceptional installation.
14.2 Advisory Points	Pass	No advisory points, no issues found anywhere on this site.

FINAL COMMENTS

This is an exceptional standard of installation that Temperature Control can be justly proud.

SIGNEES

Mike Nankivell
Auditor

Chris Jepson
Project Engineer