



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

Refrigeration/ Air-conditioning/ Ventilation Mechanic (Water System) Trade Test Mock Practical Test Paper

此文件關於空調製冷設備技工（水系統）工藝測試考題。如有需要索取此文件的中文版本，請致電 2100 9000 與香港建造業工藝測試中心聯絡。

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Practical Test Paper for Trade Test (EAW)

Job Title : Refrigeration / Air-conditioning / Ventilation Mechanic (Water System)
Skill Level : Skilled worker
Time Limit : 3 hours

This test has a total of 2 tasks and the full score is 100. To pass the practical test, candidates must achieve the 60% passing marks for each task. Complete the following two Water System practical tasks at the specified locations in the following sequence:

Task 1 : Install a fan coil

Task 2 : Install pipes and fittings of a pump for chilled water

Task 1 : Install a fan coil

1. According to Fig. (1) fix and adjust Fan Coil Unit to (1930mm of bottom of drain pan to finished floor level)
2. Use a spirit level to measure and align the fan coil surface (Top of fan coil unit).
3. Install and connect supply and return water copper pipes and accessories. (including 2-way on/off valve, bronze connectors and thermal Insulation)
4. Install and connect condensate drain pipe.

Before working steps below, the Invigilators should be informed for in situ checking

5. Carry out Fan Coil Unit air venting procedures.
6. Hydraulic water test by hand pump to 690 kPa (100 psi) for newly installed pipes (No less than 10 minutes).
7. Drain test for condensate water pipe.
8. Measure and record test results on Appendix page.

Task 2 : Install pipes and fittings of a pump for chilled water

Candidates may decide the sequence of the below tasks on their own.

1. According to Fig. (2) Black iron pipe
2. In the water inlet of the water pump, correct and put together the water pipe components.
3. Use arc welding (Part A) to weld the chilled water pipes (black iron pipe must be welded on the machine hanger) according to Fig. (2).

Before working steps below, the Invigilators should be informed for in situ checking

4. Hydraulic water test by hand pump to 690 kPa (100 psi) for newly installed pipes (No less than 10 minutes).
5. Measure and record test results on Appendix page.

