TESTING AND COMMISSIONING PROCEDURE

FOR

CATERING EQUIPMENT INSTALLATION

IN

GOVERNMENT BUILDINGS

OF

THE HONG KONG SPECIAL ADMINISTRATIVE REGION

2007 EDITION

ARCHITECTURAL SERVICES DEPARTMENT
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

PREFACE

This Testing and Commissioning (T & C) Procedure aims to lay down the minimum testing and commissioning requirements to be carried out on catering equipment installation in Government Buildings of the Hong Kong Special Administrative Region (HKSAR). Such requirements are applicable to both new installations upon completion and existing ones after major alteration.

The present edition was developed based on its 2000 edition by the Mechanical Installation Specialist Support Group that was established under the Building Services Branch Technical Information and Research & Development Committee. With the benefit of information technology, electronic version of this new edition is to be viewed on and free for download from the Architectural Services Department (ArchSD) Internet homepage. As part of the Government's efforts to limit paper consumption, hard copies of this T & C Procedure will not be put up for sale.

The Architectural Services Department welcomes comments on its contents at anytime since the updating of this T & C Procedure is a continuous process to tie in with technological advances.

DISCLAIMER

This T & C Procedure is solely compiled for use on catering equipment installation carried out for or on behalf of the ArchSD in Government buildings of the HKSAR.

There are no representations, either expressed or implied, as to the suitability of this T & C Procedure for purposes other than that stated above. The material contained in this T & C Procedure may not be pertinent or fully cover the extent of the installation in non-government buildings. Users who choose to adopt this T & C Procedure for their works are responsible for making their own assessments and judgement of all information contained here. The Architectural Services Department does not accept any liability and responsibility for any special, indirect or consequential loss or damage whatsoever arising out of or in connection with the use of this T & C Procedure or reliance placed on it.

TABLE OF CONTENTS

Testing and Commissioning Procedure for Catering Equipment Installation

1. Introduction

The procedures stated in this document cover the activities in preliminary tests and inspections, functional performance tests and the commissioning of newly completed installations and existing ones after major alteration. They are so compiled to facilitate the work of Project Building Services Engineer (PBSE) / Project Electrical and Mechanical Engineer (PEME) and Project Building Services Inspector (PBSI) / Project Electrical and Mechanical Inspector (PEMI) in the following aspects with respect to testing and commissioning (T&C):

(i) To vet and approve the T&C procedures proposed and submitted by the Contractor;
(ii) To witness those T&C procedures as specified; and
(iii) To accept the T&C certificates and other supporting data.

The Contractor shall carry out the T & C works as detailed in this document. Supplementary T&C plans may be proposed by the Contractor as appropriate and agreed by PBSE/PEME, e.g. for special equipment supplied and/or installed by the Contractor.

The administrative requirements for T & C works are in general as specified in the latest General Specification for Catering Equipment Installation (the General Specification) 2007 Edition issued by the Building Services Branch of the Architectural Services Department. If there is any discrepancy between this procedure and the General Specification, the General Specification shall take precedence.

2. Objectives of the T & C works

The objectives of the T & C works are:

(i) to verify proper functioning of the equipment/system after installation.
(ii) to verify that the performance of the installed equipment/systems meet with the specified design intent through a series of tests and adjustments.
(iii) to capture and record performance data of the whole installation as the baseline for future operation and maintenance.

All the test results shall be recorded by the Contractor in the appropriate test record forms, the reference of which is shown against each individual test. A complete set of these forms is included in Part 3 and Part 4 of AnnexII.

3. Scope of the T & C Works

3.1 Tests and Inspections during Construction

The purpose of these tests is to ensure that all components and systems are in a satisfactory and safe condition before start up. Preliminary adjustment and setting of equipment at this stage shall also be carried out at the same time to pave way for the coming functional performance tests.

Before carrying out any test, the Contractor shall ensure that the installation complies with all relevant statutory requirements and regulations. The T&C works shall also comply with all site safety regulatory requirements currently in force namely:-

(i) Gas Safety Ordinance Cap 51, and other subsidiary legislation made under the Ordinance;

(ii) Occupational Safety and Health Ordinance, Chapter 509, and other subsidiary legislation made under the Ordinance;

(iii) Factories and Industrial Undertakings Ordinance, Chapter 59, and other subsidiary legislation made under the Ordinance;

(iv) Construction Site (Safety) Regulations

(v) Dangerous Goods Ordinance, Cap 384;

(vi) Waste Disposal Ordinance, Cap 354;

(vii) Boilers and Pressure Vessels Ordinance, Cap 56;

(viii) Electricity Ordinance, Chapter 406, and other subsidiary legislations;

(ix) Code of Practice for the Electricity (Wiring) Regulations published by Electrical and Mechanical Services Department, the Government of the HKSAR;

3.2 Functional Performance Tests

The purpose of functional performance tests is to demonstrate that the equipment/installation can meet the functional and performance requirements as specified in the General/Particular Specifications. Functional performance test should proceed from the testing of individual components to the testing of different systems in the installation.

