Plumbing work log exemplar

Ian Hall
9189

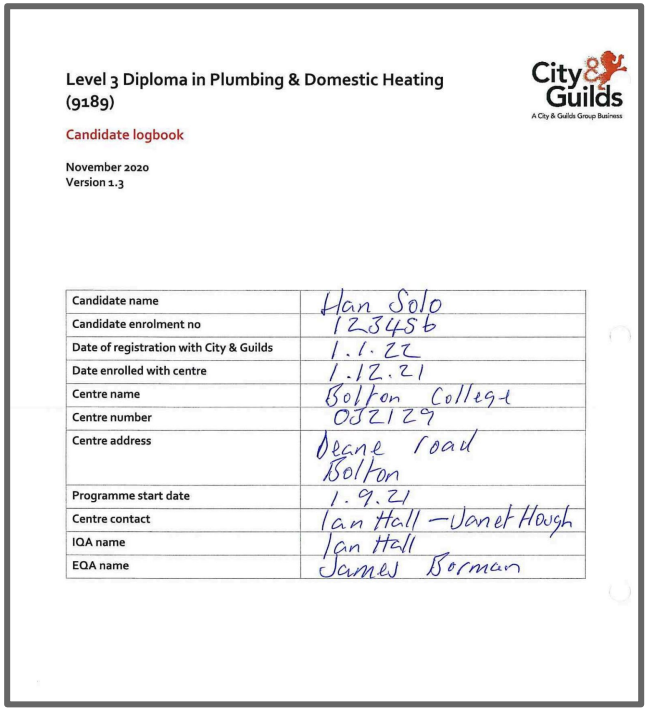
LO 1-5 (example Documents)

Click on each LO to be taken to the section you require to view or just work through the full slide deck covering Learning Outcomes 1-5 along with some example documentation after all 5 Learning Outcomes.

Centre and personal detail

Center and personal details section

Example



Level 3 Diploma in Plumbing & Domestic Heating (9189)

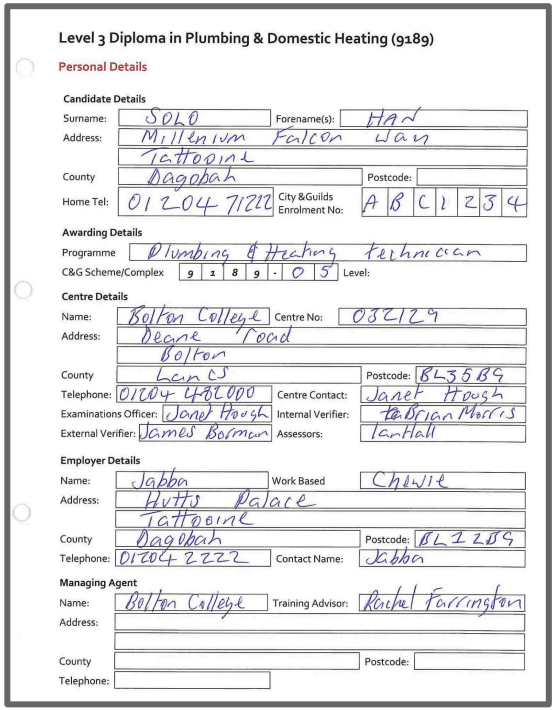
City & Guilds
A City & Guilds Group Business

Candidate logbook

November 2020
Version 1.3

Candidate name	Han Solo
Candidate enrolment no	12345b
Date of registration with City & Guilds	1.1.22
Date enrolled with centre	1.12.21
Centre name	Bolton College
Centre number	032129
Centre address	Deane road Bolton
Programme start date	1.9.21
Centre contact	Ian Hall – Janet Hough
IQA name	Ian Hall
EQA name	James Borman

Example



Level 3 Diploma in Plumbing & Domestic Heating (9189)

Personal Details

Candidate Details

Surname: SOLO Forename(s): HAN
Address: Millenium Falcon Han
Tattooine
County: Dagobah Postcode:
Home Tel: 01204 71222 City &Guilds Enrolment No: A B C 1 2 3 4

Awarding Details

Programme: Plumbing & Heating Technician
C&G Scheme/Complex: 9 1 8 9 - 0 5 Level:

Centre Details

Name: Bolton College Centre No: 032129
Address: Deane Road
Bolton
County: Lancs Postcode: BL3 5BG
Telephone: 01204 482000 Centre Contact: Janet Hough
Examinations Officer: Janet Hough Internal Verifier: Ta Brian Morris
External Verifier: James Borman Assessors: Ian Hall

Employer Details

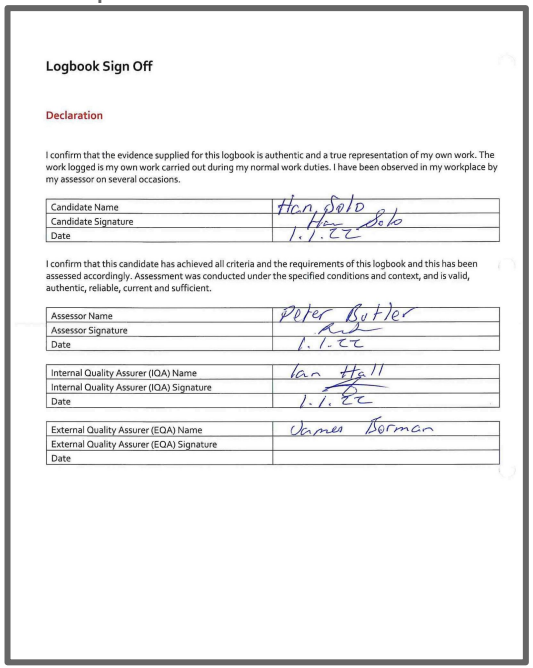
Name: Jabba Work Based Chewie
Address: Huttis Palace
Tattooine
County: Dagobah Postcode: BL1 2BS
Telephone: 01204 2222 Contact Name: Jabba

Managing Agent

Name: Bolton College Training Advisor: Rachel Farrington
Address:
County: Postcode:
Telephone:

Center and personal details section

Example



Logbook Sign Off

Declaration

I confirm that the evidence supplied for this logbook is authentic and a true representation of my own work. The work logged is my own work carried out during my normal work duties. I have been observed in my workplace by my assessor on several occasions.

Candidate Name	Han Solo
Candidate Signature	Han Solo
Date	1.1.22

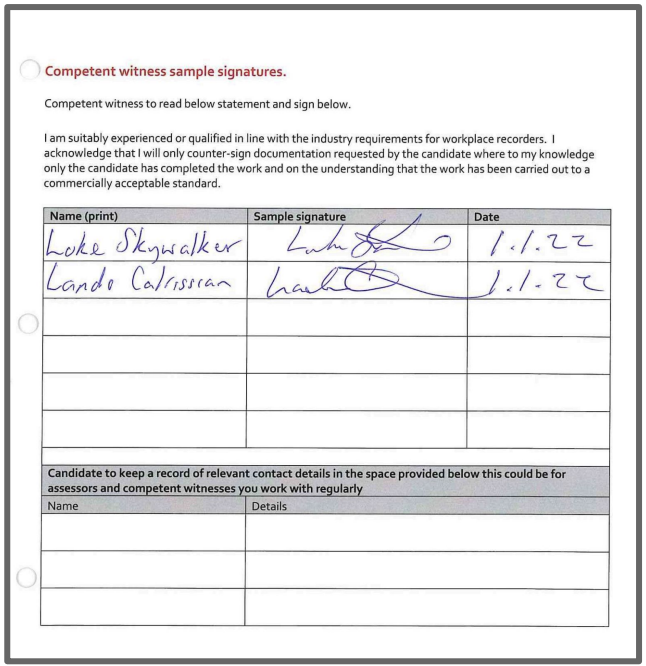
I confirm that this candidate has achieved all criteria and the requirements of this logbook and this has been assessed accordingly. Assessment was conducted under the specified conditions and context, and is valid, authentic, reliable, current and sufficient.

Assessor Name	Peter Butler
Assessor Signature	
Date	1.1.22

Internal Quality Assurer (IQA) Name	Ian Hall
Internal Quality Assurer (IQA) Signature	
Date	1.1.22

External Quality Assurer (EQA) Name	James Borman
External Quality Assurer (EQA) Signature	
Date	

Example



Competent witness sample signatures.

Competent witness to read below statement and sign below.

I am suitably experienced or qualified in line with the industry requirements for workplace recorders. I acknowledge that I will only counter-sign documentation requested by the candidate where to my knowledge only the candidate has completed the work and on the understanding that the work has been carried out to a commercially acceptable standard.

Name (print)	Sample signature	Date
Luke Skywalker	Luke Skywalker	1.1.22
Lando Calrissian	Lando Calrissian	1.1.22

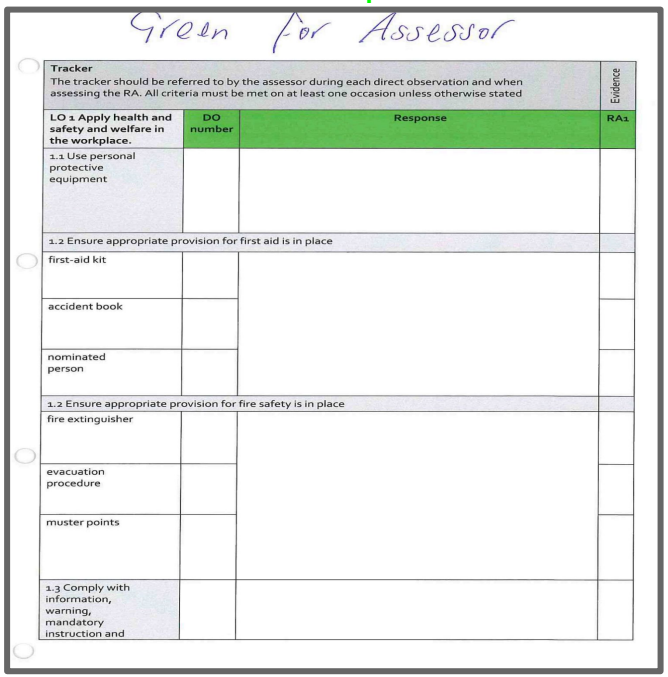
Candidate to keep a record of relevant contact details in the space provided below this could be for assessors and competent witnesses you work with regularly

Name	Details

Learning Outcome 1

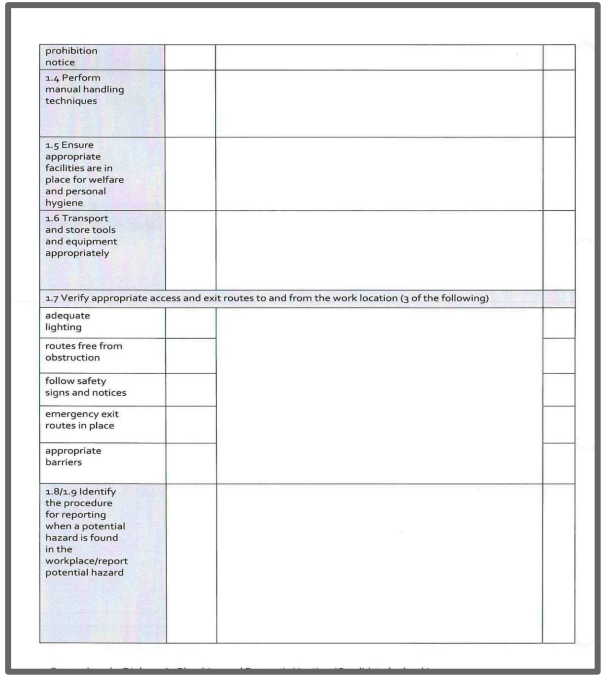
Learning outcome 1

Assessor to complete

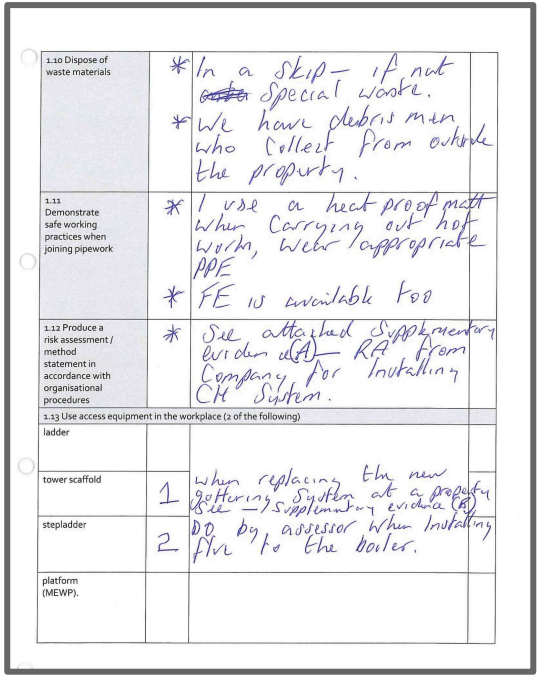


Green for Assessor

Tracker The tracker should be referred to by the assessor during each direct observation and when assessing the RA. All criteria must be met on at least one occasion unless otherwise stated			Evidence
LO 1 Apply health and safety and welfare in the workplace.	**DO number**	**Response**	**RA1**
1.1 Use personal protective equipment			
1.2 Ensure appropriate provision for first aid is in place			
first-aid kit			
accident book			
nominated person			
1.2 Ensure appropriate provision for fire safety is in place			
fire extinguisher			
evacuation procedure			
muster points			
1.3 Comply with information, warning, mandatory instruction and			



prohibition notice			
1.4 Perform manual handling techniques			
1.5 Ensure appropriate facilities are in place for welfare and personal hygiene			
1.6 Transport and store tools and equipment appropriately			
1.7 Verify appropriate access and exit routes to and from the work location (3 of the following)			
adequate lighting			
routes free from obstruction			
follow safety signs and notices			
emergency exit routes in place			
appropriate barriers			
1.8/1.9 Identify the procedure for reporting when a potential hazard is found in the workplace/report potential hazard			



1.10 Dispose of waste materials	*	In a skip – if not ~~other~~ special waste. * We have debris men who collect from outside the property.	
1.11 Demonstrate safe working practices when joining pipework	*	I use a heat proof matt when carrying out hot work, wear appropriate PPE * FE is available too	
1.12 Produce a risk assessment / method statement in accordance with organisational procedures	*	See attached supplementary evidence (A) – RA from Company for installing CH System.	
1.13 Use access equipment in the workplace (2 of the following)			
ladder			
tower scaffold	1	When replacing the new guttering System at a property see – Supplementary evidence (K)	
stepladder	2	DO by assessor when installing flu to the boiler.	
platform (MEWP).			

