



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

Building Security System Mechanic Trade Test Mock Practical Test Paper

此文件關於建築物防盜系統技工技能測試考題。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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Test Paper for Trade Test

Job Title : Building Security System Mechanic

Skill Level : Skilled worker

Test 1 : Color differentiation Handling of multi-core communication cable terminal

Objectives:

To assess candidates' ability in differentiating colors; and

To test candidates' practical skills in installing multi-core connection cables.

Test requirements:

After removing appropriate length of the sheath, connect 20 wires of a 40-core communication cable to sample wires of the same color at the locations specified on the couplet (location and color must match perfectly).

Materials:

- (1) "Multi-port couplet"
- (2) 40-core communication cable

Note:

Within the time limit, candidates may re-do this part of the test (please inform the invigilators before re-doing the task).

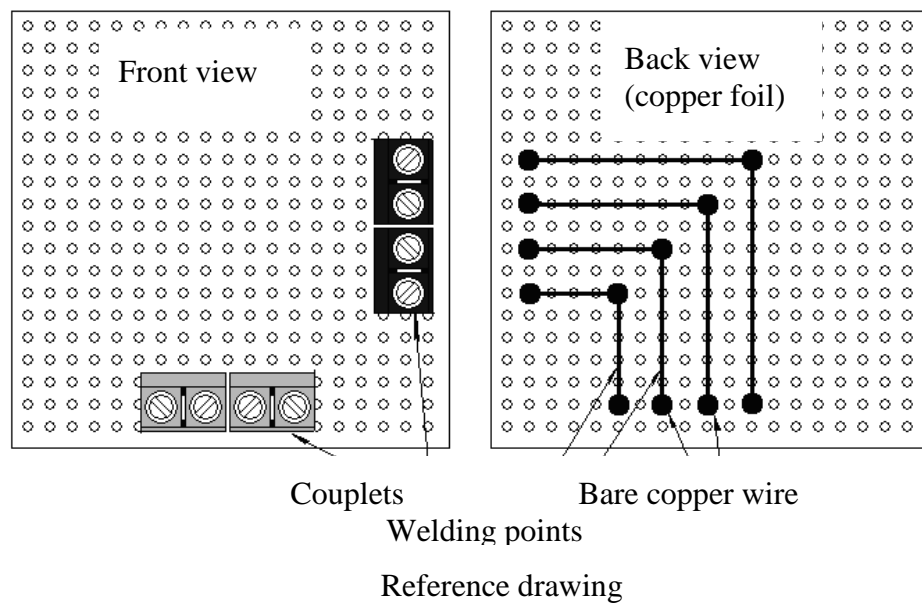
Test 2: Welding skill

Objective:

To assess candidates' practical skills in welding circuit board.

Test requirements:

Place two terminal posts on a universal board as shown in the front view. At the respective locations at the back (copper foil), use fusible alloy to weld bare copper wire, with 12 welding points in total.



Materials:

- (1) Universal board
- (2) Couplets x 8
- (3) Bare copper wire

Notes:

Within the time limit, candidates may re-do this part of the test (please inform the invigilators before re-doing the task).

Test 3: Install "security alarm system"

Objectives:

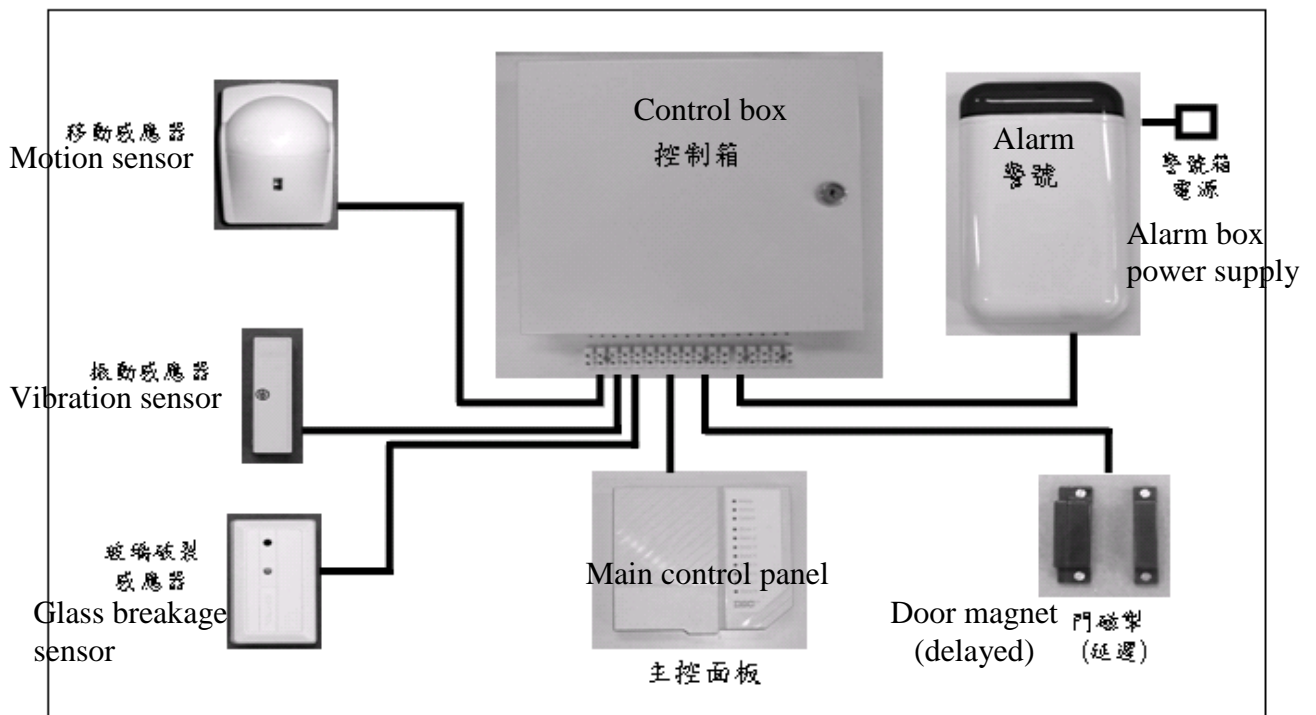
To assess candidates' knowledge on installing, wiring, connecting, trouble finding / fixing;
and

To test candidates' practice skill in "security alarm system".

Test requirements:

- (i) Connection system

Install and wire according to the drawing;



"Security alarm system" wiring diagram

- (ii) Trouble finding / fixing

One of the components provided by the test center is erroneous and does not function properly. After connecting the system, candidates need to locate and replace the malfunctioning component;

Every time a malfunctioning component is replaced, candidates must fill in the attached form for record; marks will be deducted if candidates take more than one replacement to locate the malfunctioning component.

(iii) System setting

After troubleshooting and reinstallation, candidates should change the system setting as needed, so that the “security alarm” system and the protective function of all sensors are activated (you may refer to the respective user’s manual).

Note: Whenever power supply is disconnected, system time must be reset, otherwise the system will display an error message.

(iv) System testing

After installation and troubleshooting, candidates should test the “security alarm” system to ensure every device functions properly and satisfies the test center’s requirements.

Materials and equipment:

- (1) Control panel
- (2) Key pad
- (3) Alarm and Bell box
- (4) Door magnet and glass breakage sensor
- (5) Motion sensor and vibration sensor
- (6) 4-core connecting cable and electric cable

Note:

Within the time limit, candidates may re-do this part of the test (please inform the invigilators before re-doing the task).

Please also note:

- (i) Candidates are required to test the stability of the connected wires, and ensure the satisfactory connection.
- (ii) Candidates must measure the system with appropriate meters, and make necessary modifications to the system so that it operates normally.