The Contractor may have to make temporary modifications as the test proceeds. The specific tests required and the order of tests will vary depending on the type and size of systems, number of systems, sequence of construction, interface with other installations, relationship with the building elements and other specific requirements as indicated in the General/Particular Specifications. The testing of systems may have to be carried out in stages depending on the progress of work or as proposed by the Contractor.

Part of the tests may be required to be carried out in suppliers' premises in accordance with the provisions in the General/Particular Specification.

Any performance deficiencies revealed during the functional performance tests must be evaluated to determine the cause and whether they are part of the contractual obligations. After completion of the necessary corrective measures, the Contractor shall repeat the tests.

If any test cannot be completed because of circumstances that are beyond the control of the Contractor, it shall be properly documented and reported to the PBSE, who shall then liaise with the relevant parties to resolve the situation. The Contractor shall resume his testing work immediately upon the attainment of a suitable testing environment.

3.3 Commissioning and Statutory Inspections

Commissioning is the advancement of an installation from the stage of static completion to full working conditions and to meet the performance requirements as specified in the General/Particular Specification. This will include setting into operation and regulation of the installation. It is expected that fine-tuning of the commissioned system shall be done by the Contractor to match system performance to the actual needs of the building occupier more closely.

Where necessary, after the proper testing and commissioning of the Catering Equipment Installation, the Contractor shall notify the appropriate authority, through the PBSE of the completion of the installation and its readiness for final inspection.

Where required in Specification, the Contractor shall carry out inspection and testing on related Catering Equipments Installations and related builder's works installed by others in order to check and certify their compliance with Catering Equipment requirements. All interfacing of Catering Equipment installation with related systems/installations such as Town Gas and LPG Installations, etc. carried by others and their performance when tested and certified by the Contractor.

3.3 Documentation and Deliverables

The Contractor shall submit his proposed T & C procedures together with the Testing and Commissioning Progress Chart shown in Annex I to PBSE for approval.

All inspection and T & C results shall be recorded in the data record forms shown in Part 3 and 4 of Annex II. Data recorded in other formats may also acceptable subject to agreement between the PBSE and the Contractor. Upon completion of all the required T&C works, the Contractor's project engineer shall complete and sign a testing and commissioning certificate as shown in Part 1 and 2 of Annex II to the effect that the agreed T & C works have been duly carried out.

A functional performance test report covering all measured data, data sheets, and a comprehensive summary describing the operation of the system at the time of the functional performance tests shall be prepared and submitted to the PBSE. Deviations in performance from the General/Particular Specifications or the design intent should be recorded, with a description and analysis included.

Where required in the General Specification, the Contractor shall conduct a final evaluation of the performance of the Catering Equipment Installation, the results of which shall be included in the commissioning report.

4. T & C Procedures

4.1 Water System Tests

Water systems and circuits shall be tested hydraulically to 1.5 times the working pressure applied at the highest point of the system and held for a period of not less than 15 min without leaks appearing.

All pipework shall be thoroughly cleaned and flushed before test. The Contractor shall ascertain that there is adequate drainage nearby to discharge by large hose in order to ensure flooding of low level areas will not occur. Where necessary, the Contractor shall provide chemical cleaning to the pipes. After flushing out the pipework, a flow test shall be performed on the water supply system in accordance to the Authorities' requirements.

The Contractor shall provide whatever hoses or drainage channels required to safely remove the test water discharged while carrying out these tests in order to ensure that no damage to the building and property caused by the test water.

The Contractor shall submit hydraulic test certificates/reports that shall be signed by the Contractor's CEIC and by the Architect or the representative who has witnessed the test.

The test certificates/reports shall contain the following particulars:-

- Date of test
- Apparatus or section under test
- Make number (if any)
- Nature, duration and conditions of test
- Result of test
- Name of Contractor's Representative in charge of test
- Name of Employer's Representative at witness the test

4.2 Electrical Tests

Electrical wiring systems shall be tested generally as required by the General Electrical Specification. Low voltage wiring shall be insulation tested to a D.C. voltage of twice the normal working voltage of the system. Any tests that are liable to cause damage to the delicate components such as those incorporating electronic circuits shall be carried out with the components disconnected.