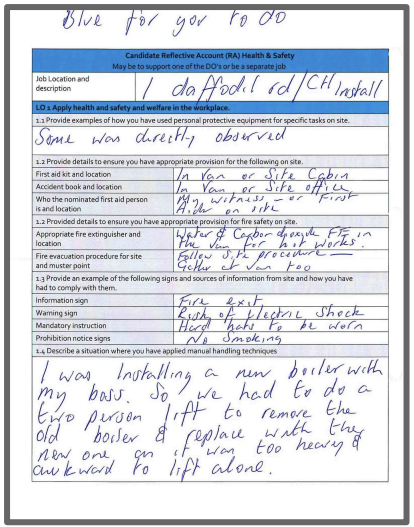
LO1 detail that will appear

In the previous slide it featured GREEN content, this is for the Assessor to complete. It is here where they will record your progress of this Learning Outcome.

It may have **DO1, DO2 or RA1, RA2** ***(meaning they were seen when the candidate was directly observed or the candidate created a reflective account to evidence how they achieved the criteria with a signature from their expert witness from page 11 of the work log).***

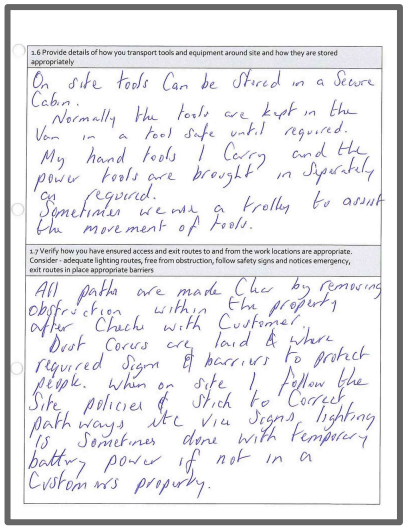
Learning outcome 1

Candidate to complete



Blue for you to do

Candidate Reflective Account (RA) Health & Safety May be to support one of the DO's or be a separate job	
Job Location and description	1 daffodil rd / CH1 Install
1.0 Apply health and safety and welfare in the workplace.	
1.1 Provide examples of how you have used personal protective equipment for specific tasks on site.	
Some was directly observed	
1.2 Provide details to ensure you have appropriate provision for the following on site.	
First aid kit and location	In Van or Site Cabin
Accident book and location	In Van or Site office
Who the nominated first aid person is and location	My witness – or First Aider on site
1.2 Provided details to ensure you have appropriate provision for fire safety on site.	
Appropriate fire extinguisher and location	Water & Carbon dioxide FE in the Van for hot works.
Fire evacuation procedure for site and muster point	Follow the procedure — Gather at van too
1.3 Provide an example of the following signs and sources of information from site and how you have had to comply with them.	
Information sign	Fire exit
Warning sign	Risk of electric shock
Mandatory instruction	Hard hats to be worn
Prohibition notice signs	No Smoking
1.4 Describe a situation where you have applied manual handling techniques	
I was installing a new boiler with my boss. So we had to do a two person lift to remove the old boiler & replace with the new one as it was too heavy & awkward to lift alone.	

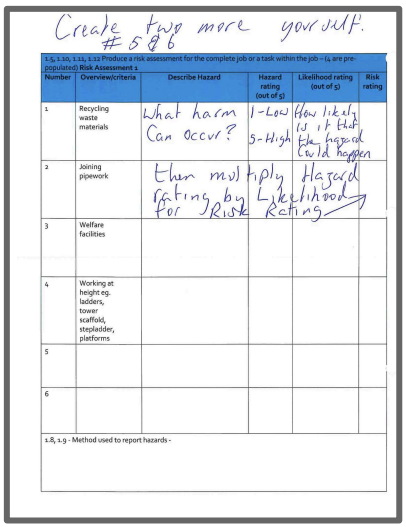


1.6 Provide details of how you transport tools and equipment around site and how they are stored appropriately

On site tools can be stored in a Secure Cabin.
Normally the tools are kept in the Van in a tool safe until required.
My hand tools I carry and the power tools are brought in Separately as required.
Sometimes we use a trolley to assist the movement of tools.

1.7 Verify how you have ensured access and exit routes to and from the work locations are appropriate. Consider - adequate lighting routes, free from obstruction, follow safety signs and notices emergency, exit routes in place appropriate barriers

All paths are made Clear by removing obstruction within the property after Check with Customer.
Dust Covers are laid & where required Signs & barriers to protect people. When on site I follow the Site policies & stick to Correct pathways etc via Signs, lighting is Sometimes done with Temporary battery power if not in a Customers property.

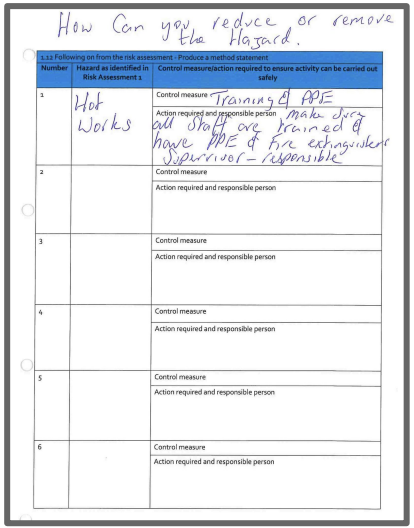


Create two more yourself. #5 #6

1.5, 1.10, 1.11, 1.12 Produce a risk assessment for the complete job or a task within the job - (4 are pre-populated) Risk Assessment 1

Number	Overview/criteria	Describe Hazard	Hazard rating (out of 5)	Likelihood rating (out of 5)	Risk rating
1	Recycling waste materials	What harm Can occur?	1-Low 5-High	How likely is it that the hazard Could happen	
2	Joining pipework	Then multiply Hazard rating by Likelihood for Risk Rating →			
3	Welfare facilities				
4	Working at height eg. ladders, tower scaffold, stepladder, platforms				
5					
6					

1.8, 1.9 - Method used to report hazards -



How Can you reduce or remove the Hazard.

1.12 Following on from the risk assessment - Produce a method statement

Number	Hazard as identified in Risk Assessment 1	Control measure/action required to ensure activity can be carried out safely
1	Hot Works	Control measure – Training & PPE Action required and responsible person – Make sure all staff are trained & have PPE & fire extinguishers Supervisor – responsible
2		Control measure Action required and responsible person
3		Control measure Action required and responsible person
4		Control measure Action required and responsible person
5		Control measure Action required and responsible person
6		Control measure Action required and responsible person

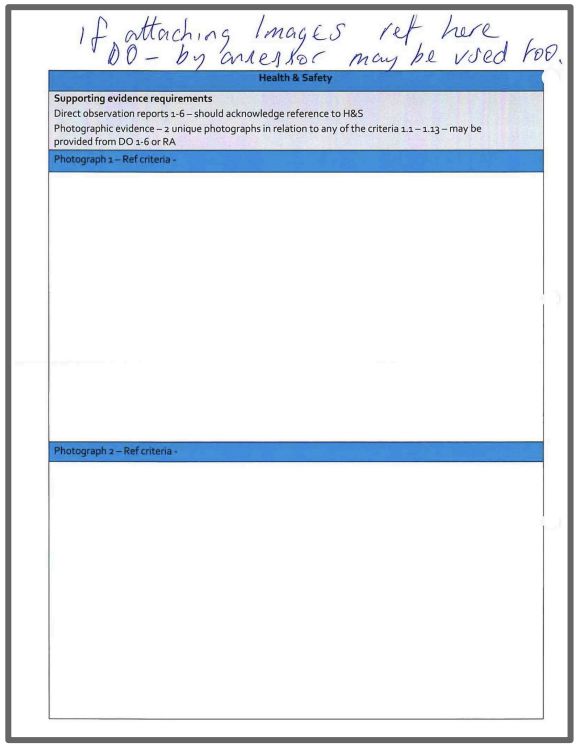
LO1 detail that will appear

In the previous slide it featured BLUE content, this is for the Candidate to complete. It is here you will record your progress of this Learning Outcome.

You will have completed some tasks and record them with **RA1, RA2** ***(meaning the candidate created a reflective account to evidence how they achieved the criteria with a signature from their expert witness from page 11 of the work log).***

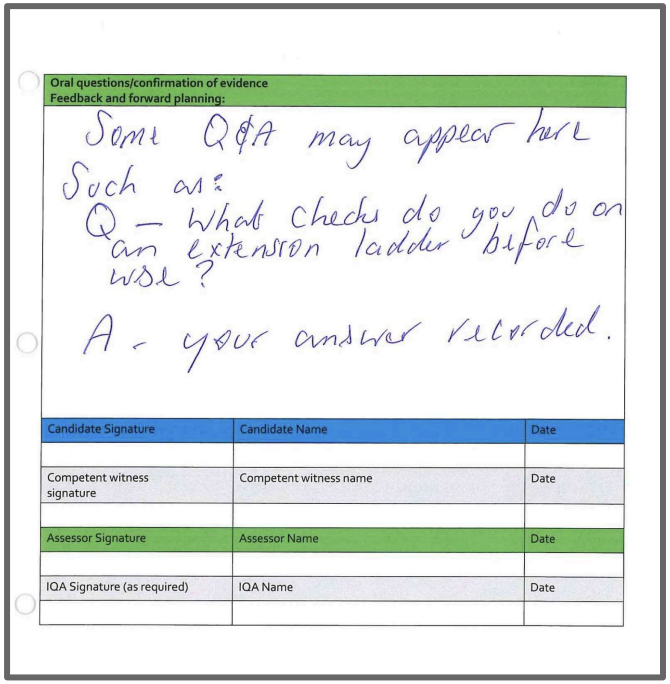
Learning outcome 1

Assessor & Candidate



If attaching Images ref here DO - by assessor may be used too.

Health & Safety
Supporting evidence requirements Direct observation reports 1-6 – should acknowledge reference to H&S Photographic evidence – 2 unique photographs in relation to any of the criteria 1.1 – 1.13 – may be provided from DO 1-6 or RA
Photograph 1 – Ref criteria -
Photograph 2 – Ref criteria -



Oral questions/confirmation of evidence Feedback and forward planning:
Some Q&A may appear here Such as: Q – What checks do you do on an extension ladder before use? A - your answer recorded.

Candidate Signature	Candidate Name	Date
Competent witness signature	Competent witness name	Date
Assessor Signature	Assessor Name	Date
IQA Signature (as required)	IQA Name	Date

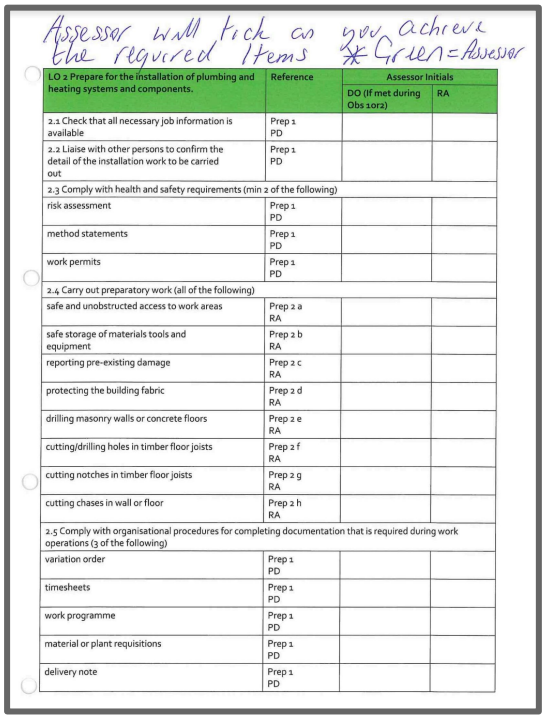
LO1 detail that will appear

In the previous slide it featured BLUE and GREEN content, this is for the Candidate and the Assessor to complete. It is here you will record your progress of this Learning Outcome along with any supplementary evidence and the assessor will ask any questions and record the answers relating to the Learning Outcome and offer some feedback and forward planning.