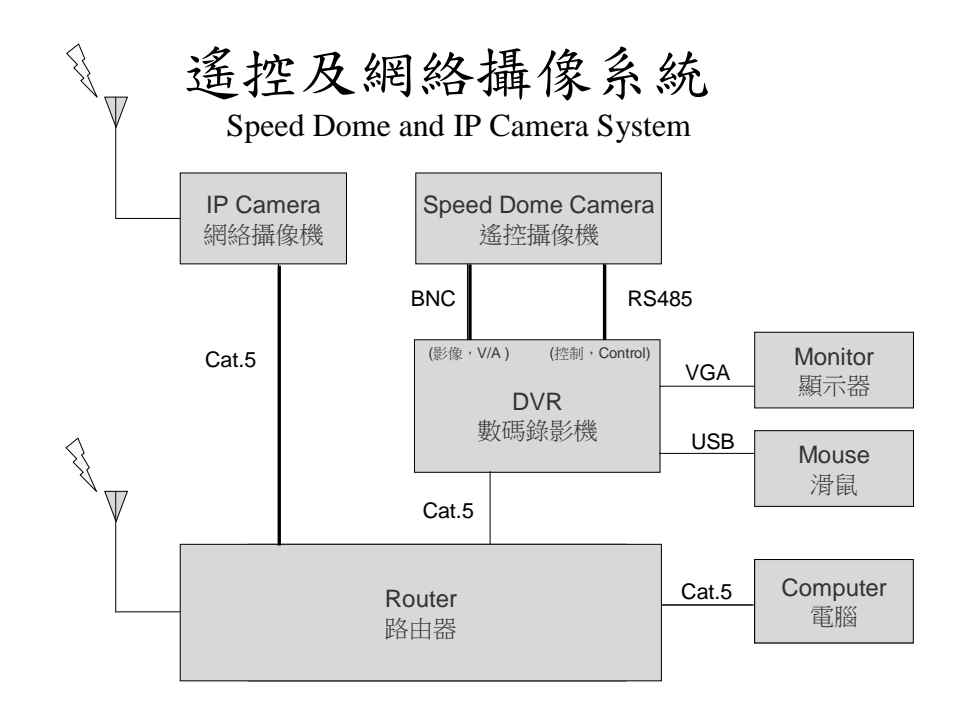
Test 4: Install “speed dome and IP camera system with video-recording equipment”

Objectives:

To assess candidates’ knowledge on installing, wiring, connecting and setting; and
To test candidates’ practical skills in “speed dome and IP camera system with video-recording equipment”.

Test requirements:

- (i) Connect the system
 - a) Connect all components according to the drawing (candidates should produce their own signal cables).
 - b) Label the two ends of the three cat.5 cables connecting the router as (IP Cam), (DVR) and (PC) respectively.



“Speed dome and IP camera system with video-recording equipment” wiring diagram

(ii) System setting:

After completing the wire connection and installation, candidates should make the follow system setting.

- a) Name the (IP Camera) as "CCTVcam";
- b) Set the current time and date for the (IP Camera);
- c) Use the computer network to set the speed dome camera, so that the computer could monitor the screen of the IP camera via wifi.

(iii) System testing:

Upon installation and setting, candidates should test the “speed dome and IP camera system with video-recording equipment” system, so as to make sure all devices function properly. This includes:

- a) Using the mouse to control the speed dome camera;
- b) Monitoring the screen of the IP camera through wifi;
- c) Use a video-recording software to record a 20-second video, to prove that the equipment meets the test’s requirements.

Materials and equipment:

- (1) Speed dome camera
- (2) IP camera
- (3) Monitor
- (4) DVR
- (5) Router
- (6) Notebook computer
- (7) Various types of couplings/signal cables/electric cables/labeling straps

Note:

Within the time limit, candidates may re-do this part of the test (please inform the invigilators before re-doing the task).

Please also note:

- (i) Candidates are required to test the stability of the connected wires, and ensure the satisfactory connection.
- (ii) Candidates must measure the system with appropriate meters, and make necessary modifications to the system so that it operates normally.

Test 5: Install “visitors’ intercommunication system for buildings”

Objective:

To assess candidates’ knowledge on installing, wiring, connecting, setting system functions of the “visitors’ intercommunication system for buildings”, as well as their practical skills on testing the system.

Test requirements:

- (i) System connection:
Install and wire according to the drawing;
- (ii) System setting:
After installation and troubleshooting, candidates should test whether all devices of the “visitors’ intercommunication system for buildings” function properly and meet the test center’s requirements.



“Visitors’ intercommunication system for buildings” wiring diagram

Materials and equipment:

- (1) Visitors' intercommunication host
- (2) Intercommunication phones x 4
- (3) Electronic lock
- (4) Various types of signal cables/electric cables
- (5) Various types of couplings

Note:

Within the time limit, candidates may re-do this part of the test (please inform the invigilators before re-doing the task).

Please also note:

- (i) Candidates are required to test the stability of the connected wires, and ensure the satisfactory connection.
- (ii) Candidates must measure the system with appropriate meters, and make necessary modifications to the system so that it operates normally.

Assessment Criteria

All tests are divided into two groups: [Practical Test] and [Written Test]. There are 5 sub-sections for [Practical Test] and 2 sub-sections for [Written Test]. To pass the full assessment, candidates must score 50% or above in every individual test item and 60% or above in each group test (Practical Test and Written Test). No extra time will be given to candidates who cannot complete the tests within the time limit.

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
 - j) 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