5. Commissioning and Statutory Inspections

After the proper testing and commissioning of the Catering Equipment Installation, the Contractor shall notify the appropriate Authority, through the PBSE, on the completion of the installation and its readiness for inspection and testing.

Before notifying the appropriate Authority for inspection, the Contractor shall arrange a mock up inspection with PBSE/PBSI to demonstrate the readiness of the Catering Equipment installation for statutory inspection. The Contractor shall prepare and make ready all documents required for statutory inspection which will be examined during the mock up inspection and statutory inspection.

6. Calibrated Equipment

The Contractor shall supply calibrated equipment as stipulated in the Specification of the Contract for the inspection, measuring and testing of the installation. A list of calibrated instrument necessary for the T&C Works shall be recorded in Annex III.

Testing and Commissioning Progress Chart
"Catering Equipment Installation"

Contract No. : _____

Contract Title : _____

Name of Catering Equipment Contractor/sub-contractor : _____

Contract Period : ___/___/20___ to ___/___/ 20___ * Revised/Actual Completion Date : ___/___/ 20___

	Testing and Commissioning Progress Chart for Catering Equipment Installation (Rev.)(1)																							
	Dates (2)																							Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A		
1.	Water Piping System	Section 3.1 / 3.2.2																						
	Visual inspection																							
	G/F																							
	1/F																							
	2/F																							
	Submission of Record of Test																							
2.	Gas Piping System	Section 3.1 / 3.2.2																						
	Visual inspection																							
	G/F																							
	1/F																							
	2/F																							
	Submission of Record of Test																							
3.	Electrical Equipment	Section 3.2.1B / 3.2.2																						
	Visual inspection																							
	G/F																							
	1/F																							
	2/F																							
	Submission of Record of Test																							

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and Commissioning Progress Chart
"Catering Equipment Installation"

	Testing and Commissioning Progress Chart for Catering Equipment Installation (Rev.)(1)																						
	Dates (2)																						Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
4.	Gas Equipment	Section 3.2.1 A&B&F/3.2																					
	Visual inspection																						
	G/F																						
	1/F																						
	2/F																						
	Submission of Record of Test																						
5.	Non-pressure / Pressure Type Water Heater	Section 3.2.1 D&E / 3.2.2																					
	Visual inspection																						
	G/F																						
	1/F																						
	2/F																						
	Submission of Record of Test																						
6.	Steam Equipment	Section 3.2.1 G / 3.2.2																					
	Visual inspection																						
	G/F																						
	1/F																						
	2/F																						
	Submission of Record of Test																						
7.	Other Catering Equipment / Appliances	Section 3.2.1 H / 3.2.2																					
	Visual inspection																						
	G/F																						
	1/F																						
	2/F																						
	Submission of Record of Test																						

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and Commissioning Progress Chart
"Catering Equipment Installation"

	Testing and Commissioning Progress Chart for Catering Equipment Installation (Rev.)(1)																							
	Dates (2)																							Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A		
8.	Fixtures/Furniture in Kitchen	Section 3.2.1 I / 3.2.2																						
	Visual inspection																							
	G/F																							
	1/F																							
	2/F																							
	Submission of Record of Test																							
9.	Submission of T&C Certificate																							

Notes

* Delete as appropriate

(1) Insert revision no.
(2) Insert additional columns as necessary
S - schedule % completion
A - actual % completion

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and Commissioning Certificate
on
Catering Equipment Installation

Part 1 : Details of Project

1.1 Project title (with location) :

1.2 *P.W.P./Project No. :

1.3 *Contract/Sub-contract/Quotation No. :

1.4 *Contractor/Sub-contractor :

1.5 Project BSE :

1.6 Project BSI :

Part 2 : Declaration

2.1 I certify that the Catering Equipment Installation as specified in the Contract/Sub-contract/ Quotation at the above location has been inspected, tested and commissioned accordance with this procedure and/or any other procedure as agreed between the Project BSE and the Contractor. The results are satisfactory in the aspects mentioned in Part 3 of this Certificate and/or recorded elsewhere, except as indicated in the COMMENTS item.

2.2 I also certify that site tests have been performed in accordance with the requirements set out in Appendix A of this procedure and that the results are satisfactory. A record of the tests has been prepared and submitted to the PBSE.