Learning Outcome 2

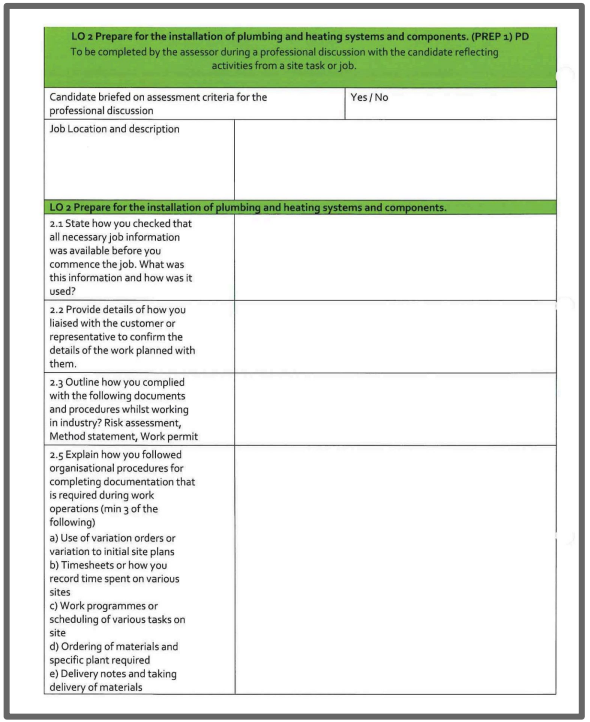
Learning outcome 2

GREEN for Assessor to complete



Assessor will tick as you achieve the required items *Green = Assessor

LO 2 Prepare for the installation of plumbing and heating systems and components.	Reference	Assessor Initials	
		DO (If met during Obs 1or2)	RA
2.1 Check that all necessary job information is available	Prep 1 PD		
2.2 Liaise with other persons to confirm the detail of the installation work to be carried out	Prep 1 PD		
2.3 Comply with health and safety requirements (min 2 of the following)			
risk assessment	Prep 1 PD		
method statements	Prep 1 PD		
work permits	Prep 1 PD		
2.4 Carry out preparatory work (all of the following)			
safe and unobstructed access to work areas	Prep 2 a RA		
safe storage of materials tools and equipment	Prep 2 b RA		
reporting pre-existing damage	Prep 2 c RA		
protecting the building fabric	Prep 2 d RA		
drilling masonry walls or concrete floors	Prep 2 e RA		
cutting/drilling holes in timber floor joists	Prep 2 f RA		
cutting notches in timber floor joists	Prep 2 g RA		
cutting chases in wall or floor	Prep 2 h RA		
2.5 Comply with organisational procedures for completing documentation that is required during work operations (3 of the following)			
variation order	Prep 1 PD		
timesheets	Prep 1 PD		
work programme	Prep 1 PD		
material or plant requisitions	Prep 1 PD		
delivery note	Prep 1 PD		



LO 2 Prepare for the installation of plumbing and heating systems and components. (PREP 1) PD To be completed by the assessor during a professional discussion with the candidate reflecting activities from a site task or job.	
Candidate briefed on assessment criteria for the professional discussion	Yes / No
Job Location and description	
LO 2 Prepare for the installation of plumbing and heating systems and components.	
2.1 State how you checked that all necessary job information was available before you commence the job. What was this information and how was it used?	
2.2 Provide details of how you liaised with the customer or representative to confirm the details of the work planned with them.	
2.3 Outline how you complied with the following documents and procedures whilst working in industry? Risk assessment, Method statement, Work permit	
2.5 Explain how you followed organisational procedures for completing documentation that is required during work operations (min 3 of the following) a) Use of variation orders or variation to initial site plans b) Timesheets or how you record time spent on various sites c) Work programmes or scheduling of various tasks on site d) Ordering of materials and specific plant required e) Delivery notes and taking delivery of materials	

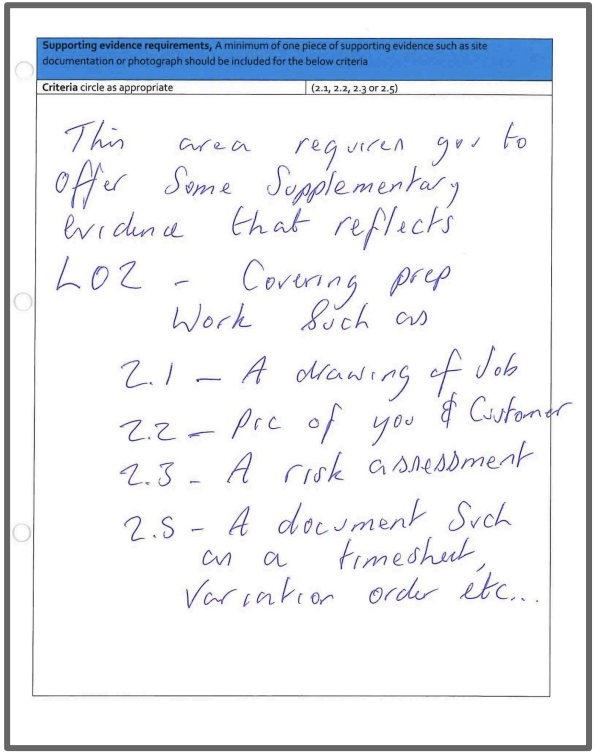
Learning outcome 2

On the previous slide you will have noticed it is again a GREEN checklist for the assessor to record how you completed the required criteria from Learning Outcome 2.

It may have **DO1, DO2 or RA1, RA2** ***(meaning they were seen when the candidate was directly observed or the candidate created a reflective account to evidence how they achieved the criteria with a signature from their expert witness from page 11 of the work log).***

Learning outcome 2

BLUE for Candidate to complete



Supporting evidence requirements, A minimum of one piece of supporting evidence such as site documentation or photograph should be included for the below criteria

Criteria circle as appropriate | (2.1, 2.2, 2.3 or 2.5)

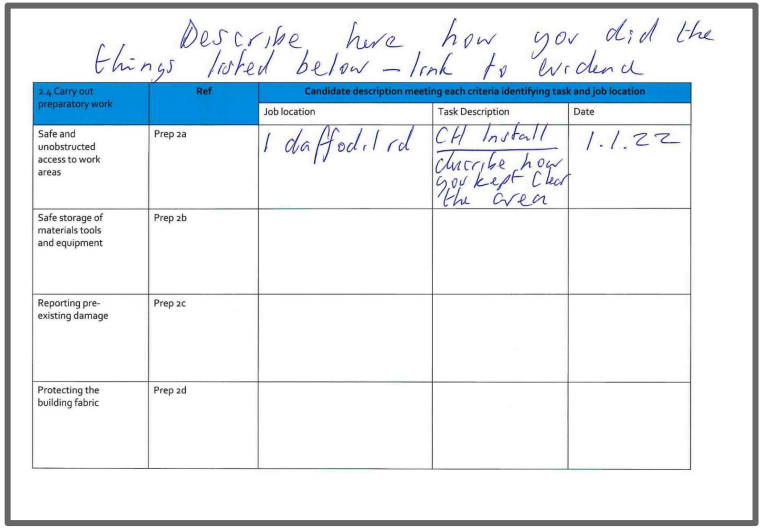
This area requires you to offer some supplementary evidence that reflects LO2 - Covering prep work such as

2.1 – A drawing of Job

2.2 – Pic of you & Customer

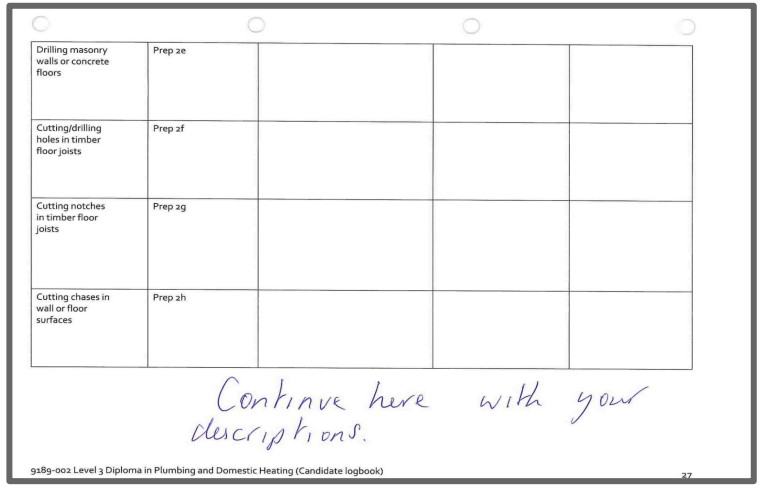
2.3 - A risk assessment

2.5 - A document such as a timesheet, Variation order etc...



Describe here how you did the things listed below – link to evidence

2.4 Carry out preparatory work	Ref	Candidate description meeting each criteria identifying task and job location		
		Job location	Task Description	Date
Safe and unobstructed access to work areas	Prep 2a	1 daffodil rd	CH Install describe how you kept Clear the area	1.1.22
Safe storage of materials tools and equipment	Prep 2b			
Reporting pre-existing damage	Prep 2c			
Protecting the building fabric	Prep 2d			



Drilling masonry walls or concrete floors	Prep 2e			
Cutting/drilling holes in timber floor joists	Prep 2f			
Cutting notches in timber floor joists	Prep 2g			
Cutting chases in wall or floor surfaces	Prep 2h			

Continue here with your descriptions.

Learning outcome 2

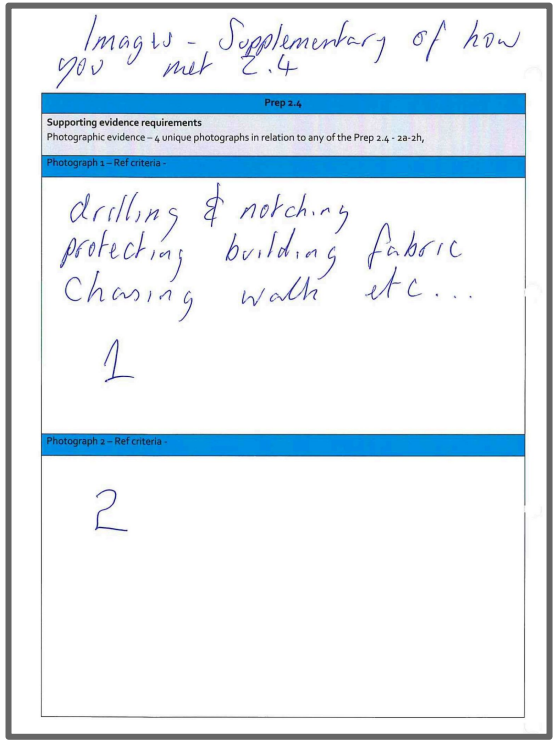
In the previous slide it featured BLUE content, this is for the Candidate to complete. It is here you will record your progress of this Learning Outcome.

You will have completed some tasks and record them with **RA1, RA2** ***(meaning the candidate created a reflective account to evidence how they achieved the criteria with a signature from their expert witness from page 11 of the work log).***

In addition to the above for this outcome, you are required to evidence the **Address, Job and Date** of how you met the preparatory work for this learning outcome on the grid/table provided.

Learning outcome 2

GREEN for Assessor and BLUE for the Candidate



Images - Supplementary of how you met 2.4

Prep 2.4

Supporting evidence requirements

Photographic evidence – 4 unique photographs in relation to any of the Prep 2.4 - 2a-2h,

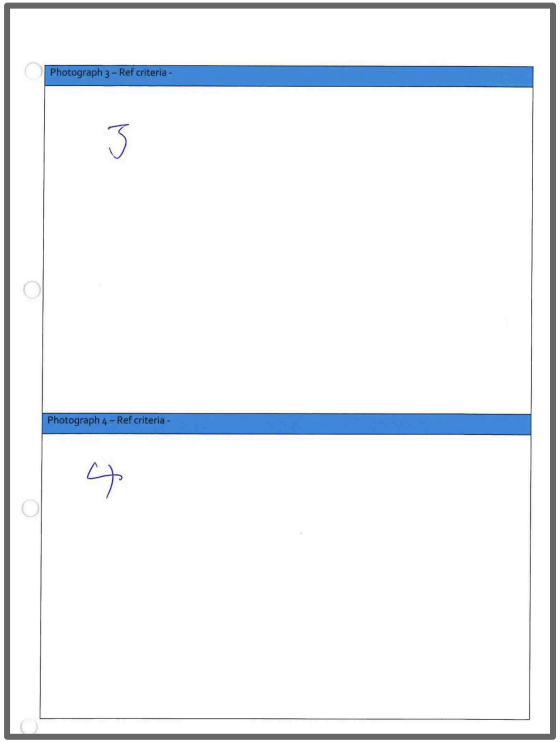
Photograph 1 – Ref criteria -

drilling & notching protecting building fabric Chasing walls etc...