Fig. (1), Drawing of Install the fan coil

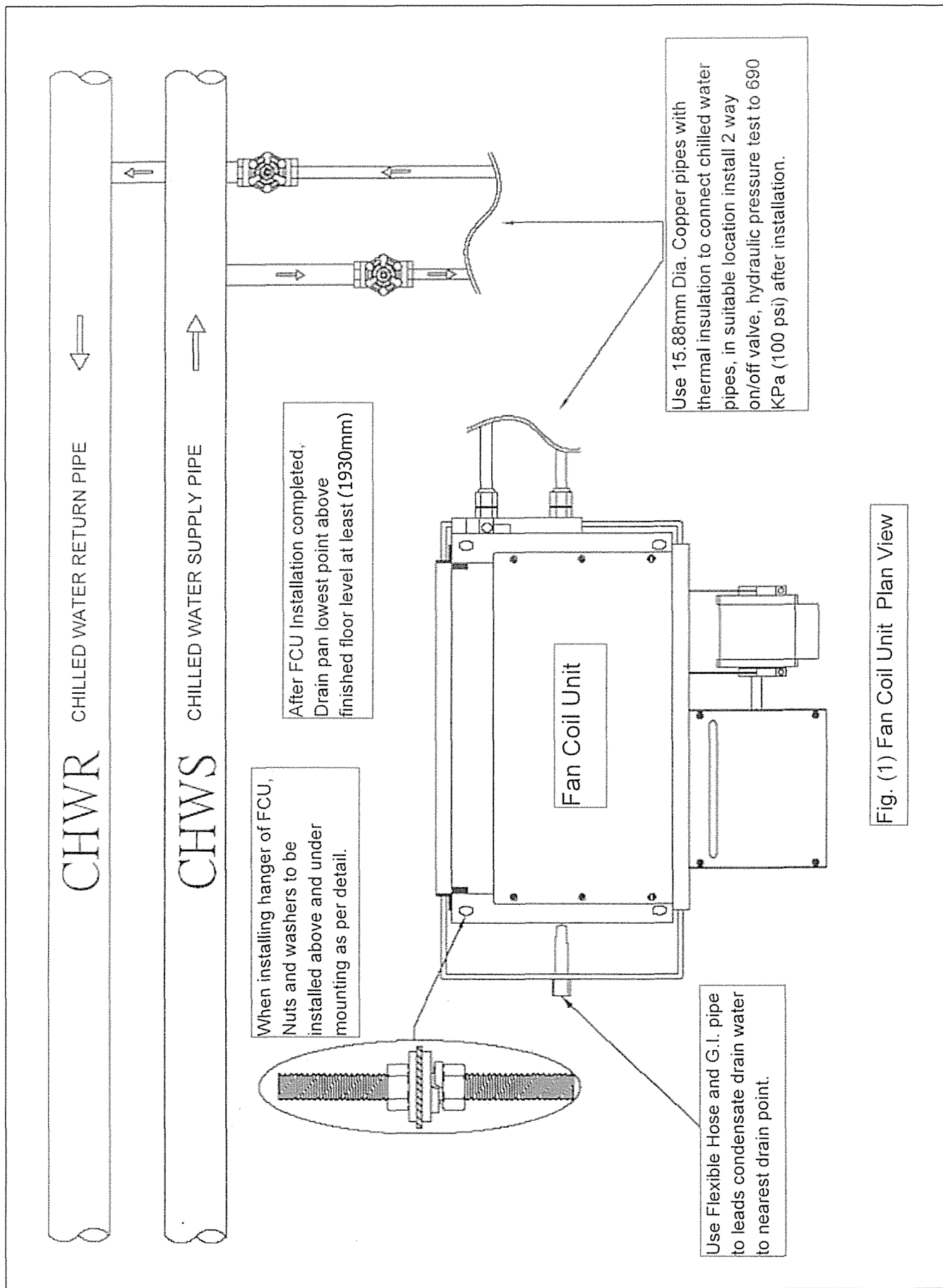
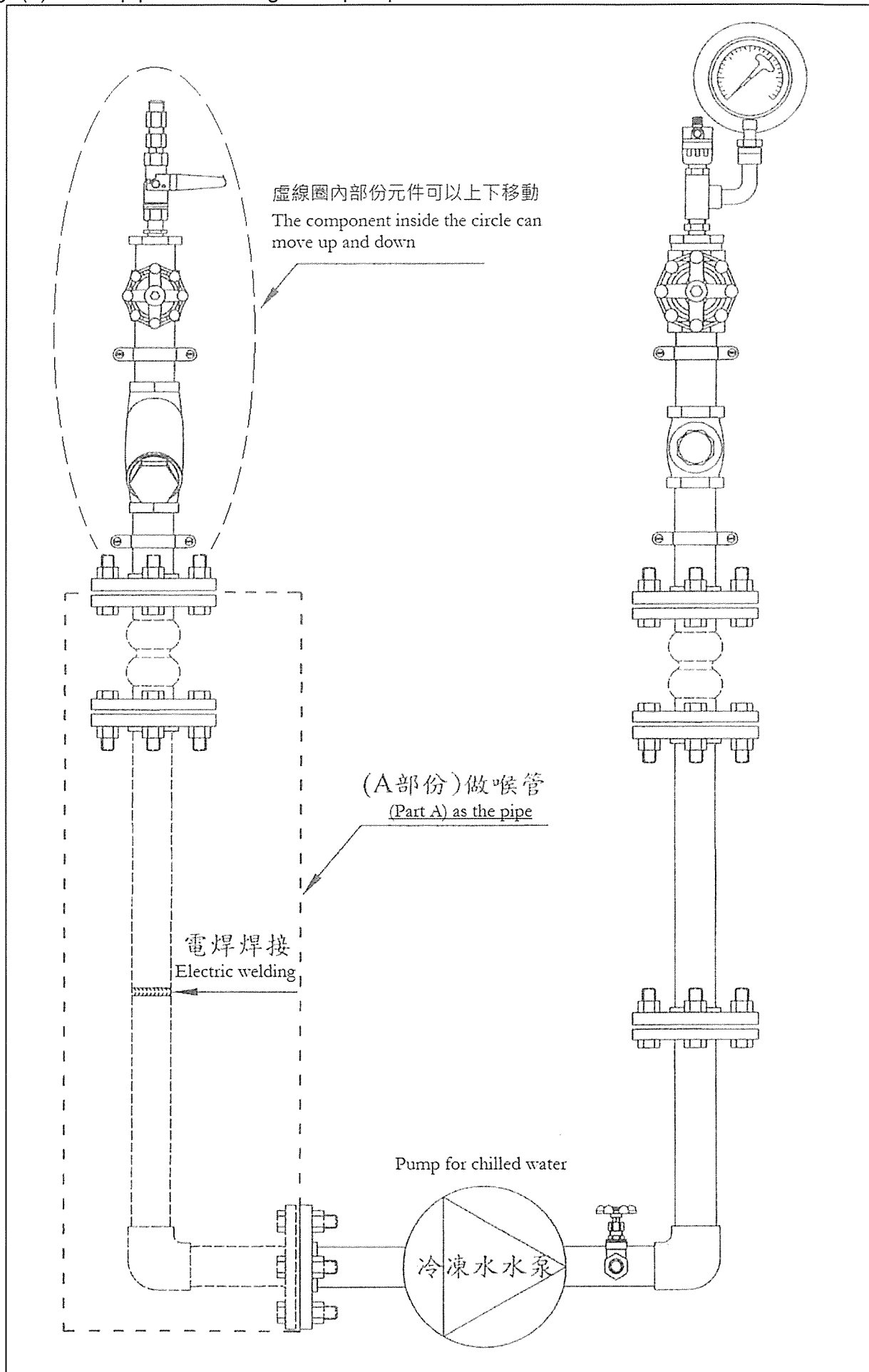


Fig. (1) Fan Coil Unit Plan View

Fig. (2) Install pipes and fittings of a pump for chilled water



List of materials, equipment and tools

Item	Material	Quantity	Item	Tools	Quantity
1	5/8" Copper pip	1.8 m	1	5/8" Pipe bender	1 set
2	3/4" Connector	2 no	2	Pipe clamp combination	1 set
3	5/8" Copper cap	2 no	3	Pipe cutter	1 no
4	5/8" Copper nut	4 no	4	Scraper	1 no
5	3/4" GI. Socket	1 no	5	Cutter	1 no
6	3/4" GI. Bend	1 no	6	6" Half round file	1 no
7	3/4" GI. Pipe	2 no	7	Tape	1 no
8	3/4" Clamp	2 set	8	Leveler	1 no
9	1" Exhaust pipe	2 no	9	Hand pump	1 no
10	1" Pipe clip	2 no	10	7", 12" & 14" Pipe wrench	1 no
11	P.T.F.E. tape	3 roll	11	8", 10" & 12" Spanner	1 no
12	Insulation tape	As appropriate	12	Screw driver (+)	1 no
13	5/8" Elastomeric insulation	As appropriate	13	Screw driver (-)	1 no
14	3/8" Fan coil screw	As appropriate	14	Pencil	1 no
15	Hemp fibre	As appropriate	15	Welding machine	1 set
16	Φ40mm Black iron pipe (one end threaded)	2 no	16	Welding hammer	1 no
17	Φ40mm Black iron pipe (two end threaded)	3 no	17	Wire brush	1 no
18	Φ40mm Black Bend	1 no	18	Leather clothing	1 no
19	Φ40mm Flange	2 no	19	Welding glass	1 no
20	Φ40mm Shock absorb pipe	1 no	20	Welding glove	1 Set
21	M16 x 60 mm Screw and nut	12 set	Item	Equipment	Quantity
22	Insulating gasket	no	1	Fan coil and valve	1 set
23	Electrode	As appropriate	2	Chilled water pump pipe set	1 set

Note: After completing the test, candidates should return all tools and test paper. Candidates may not leave until the invigilator's instructions.

Construction Industry Council Trade Test

EAW RAVC (Water System)

Test Record

Candidate Name : _____

Date : _____

1. Measure the lowest point from the drain pan of the fan coil _____ mm.
2. Leaking test record

No of test	Results	Test time	Signature (Candidate)	Signature (Invigilator)
First Test	Pass / Fail			
Second Test	Pass / Fail			
Third Test	Pass / Fail			
Not complete				

3. Hydraulic water test record

No of test	Starting time	Results	End time	Signature (Candidate)	Signature (Invigilator)
First Test		Pass / Fail			
Second Test		Pass / Fail			
Third Test		Pass / Fail			
Not complete					

Notes to Candidates:

1. Candidates should read the test papers carefully and ask the invigilator for any queries.
2. Candidates should study the drawings and specifications attached to test papers, if any, before the test begins.
3. Candidates should carry out the test according to test papers, working drawings and specifications provided.
4. Candidates shall bring their own safety shoes, other safety equipment will be provided by trade testing centre. Candidates must take all necessary safety precautions to ensure work safety.
5. All tools and materials required by the test will be provided by trade testing centre, candidates should check and ensure their adequacy and quality. Candidates shall use the tools and materials properly based on trade practice. All the tools must be returned to trade testing centre after the test. The candidates may ask the invigilator for any problems.
6. Candidates are required to handle and move the tools and materials for use in the test, and to carry out associated works.
7. Invigilator will take record photos periodically during the test.
8. Candidates are not allowed to take any photo or video with cameras or mobile phones.

9. Candidates are not allowed to use their mobile phones during the trade tests, except for emergency situation.

10. The marking scheme is based on the following criteria :
 - a) Understanding of drawing and specification
 - b) Preparation works before commencement of test
 - c) Working procedures
 - d) Accuracy and quality of works
 - e) Progress of works
 - f) Proper handling and use of materials
 - g) Proper use of tools and equipment
 - h) Safety precautions
 - i) Considerate of other trades
 - h) Housekeeping after completion of test

11. All candidates must stop when time is up.

12. Candidates are required to return the test paper to invigilator after the test.

13. Offering bribe to invigilator is an offence in law and trade testing centre will report to the ICAC for any such case.

In the event that the candidate fails to take any necessary safety precautions and / or works in any dangerous situations, he / she will be assessed failed