1

Photograph 2 – Ref criteria -

2

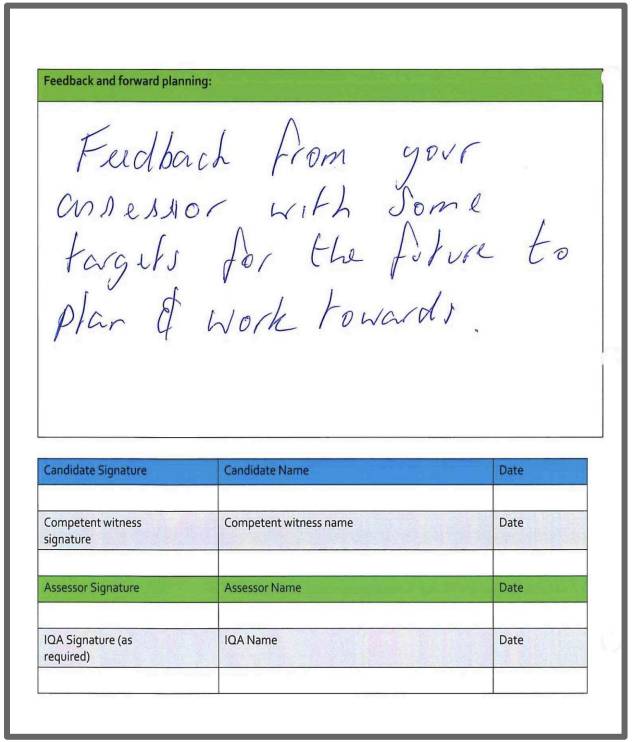


Photograph 3 – Ref criteria -

3

Photograph 4 – Ref criteria -

4



Feedback and forward planning:

Feedback from your assessor with some targets for the future to plan & work towards.

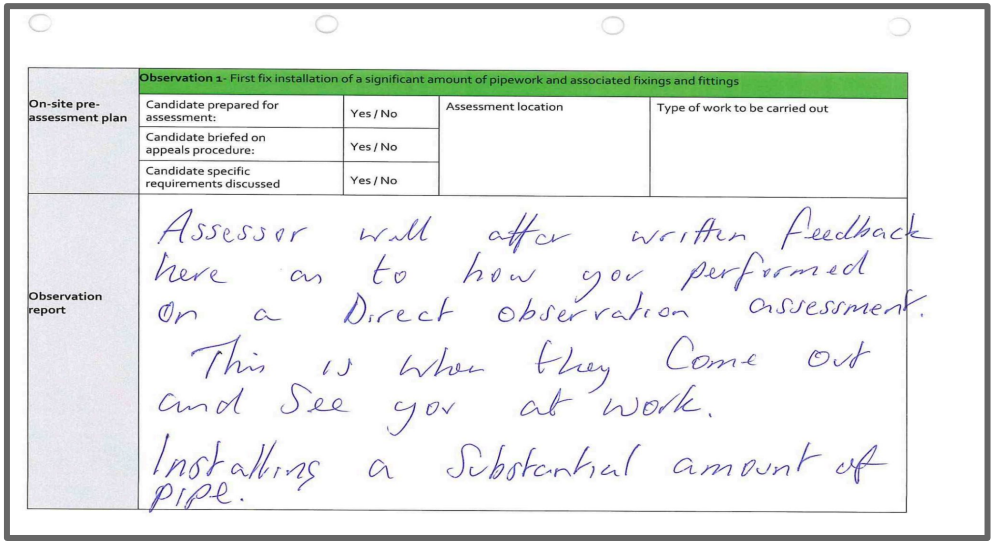
Candidate Signature	Candidate Name	Date
Competent witness signature	Competent witness name	Date
Assessor Signature	Assessor Name	Date
IQA Signature (as required)	IQA Name	Date

Learning outcome 2

Assessor observation report 1

for Installation of pipework

(substantial amount of pipework)



	Observation 1- First fix installation of a significant amount of pipework and associated fixings and fittings			
On-site pre-assessment plan	Candidate prepared for assessment:	Yes / No	Assessment location	Type of work to be carried out
	Candidate briefed on appeals procedure:	Yes / No		
	Candidate specific requirements discussed	Yes / No		
Observation report	Assessor will offer written feedback here as to how you performed on a Direct observation assessment. This is when they Come out and See you at work. Installing a Substantial amount of pipe.			

Example, installing a radiator in a hallway that was not there before. Lift floorboards to access pipework, access clear working pathways, drill fixings and clips install radiator and all pipework to radiator.

This example is a good example of the first fix for substantial pipework and will allow you to achieve a range of criteria from LO1 and LO2 simultaneously.

Learning outcome 2

GREEN Assessor

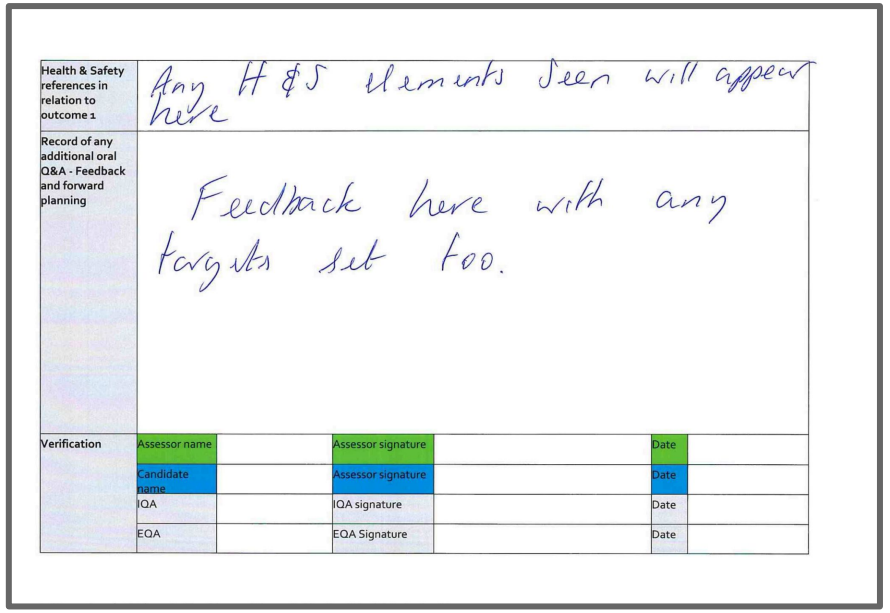
Reverse of observation

report from previous

slide.

Featuring H&S criteria

met and feedback with forward planning.



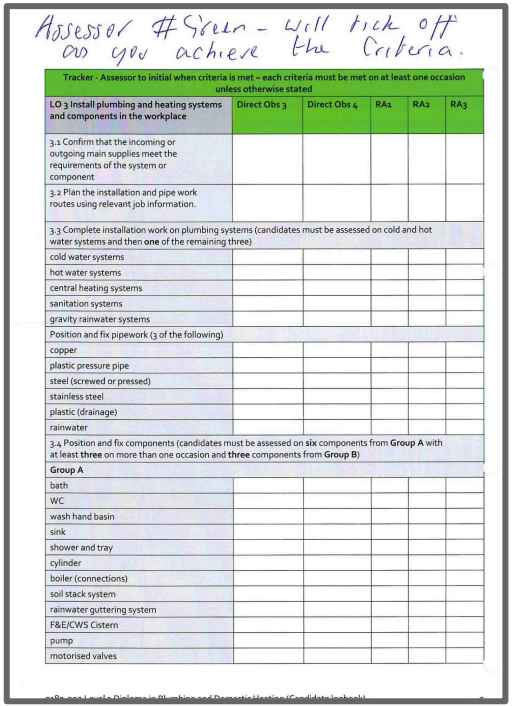
Health & Safety references in relation to outcome 1	Any H&S elements seen will appear here				
Record of any additional oral Q&A - Feedback and forward planning	Feedback here with any targets set too.				
Verification	Assessor name		Assessor signature	Date	
	Candidate name		Assessor signature	Date	
	IQA		IQA signature	Date	
	EQA		EQA Signature	Date	

Learning outcome 3

Learning outcome 3

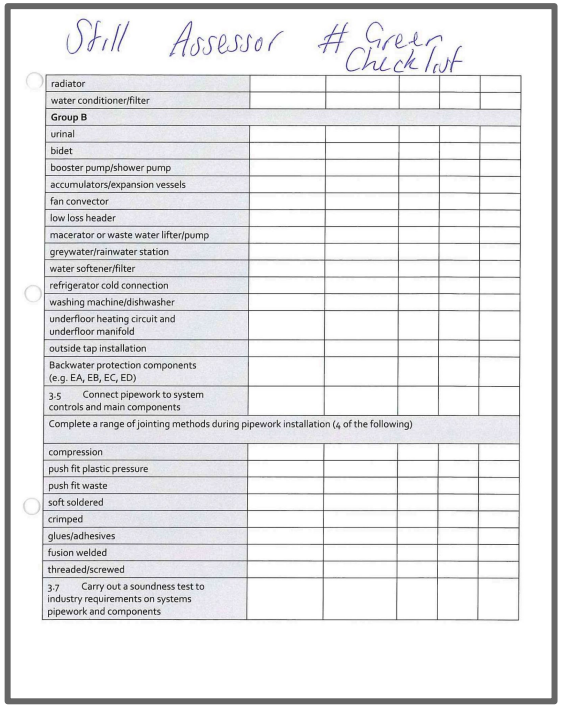
Assessor tracking document

Used to monitor progress on the Learning Outcome, ticked off as and when candidate is observed or alternative evidence is supplied such as a reflective account.



Assessor # Green - will tick off as you achieve the Criteria.

Tracker - Assessor to initial when criteria is met – each criteria must be met on at least one occasion unless otherwise stated					
LO 3 Install plumbing and heating systems and components in the workplace	**Direct Obs 3**	**Direct Obs 4**	**RA1**	**RA2**	**RA3**
3.1 Confirm that the incoming or outgoing main supplies meet the requirements of the system or component					
3.2 Plan the installation and pipe work routes using relevant job information.					
3.3 Complete installation work on plumbing systems (candidates must be assessed on cold and hot water systems and then **one** of the remaining three)					
cold water systems					
hot water systems					
central heating systems					
sanitation systems					
gravity rainwater systems					
Position and fix pipework (3 of the following)					
copper					
plastic pressure pipe					
steel (screwed or pressed)					
stainless steel					
plastic (drainage)					
rainwater					
3.4 Position and fix components (candidates must be assessed on **six** components from **Group A** with at least **three** on more than one occasion and **three** components from **Group B**)					
Group A					
bath					
WC					
wash hand basin					
sink					
shower and tray					
cylinder					
boiler (connections)					
soil stack system					
rainwater guttering system					
F&E/CWS Cistern					
pump					
motorised valves					



Still Assessor # Green Check list

radiator					
water conditioner/filter					
Group B					
urinal					
bidet					
booster pump/shower pump					
accumulators/expansion vessels					
fan convector					
low loss header					
macerator or waste water lifter/pump					
greywater/rainwater station					
water softener/filter					
refrigerator cold connection					
washing machine/dishwasher					
underfloor heating circuit and underfloor manifold					
outside tap installation					
Backwater protection components (e.g. EA, EB, EC, ED)					
3.5 Connect pipework to system controls and main components					
Complete a range of jointing methods during pipework installation (4 of the following)					
compression					
push fit plastic pressure					
push fit waste					
soft soldered					
crimped					
glues/adhesives					
fusion welded					
threaded/screwed					
3.7 Carry out a soundness test to industry requirements on systems pipework and components					

Learning outcome 3

Important Information

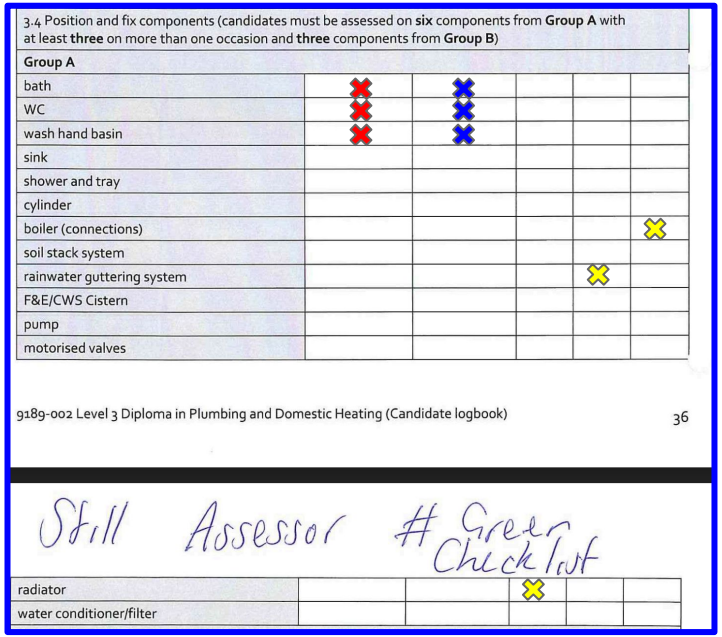
The slide you have just seen has a **Group A** and a **Group B,** In order to fully meet all the criteria you must be seen installing 9 from **Group A** and 3 from **Group B.**

This can be achieved as seen on next slide

Learning outcome 3

Two appliances from the bathroom must be DO and the third can be a RA after the assessor has left

Group A - example for your 9 from this group



3.4 Position and fix components (candidates must be assessed on **six** components from **Group A** with at least **three** on more than one occasion and **three** components from **Group B**)					
Group A					
bath	✖	✖			
WC	✖	✖			
wash hand basin	✖	✖			
sink					
shower and tray					
cylinder					
boiler (connections)					✖
soil stack system					
rainwater guttering system				✖	
F&E/CWS Cistern					
pump					
motorised valves					

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Still Assessor # Green Check Test

radiator			✖		
water conditioner/filter					

Group B - example for your 3 from this group

Group B					
urinal					
bidet					
booster pump/shower pump					
accumulators/expansion vessels					
fan convector					
low loss header					
macerator or waste water lifter/pump					
greywater/rainwater station					
water softener/filter					
refrigerator cold connection					
washing machine/dishwasher	✖				
underfloor heating circuit and underfloor manifold					
outside tap installation	✖				
Backwater protection components (e.g. EA, EB, EC, ED)	✖				

Learning outcome 3

The image on the right is from LO3 and requires the candidate to be directly observed or complete reflective accounts when installing the components previously seen on the slide covering appliances, to be working on **Hot** and **Cold** systems and One other for example **Central Heating.**

The columns that can be seen in the image are as follows;

1-DO number 1

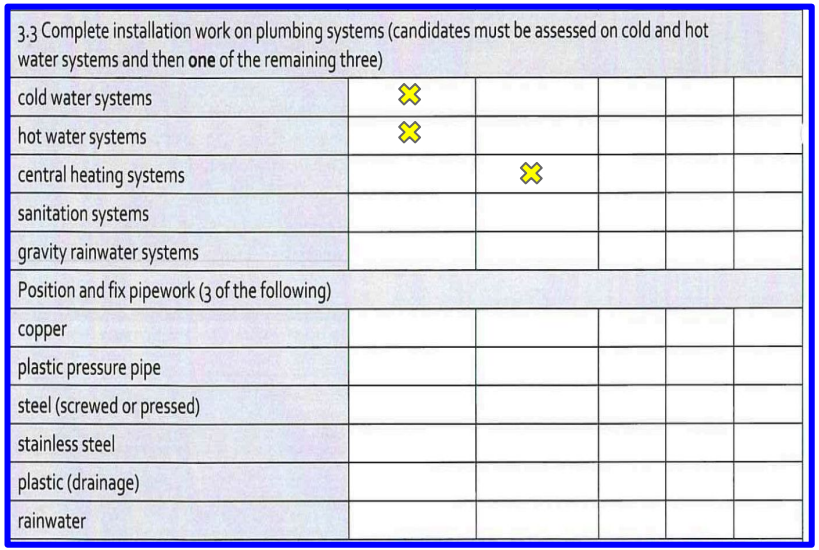
2-DO number 2

3-RA number 1

4-RA number 2

5-RA number 3

In addition 3 of the types of pipework must be used by the candidate too, when installing.



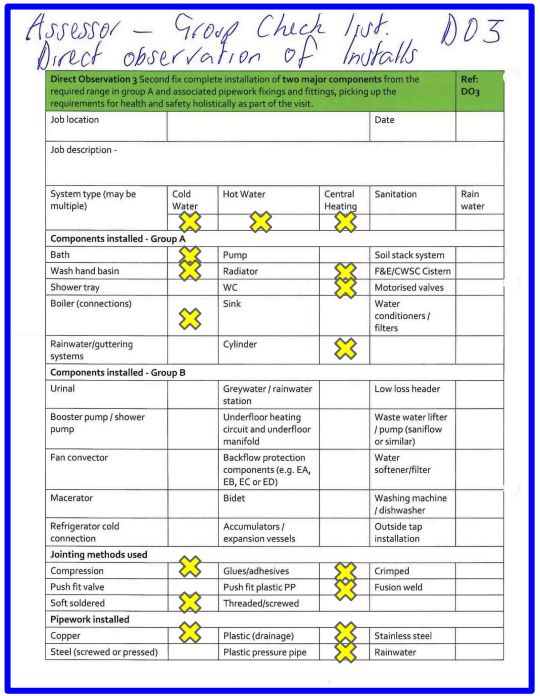
3.3 Complete installation work on plumbing systems (candidates must be assessed on cold and hot water systems and then **one** of the remaining three)					
cold water systems	✖				
hot water systems	✖				
central heating systems		✖			
sanitation systems					
gravity rainwater systems					
Position and fix pipework (3 of the following)					
copper					
plastic pressure pipe					
steel (screwed or pressed)					
stainless steel					
plastic (drainage)					
rainwater					

Learning outcome 3

The image on the right, is another GREEN for the assessor checklist.

The assessor will tick off which system, appliance group, jointing methods and pipework used to make sure all criteria is covered.

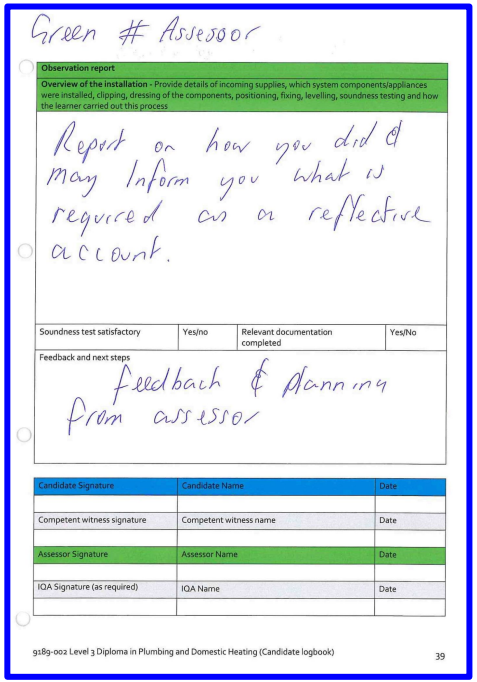
As you can see with the crosses, a selection of appliances, 3 systems and a range of pipework and jointing methods were used on this observation example.



Assessor – Group Check list. DO3
Direct observation of Installs

Direct Observation 3 Second fix complete installation of **two major components** from the required range in group A and associated pipework fixings and fittings, picking up the requirements for health and safety holistically as part of the visit.					**Ref: DO3**
Job location				Date	
Job description -					
System type (may be multiple)	Cold Water	Hot Water	Central Heating	Sanitation	Rain water
	X	X	X		
Components installed - Group A					
Bath	X	Pump		Soil stack system	
Wash hand basin	X	Radiator	X	F&E/CWSC Cistern	
Shower tray		WC	X	Motorised valves	
Boiler (connections)	X	Sink		Water conditioners / filters	
Rainwater/guttering systems		Cylinder	X		
Components installed - Group B					
Urinal		Greywater / rainwater station		Low loss header	
Booster pump / shower pump		Underfloor heating circuit and underfloor manifold		Waste water lifter / pump (saniflow or similar)	
Fan convector		Backflow protection components (e.g. EA, EB, EC or ED)		Water softener/filter	
Macerator		Bidet		Washing machine / dishwasher	
Refrigerator cold connection		Accumulators / expansion vessels		Outside tap installation	
Jointing methods used					
Compression	X	Glues/adhesives	X	Crimped	
Push fit valve		Push fit plastic PP	X	Fusion weld	
Soft soldered	X	Threaded/screwed			
Pipework installed					
Copper	X	Plastic (drainage)	X	Stainless steel	
Steel (screwed or pressed)		Plastic pressure pipe	X	Rainwater	

Learning outcome 3



Green # Assessor

Observation report

Overview of the installation - Provide details of incoming supplies, which system components/appliances were installed, clipping, dressing of the components, positioning, fixing, levelling, soundness testing and how the learner carried out this process

Report on how you did & may inform you what is required as a reflective account.

Soundness test satisfactory	Yes/no	Relevant documentation completed	Yes/No

Feedback and next steps

feedback & planning from assessor

Candidate Signature	Candidate Name	Date
Competent witness signature	Competent witness name	Date
Assessor Signature	Assessor Name	Date
IQA Signature (as required)	IQA Name	Date

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On the left is an Observation report from the assessor to the candidate.

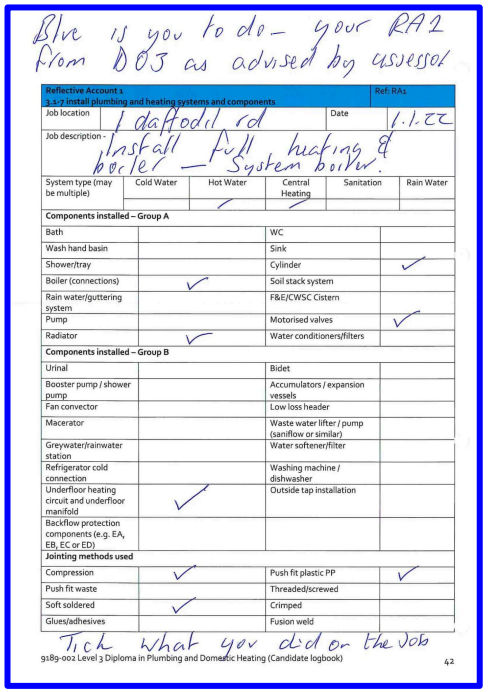
This will feature what was seen, for example all of the yellow crosses on the previous slide will be mentioned. The assessor will describe how they came to their assessment decision in this report mentioning the installation techniques, safe working practices, testing and any preparatory work that was also witnessed during the observation. In addition the feedback and forward planning will be available at the bottom of the report too.

Learning outcome 3

As previously mentioned, it maybe that the assessor has not seen you in the workplace complete all of the appliance groupings when they were on-site however, they must see you do at least 2.

If you continue installing when the assessor has left, then you can complete a RA, which outlines what you carried out when the assessor left.

This **MUST** be signed by your **EXPERT WITNESS**



Give is you to do – your RA2 from DOJ as advised by assessor

Reflective Account 1 3.1-7 install plumbing and heating systems and components					Ref: RA1
Job location	1 daffodil rd			Date	1.1.22
Job description -	Install full heating & boiler – System boiler.				
System type (may be multiple)	Cold Water	Hot Water	Central Heating	Sanitation	Rain Water
		✓	✓		
Components installed – Group A					
Bath			WC		
Wash hand basin			Sink		
Shower/tray			Cylinder		✓
Boiler (connections)		✓	Soil stack system		
Rain water/guttering system			F&E/CWSC Cistern		
Pump			Motorised valves		✓
Radiator		✓	Water conditioners/filters		
Components installed – Group B					
Urinal			Bidet		
Booster pump / shower pump			Accumulators / expansion vessels		
Fan convector			Low loss header		
Macerator			Waste water lifter / pump (saniflow or similar)		
Greywater/rainwater station			Water softener/filter		
Refrigerator cold connection			Washing machine / dishwasher		
Underfloor heating circuit and underfloor manifold	✓		Outside tap installation		
Backflow protection components (e.g. EA, EB, EC or ED)					
Jointing methods used					
Compression	✓		Push fit plastic PP		✓
Push fit waste			Threaded/screwed		
Soft soldered	✓		Crimped		
Glues/adhesives			Fusion weld		

Tick what you did on the job

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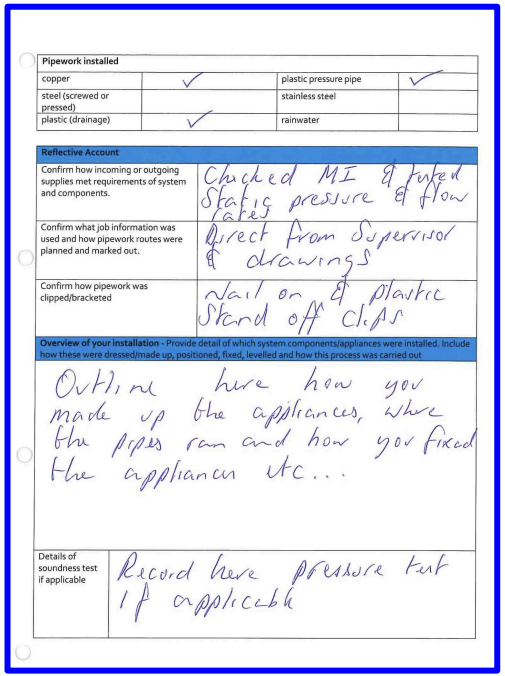
Learning outcome 3

RA continued from previous slide



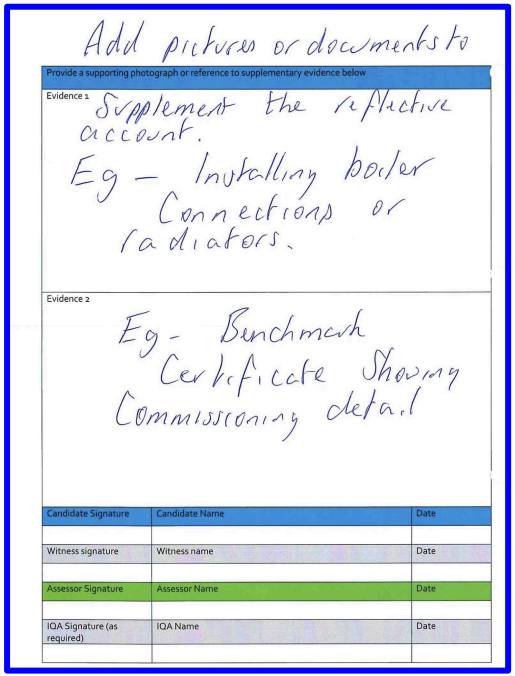
Pipework installed			
copper	✓	plastic pressure pipe	✓
steel (screwed or pressed)		stainless steel	
plastic (drainage)	✓	rainwater	

Reflective Account	
Confirm how incoming or outgoing supplies met requirements of system and components.	Checked MI & tested Static pressure & flow rates
Confirm what job information was used and how pipework routes were planned and marked out.	Direct from Supervisor & drawings
Confirm how pipework was clipped/bracketed	Nail on & plastic Stand off Clips

Overview of your installation - Provide detail of which system components/appliances were installed. Include how these were dressed/made up, positioned, fixed, levelled and how this process was carried out

Outline here how you made up the appliances, where the pipes ran and how you fixed the appliances etc...

Details of soundness test if applicable	Record here pressure test if applicable



Add pictures or documents to

Provide a supporting photograph or reference to supplementary evidence below

Evidence 1

Supplement the reflective account.

Eg – Installing boiler Connections or radiators.

Evidence 2

Eg - Benchmark Certificate Showing Commissioning detail

Candidate Signature	Candidate Name	Date
Witness signature	Witness name	Date
Assessor Signature	Assessor Name	Date
IQA Signature (as required)	IQA Name	Date

Learning outcome 4

Learning outcome 4

Unlike the other Learning Outcomes, LO4 does not require an assessor to directly observe you. Due to the sporadic nature of the content of;

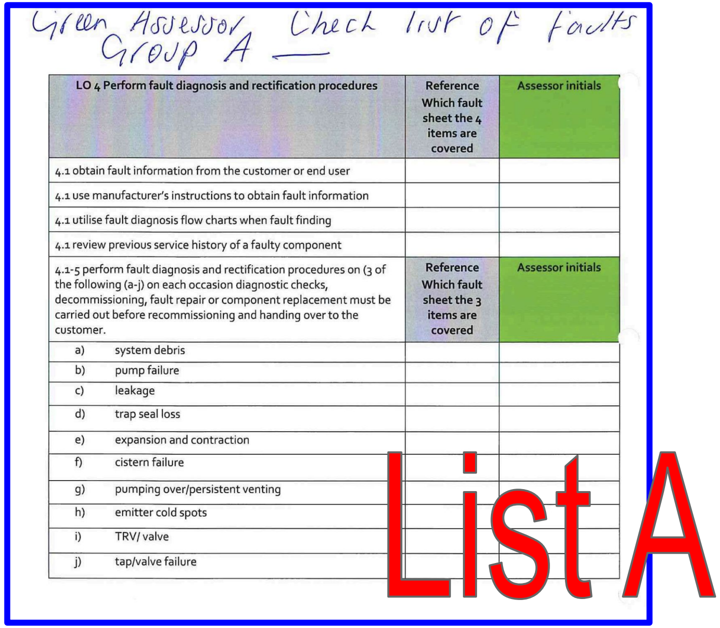
(Fault Finding & Rectification)

All of the content from **List A** and **List B** will be evidenced by the **Candidate** and their **Expert Witness** via a **Reflective Account.**

On the next slide expectations for the learning outcome will be explained.

Learning outcome 4

Images are required for at least 3 of the 6 faults from LO4. Faults 1-3 are to come from List A and faults 4-6 are to come from List B.

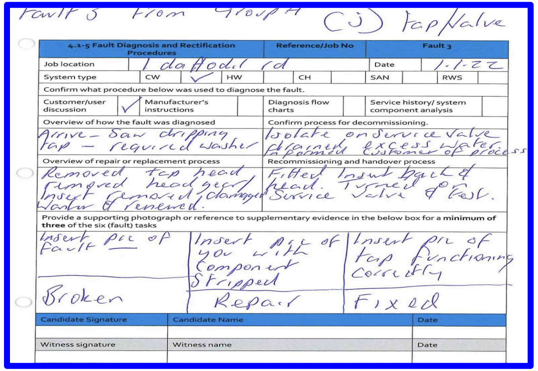


Green Assessor Check list of faults
Group A

LO 4 Perform fault diagnosis and rectification procedures	Reference Which fault sheet the 4 items are covered	Assessor initials
4.1 obtain fault information from the customer or end user		
4.1 use manufacturer's instructions to obtain fault information		
4.1 utilise fault diagnosis flow charts when fault finding		
4.1 review previous service history of a faulty component		
4.1-5 perform fault diagnosis and rectification procedures on (3 of the following (a-j) on each occasion diagnostic checks, decommissioning, fault repair or component replacement must be carried out before recommissioning and handing over to the customer.	Reference Which fault sheet the 3 items are covered	Assessor initials
a) system debris		
b) pump failure		
c) leakage		
d) trap seal loss		
e) expansion and contraction		
f) cistern failure		
g) pumping over/persistent venting		
h) emitter cold spots		
i) TRV/ valve		
j) tap/valve failure		

On the left is a list of components, it is from here where faults 1, 2 and 3 will come from.

You will identify the fault and rectify the issue and record how you went about the task on a RA fault and rectification sheet.



Fault 3 From Group A (j) tap/valve

4.1-5 Fault Diagnosis and Rectification Procedures		Reference/Job No		Fault 3	
Job location	1 daffodil rd			Date	1.1.22
System type	CW ✓	HW	CH	SAN	RWS
Confirm what procedure below was used to diagnose the fault.					
Customer/user discussion ✓	Manufacturer's instructions	Diagnosis flow charts	Service history/ system component analysis		
Overview of how the fault was diagnosed			Confirm process for decommissioning.		
Arrive – Saw dripping tap – required washer			Isolate on service valve drained excess water. Informed customer of process		
Overview of repair or replacement process			Recommissioning and handover process		
Removed tap head removed head gear/ Insert removed, damaged washer & renewed.			Fitted insert back & head. Turned on service valve & test.		
Provide a supporting photograph or reference to supplementary evidence in the below box for a **minimum of three** of the six (fault) tasks					
Insert pic of fault — Broken	Insert pic of you with component stripped — Repair	Insert pic of tap functioning correctly — Fixed			
Candidate Signature	Candidate Name	Date			
Witness signature	Witness name	Date			

Learning outcome 4

Images are required for at least 3 of the 6 faults from LO4. Faults 1-3 are to come from List A and faults 4-6 are to come from List B.

Group B for faults 4-6

LO 4 Perform fault diagnosis and rectification procedures		Reference Which fault sheet the 4 items are covered	Assessor initials
4.1 obtain fault information from the customer or end user			
4.1 use manufacturer's instructions to obtain fault information			
4.1 utilise fault diagnosis flow charts when fault finding			
4.1 review previous service history of a faulty component			
4.1-5 perform fault diagnosis and rectification procedures on (3 of the following (a-m) on each occasion diagnostic checks, decommissioning, fault repair or component replacement must be carried out before recommissioning and handing over to the customer.		Reference Which fault sheet the 3 items are covered	Assessor initials
a)	accumulator expansion vessel failure		
b)	motorised valves not operating		
c)	heat exchanger failure		
d)	expansion valve		
e)	WC macerators/waste water lifter		
f)	sink waste disposal units		
g)	control failure		
h)	pressure relief valve		
i)	thermostat		
j)	programmer		
k)	air admittance valves		
l)	condensing boiler condensate		
m)	component failure		

List B

On the left is a list of components, it is from here where faults 4, 5 and 6 will come from.

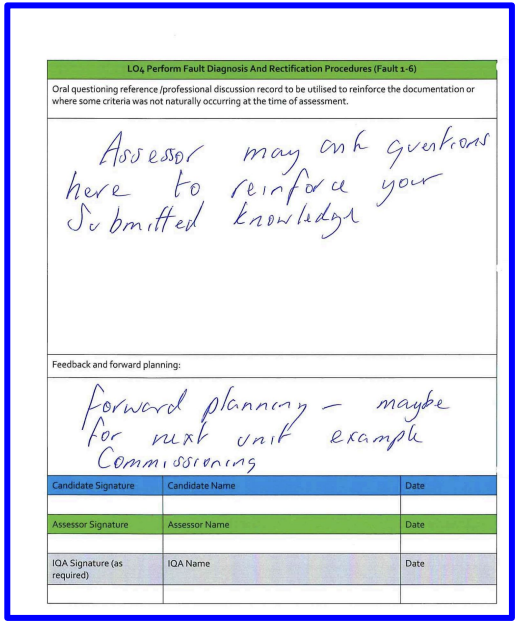
You will identify the fault and rectify the issue and record how you went about the task on a RA fault and rectification sheet.

Same again See fault 3 for Guidance.

4.4-5 Fault Diagnosis and Rectification Procedures		Reference/Job No		Fault 4	
Job location				Date	
System type	CW	HW	CH	SAN	RWS
Confirm what procedure below was used to diagnose the fault.					
Customer/user discussion	Manufacturer's instructions	Diagnosis flow charts	Service history/ system component analysis		
Overview of how the fault was diagnosed		Confirm process for decommissioning.			
Overview of repair or replacement process		Recommissioning and handover process			
Provide a supporting photograph or reference to supplementary evidence in the below box for a **minimum of three** of the six (fault) tasks					
Candidate Signature	Candidate Name			Date	
Witness signature	Witness name			Date	
Assessor Signature	Assessor Name			Date	
IQA Signature (as required)	IQA Name			Date	

Learning outcome 4

The **assessor** will check all of your faults from list **A and B**. They will verify if the fault diagnosis and rectification is suitable and the supporting evidence is there for the tasks. They will also check that the **expert witness** has signed and dated the work from the **candidate** before signing the tasks and the unit off and offering feedback, via the oral questioning paperwork that can be seen opposite.



LO4 Perform Fault Diagnosis And Rectification Procedures (Fault 1-6)

Oral questioning reference /professional discussion record to be utilised to reinforce the documentation or where some criteria was not naturally occurring at the time of assessment.

Assessor may ask questions here to reinforce your submitted knowledge

Feedback and forward planning:

Forward planning – maybe for next unit example Commissioning

Candidate Signature	Candidate Name	Date
Assessor Signature	Assessor Name	Date
IQA Signature (as required)	IQA Name	Date

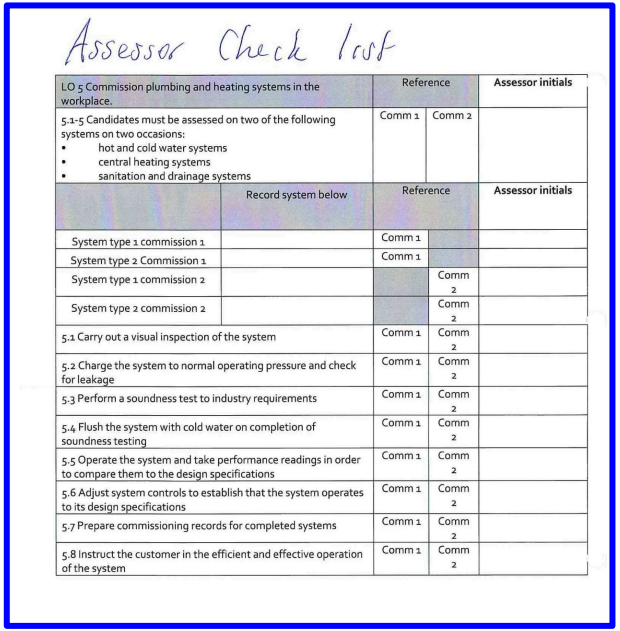
Learning outcome 5

Learning outcome 5

Learning outcome 5 is all about commissioning of installations/supplies. The learning outcome requires the candidate to be observed twice carrying out the commissioning procedure on systems such as;

- Cold and Hot water systems
- Central heating systems
- Sanitation and drainage systems

Opposite can be seen the assessors checklist



Assessor Check list

LO 5 Commission plumbing and heating systems in the workplace.		Reference		Assessor initials
5.1-5 Candidates must be assessed on two of the following systems on two occasions: • hot and cold water systems • central heating systems • sanitation and drainage systems		Comm 1	Comm 2	
	Record system below	Reference		Assessor initials
System type 1 commission 1		Comm 1		
System type 2 Commission 1		Comm 1		
System type 1 commission 2			Comm 2	
System type 2 commission 2			Comm 2	
5.1 Carry out a visual inspection of the system		Comm 1	Comm 2	
5.2 Charge the system to normal operating pressure and check for leakage		Comm 1	Comm 2	
5.3 Perform a soundness test to industry requirements		Comm 1	Comm 2	
5.4 Flush the system with cold water on completion of soundness testing		Comm 1	Comm 2	
5.5 Operate the system and take performance readings in order to compare them to the design specifications		Comm 1	Comm 2	
5.6 Adjust system controls to establish that the system operates to its design specifications		Comm 1	Comm 2	
5.7 Prepare commissioning records for completed systems		Comm 1	Comm 2	
5.8 Instruct the customer in the efficient and effective operation of the system		Comm 1	Comm 2	

Learning outcome 5

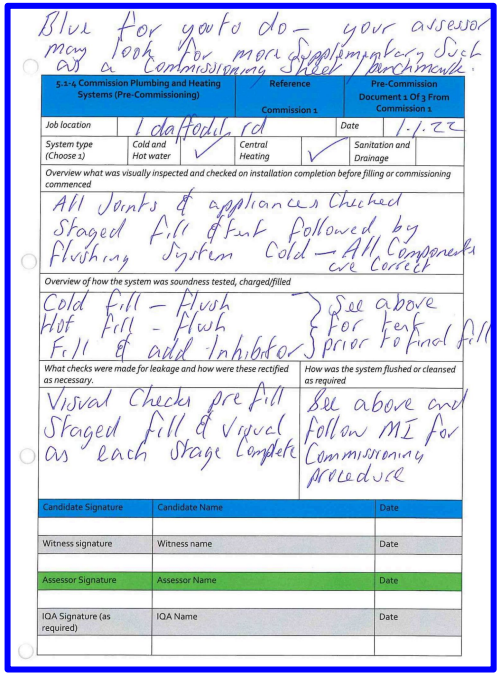
Form 1 - Remember form 1 is for 1 system and form 2 for the other system. Cold and Hot are classed as one system. This example has two ticks and should only have one.

You are required to complete 2 forms from the 3 forms that are supplied within your work log. The third form is an observation sheet that is completed by the assessor.

Form 1 is how you commissioned the **cold** & **hot** plumbing systems for example.

Form 2 is how you commissioned the **central heating** system for example.

You are expected to repeat this process on commission 2 as well as part of this learning outcome.



Blue for you to do – your assessor may look for more appropriate such as a Commissioning Sheet / benchmark.

5.1-4 Commission Plumbing and Heating Systems (Pre-Commissioning)	Reference Commission 1	Pre-Commission Document 1 Of 3 From Commission 1

Job location	1 daffodil rd	Date	1.1.22

System type (Choose 1)	Cold and Hot water	✓	Central Heating	✓	Sanitation and Drainage	

Overview what was visually inspected and checked on installation completion before filling or commissioning commenced

All joints & appliances checked staged fill & test followed by flushing system cold – all components are correct

Overview of how the system was soundness tested, charged/filled

Cold fill – flush
Hot fill – flush
Fill & add inhibitor

} See above for test prior to final fill

What checks were made for leakage and how were these rectified as necessary.	How was the system flushed or cleansed as required
Visual checks pre fill staged fill & visual as each stage complete	See above and follow MI for commissioning procedure

Candidate Signature	Candidate Name	Date
Witness signature	Witness name	Date
Assessor Signature	Assessor Name	Date
IQA Signature (as required)	IQA Name	Date

Learning outcome 5

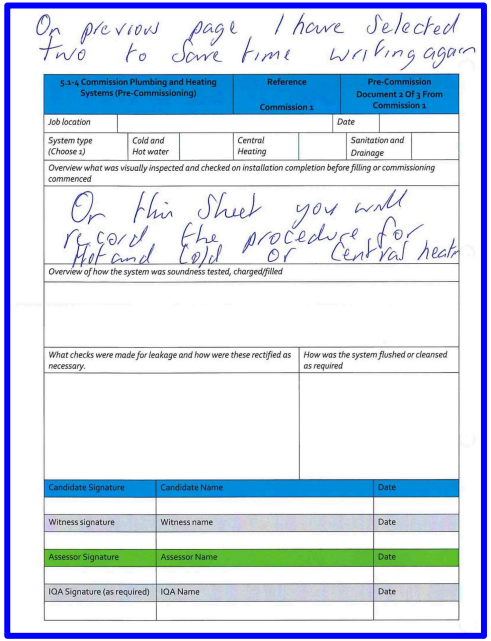
You are required to complete 2 forms from the 3 forms that are supplied within your work log. The third form is an observation sheet that is completed by the assessor.

Form 1 is how you commissioned the **cold** & **hot** plumbing systems for example.

Form 2 is how you commissioned the **central heating** system for example.

You are expected to repeat this process on commission 2 as well as part of this learning outcome.

Form 1 - Remember form 1 is for 1 system and form 2 for the other system. Cold and Hot are classed as one system. This example has two ticks and should only have one.



On previous page I have selected two to save time writing again

5.1-4 Commission Plumbing and Heating Systems (Pre-Commissioning)	Reference Commission 1	Pre-Commission Document 2 Of 3 From Commission 1

Job location		Date	
System type (Choose 1)	Cold and Hot water	Central Heating	Sanitation and Drainage

Overview what was visually inspected and checked on installation completion before filling or commissioning commenced

On this sheet you will record the procedure for Hot and Cold or Central heat

Overview of how the system was soundness tested, charged/filled

What checks were made for leakage and how were these rectified as necessary.	How was the system flushed or cleansed as required

Candidate Signature	Candidate Name	Date
Witness signature	Witness name	Date
Assessor Signature	Assessor Name	Date
IQA Signature (as required)	IQA Name	Date

Learning outcome 5

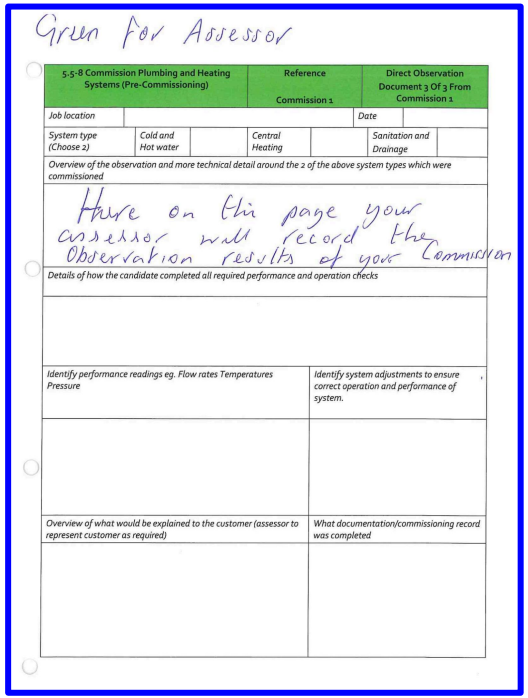
Form3 is completed by the assessor as this is the observation report. This will be done for both commissioning of systems for this learning outcome.

You are required to complete 2 forms from the 3 forms that are supplied within your work log. The third form is an observation sheet that is completed by the assessor.

Form 1 is how you commissioned the **cold** & **hot** plumbing systems for example.

Form 2 is how you commissioned the **central heating** system for example.

You are expected to repeat this process on commission 2 as well as part of this learning outcome.



Green For Assessor

5-5-8 Commission Plumbing and Heating Systems (Pre-Commissioning)	Reference Commission 1	Direct Observation Document 3 Of 3 From Commission 1

Job location		Date	

System type (Choose 2)	Cold and Hot water		Central Heating		Sanitation and Drainage	

Overview of the observation and more technical detail around the 2 of the above system types which were commissioned

Here on this page your assessor will record the Observation results of your Commission

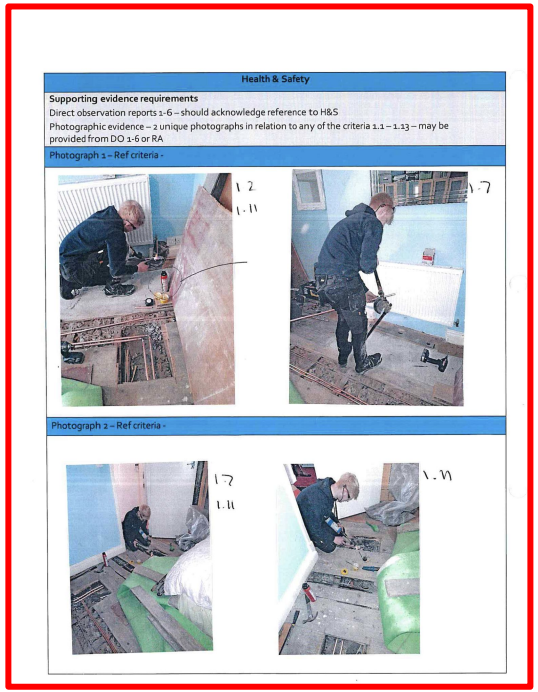
Details of how the candidate completed all required performance and operation checks

Identify performance readings eg. Flow rates Temperatures Pressure	Identify system adjustments to ensure correct operation and performance of system.

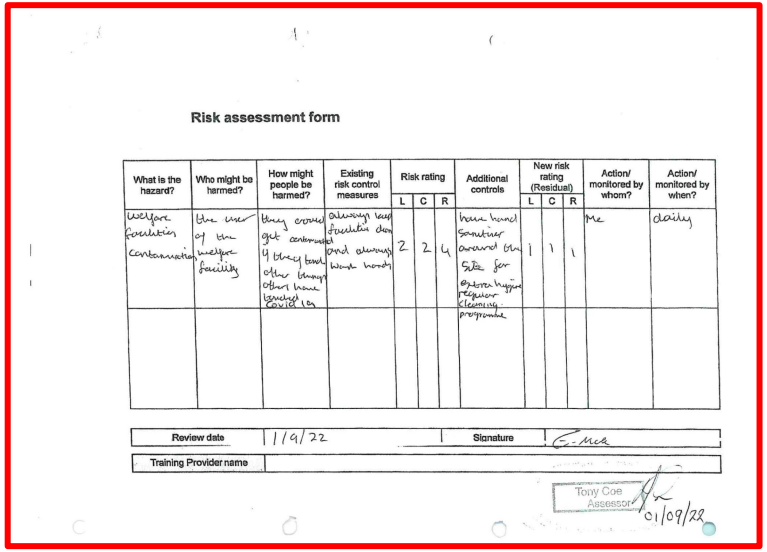
Overview of what would be explained to the customer (assessor to represent customer as required)	What documentation/commissioning record was completed

Examples of evidence from LO's

Learning outcome 1



Health & Safety
Supporting evidence requirements Direct observation reports 1-6 – should acknowledge reference to H&S Photographic evidence – 2 unique photographs in relation to any of the criteria 1.1 – 1.13 – may be provided from DO 1-6 or RA
Photograph 1 – Ref criteria -
Photograph 2 – Ref criteria -



Risk assessment form

What is the hazard?	Who might be harmed?	How might people be harmed?	Existing risk control measures	Risk rating L	Risk rating C	Risk rating R	Additional controls	New risk rating (Residual) L	New risk rating (Residual) C	New risk rating (Residual) R	Action/ monitored by whom?	Action/ monitored by when?
Welfare facilities contamination	the user of the welfare facility	they could get contaminated by they touching other things other users touched Covid 19	always keep facilities clean and always wash hands	2	2	4	have hand sanitiser around the site for extra hygiene regulor cleaning programme	1	1	1	Me	daily

Review date	1/9/22
Signature	
Training Provider name	

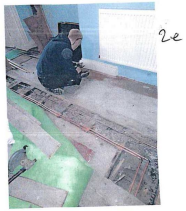
Tony Coe
Assessor
01/09/22

Learning outcome 2

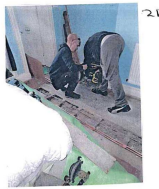
Prep 2.4

Supporting evidence requirements
Photographic evidence – 4 unique photographs in relation to any of the Prep 2.4 - 2a-2h,

Photograph 1 – Ref criteria -



Photograph 2 – Ref criteria -



2.4 Carry out preparatory work	Ref	Candidate description meeting each criteria identifying task and job location		
		Job location	Task Description	Date
Safe and unobstructed access to work areas	Prep 2a	Bridge Clubs bolton	Unstable control Heating, made sure the floors were safe within a safe route	25/4/22
Safe storage of materials tools and equipment	Prep 2b	Bolton bridge clubs	unstable control Heating, tools were stored away when required	25/4/22
Reporting pre-existing damage	Prep 2c	Bolton bridge clubs	If I saw any damages I would report to my supervisor so I cant get blamed	25/4/22
Protecting the building fabric	Prep 2d	bolton bridge clubs	unstable control Heating, used a heat mat when soldering	25/4/22

Learning outcome 3

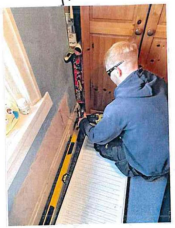
Provide a supporting photograph or reference to supplementary evidence below

Evidence 1 To drain the radiator I used PTFE to wrap the new radiator valves. I then positioned the new radiator in position and leveled and mounted it up. I then used a 7mm masonary drill SDS drill and drilled the right holes and used brown plugs and 2½" Screws to support the radiator. I then put the radiator on its brackets and made sure that it was level. Finally I connected the new valves to the pipework.

Evidence 2

Measuring and marking

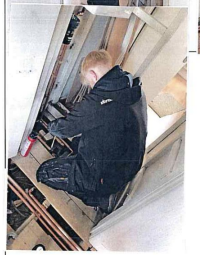
Drilling for brackets

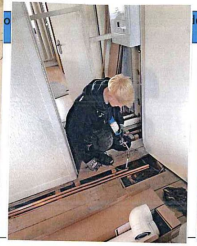


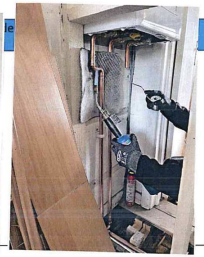
Checking the radiator is level

Candidate Signature	Candidate Name	Date

Details of soundness test if applicable: First I visually checked the fittings looked soldered I was tight (compression) I then opened the gate valves allowing water flowing there was no problems.





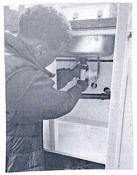


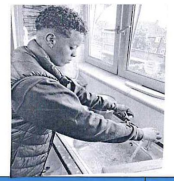
Candidate Signature	Candidate Name	Date

Learning outcome 4

(GROUP A)

4.1-5 Fault Diagnosis and Rectification Procedures						Reference/Job No		Fault 2	
Job location	132 Winchester Way B12 5AG					Date	27/5/22		
System type	CW		HW		CH		SAN ✓	RWS	
Confirm what procedure below was used to diagnose the fault.	Faulty trap Seal loss (D)								
Customer/user discussion		Manufacturer's instructions		Diagnosis flow charts		Service history/ system component analysis			
Overview of how the fault was diagnosed				Confirm process for decommissioning.					
Foul Smell Went Kitchen Sink Emptied				- Bowl underneath trap - empty water from trap - Took out trap					
Overview of repair or replacement process				Recommissioning and handover process					
- ~~Rep~~ Replace trap with Ant bac - prevent smell.				- plug the sink - fill up sink with water - ~~un~~ unplug and empty water - no smell coming through.					
Provide a supporting photograph or reference to supplementary evidence in the below box for a **minimum of three** of the six (fault) tasks									

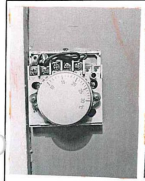


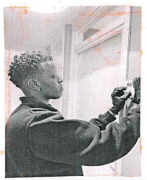


Candidate Signature	Candidate Name	Date

(GROUP B)

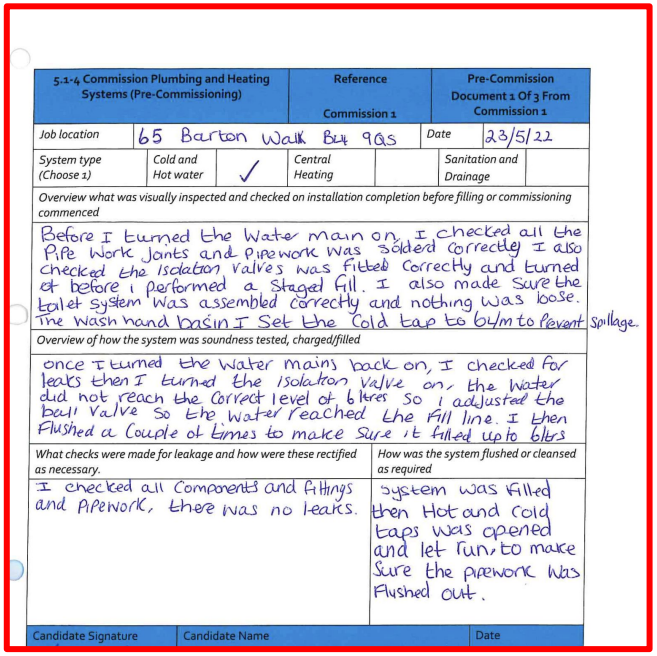
4.1-5 Fault Diagnosis and Rectification Procedures						Reference/Job No		Fault 4	
Job location	17 Princess Grove, BL4 7AN					Date	10/6/22		
System type	CW		HW		CH ✓		SAN	RWS	
Confirm what procedure below was used to diagnose the fault.	(Faulty Thermostat) (i)								
Customer/user discussion	✓	Manufacturer's instructions		Diagnosis flow charts		Service history/ system component analysis			
Overview of how the fault was diagnosed				Confirm process for decommissioning.					
- no central Heating Hot water - use electrical testers to confirm power - found fault on Swith				- Isolate the electrics, Make Safe. - Isolate fuse spare, warning label - Confirmed no voltage at thermostat - MLNE, LH, LE, ME					
Overview of repair or replacement process				Recommissioning and handover process					
- Disconnect wires - Removed all thermostat - Replace with New thermostat - Refference to drawing in Manufactor instructions (wiring)				- Unlock fuse spare, ve install electric - Checked operation, Time clock on - Demand with Room stat - Oke - Explained New Control to Customer.					
Provide a supporting photograph or reference to supplementary evidence in the below box for a **minimum of three** of the six (fault) tasks									






Candidate Signature	Candidate Name	Date

Learning outcome 5



5.1-4 Commission Plumbing and Heating Systems (Pre-Commissioning)	Reference Commission 1	Pre-Commission Document 1 Of 3 From Commission 1

Job location	65 Barton Walk BL4 9QS	Date	23/5/22

System type (Choose 1)	Cold and Hot water	✓	Central Heating		Sanitation and Drainage	

Overview what was visually inspected and checked on installation completion before filling or commissioning commenced

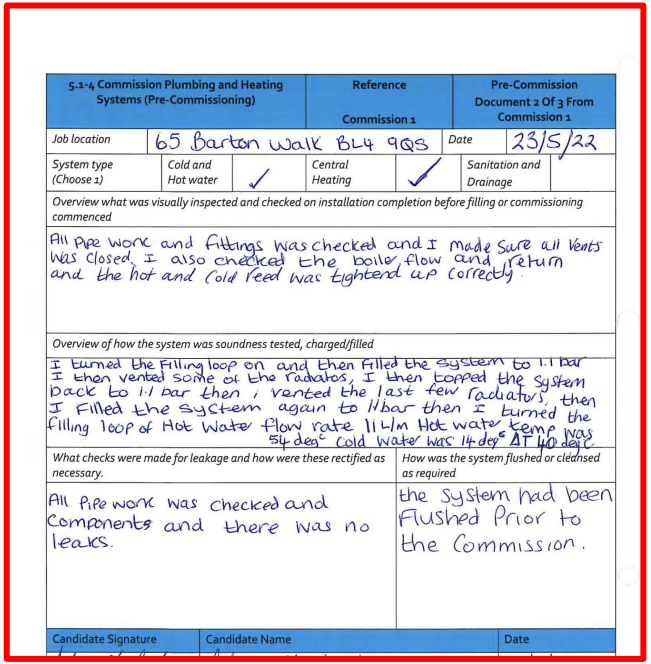
Before I turned the Water main on, I checked all the Pipe Work joints and Pipework was soldered correctly I also checked the Isolation valves was fitted correctly and turned at before i performed a staged fill. I also made sure the toilet system was assembled correctly and nothing was loose. The Wash hand basin I set the cold tap to 6L/m to Prevent spillage.

Overview of how the system was soundness tested, charged/filled

once I turned the Water mains back on, I checked for leaks then I turned the Isolation valve on, the Water did not reach the correct level of 6 litres so i adjusted the ball valve so the water reached the Fill line. I then Flushed a couple of times to make sure it filled up to 6 litres

What checks were made for leakage and how were these rectified as necessary.	How was the system flushed or cleansed as required
I checked all components and fittings and Pipework, there was no leaks.	system was filled then Hot and cold taps was opened and let run, to make sure the pipework was flushed out.

Candidate Signature	Candidate Name	Date



5.1-4 Commission Plumbing and Heating Systems (Pre-Commissioning)	Reference Commission 1	Pre-Commission Document 2 Of 3 From Commission 1

Job location	65 Barton Walk BL4 9QS	Date	23/5/22

System type (Choose 1)	Cold and Hot water	✓	Central Heating	✓	Sanitation and Drainage	

Overview what was visually inspected and checked on installation completion before filling or commissioning commenced

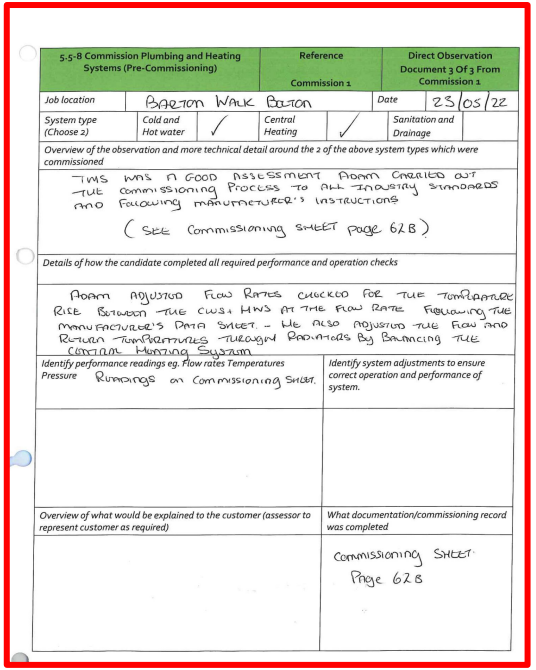
All Pipe Work and fittings was checked and I made sure all Vents was closed, I also checked the boiler flow and return and the Hot and Cold feed was tightend up correctly.

Overview of how the system was soundness tested, charged/filled

I turned the Filling loop on and then filled the system to 1.1 bar I then vented some of the radiators, I then topped the system back to 1.1 bar then i vented the last few radiators, then I filled the system again to 1 bar then I turned the filling loop of Hot Water flow rate 11 L/m Hot water temp was 54 deg C cold water was 14 deg C ΔT 40 deg C

What checks were made for leakage and how were these rectified as necessary.	How was the system flushed or cleansed as required
All Pipe work was checked and components and there was no leaks.	the system had been flushed Prior to the Commission.

Candidate Signature	Candidate Name	Date



5.5-8 Commission Plumbing and Heating Systems (Pre-Commissioning)	Reference Commission 1	Direct Observation Document 3 Of 3 From Commission 1

Job location	Barton Walk Barton	Date	23/05/22

System type (Choose 2)	Cold and Hot water	✓	Central Heating	✓	Sanitation and Drainage	

Overview of the observation and more technical detail around the 2 of the above system types which were commissioned

This was a good assessment Adam carried out the commissioning process to all industry standards and following manufacturer's instructions

(See Commissioning sheet page 628)

Details of how the candidate completed all required performance and operation checks

Adam adjusted flow rates checked for the temperature rise between the cws & hws at the flow rate following the manufacturer's data sheet. - He also adjusted the flow and return temperatures through radiators by balancing the central heating system

Identify performance readings eg. Flow rates Temperatures Pressure	Identify system adjustments to ensure correct operation and performance of system.
Runnings on commissioning sheet.	

Overview of what would be explained to the customer (assessor to represent customer as required)	What documentation/commissioning record was completed
	Commissioning sheet Page 628