<table>
<tr><td rowspan="3">(Name of Contractor's Representative)</td><td rowspan="3">Signature -
( )</td><td>Post :</td><td></td></tr>
<tr><td>Tel. No. :</td><td></td></tr>
<tr><td>Date :</td><td></td></tr>
<tr><td rowspan="3">(Designation of Contractor's Representative)</td><td rowspan="3">Signature -
( )</td><td>Post :</td><td></td></tr>
<tr><td>Tel. No. :</td><td></td></tr>
<tr><td>Date :</td><td></td></tr>
<tr><td rowspan="3">(Name and Stamp of Contractor)</td><td rowspan="3">Signature -
( )</td><td>Post :</td><td></td></tr>
<tr><td>Tel. No. :</td><td></td></tr>
<tr><td>Date :</td><td></td></tr>
</table>

Note : This certificate must be signed by a person authorized by the Firm/Contractor.

* Delete if not applicable

		Items tested by Contractor	Items witnessed by BS site staff

Part 3 : Items Inspected and Tested

3.1 Inspection, Testing and Commissioning of Piping System

3.1.1 Visual Inspection

(A) Steel and Copper Pipework

1.	Are all pipelines of the correct types and approved by the Architect?	*Yes/No/	*Yes/No
2.	Are all pipelines up to 13 mm bore of steel or copper made?	*Yes/No	*Yes/No
3.	Are all pipelines above 13 mm bore of steel made?	*Yes/No	*Yes/No

(B) Flexible Hoses and Tubing

1.	Are all flexible hoses and tubing of correct types and approved by the Architect?	*Yes/No	*Yes/No
2.	Are corrosion resistant braiding for flexible hoses and tubing used?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Are manual shut-off valves installed for vapour pipelines at intermediate pressure or below to which the flexible hoses are connected?	*Yes/No	*Yes/No
4.	Is all flexible tubing within 2 m long?	*Yes/No	*Yes/No
5.	Is any flexible tubing extended from one room to another or passing through wall or ceiling?	*Yes/No	*Yes/No
6.	Are all end fittings of the flexible hoses and tubing of correct and approved type?	*Yes/No	*Yes/No
7.	Are fittings for securing flexible hoses and tubing free from burrs/sharp edges and not over-tightened?	*Yes/No	*Yes/No

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
(C)	Pipe Joints and Fittings		
1.	Are all steel pipe joints over 50 mm bore welded or welded flanged?	*Yes/No	*Yes/No
2.	Is only electric arc welding used on steel pipes of 125 mm bore and larger?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Are copper pipe joints of compression type or sweated type silver soldered or brazed using jointing material of melting point exceeding 540^0C.	*Yes/No	*Yes/No
4.	Are pipe fittings of the correct and approved types?	*Yes/No	*Yes/No
5.	Are gaskets used appropriate to the type of gas?	*Yes/No	*Yes/No
(D)	Piping Installation		
1.	Are pipeworks installed in accordance with the approved drawings?	*Yes/No	*Yes/No
2.	Are all pipework buried in floor slabs protected against corrosion and mechanical damage?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Are surface pipeworks adequately supported and are the supports made of correct materials and correctly constructed?	*Yes/No/N.A.	*Yes/No/N.A.
4.	Are the pipe runs having adequate flexibility and facilities to compensate for thermal expansion and contraction of pipes, or mechanical stress at branch pipes?	*Yes/No/N.A.	*Yes/No/N.A.
5.	Are all pipeworks protected against corrosion by wrapping, galvanizing or painting as appropriate?	*Yes/No	*Yes/No
6.	Are pipeworks passing through walls or floor slabs properly wrapped ad enclosed in metal sleeves and without joints?	*Yes/No	*Yes/No

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
7.	Is a minimum clearance of 60 mm maintained between gas pipes and electric conduits, trunking and cables?	*Yes/No	*Yes/No
8.	Have identification labels been provided for all surface distribution pipes?	*Yes/No	*Yes/No
(E)	Valves and Accessories	*Yes/No	*Yes/No
1.	Are all valves of correct and approved types?	*Yes/No	*Yes/No
2.	Are all valves accessible and with clear indication of direction of operation?	*Yes/No	*Yes/No

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
3.1.2	Testing and Commissioning		
	(A) Pipework		
1.	All pipeworks have been pressure and leak tested, by means of *pressure drop hydraulic method/soap and water pneumatic method, before and after applying corrosion treatment, concealed or buried.	*Yes/No	*Yes/No
2.	Before pressure testing, the units which are not capable of accepting the test pressures have been isolated.	*Yes/No	*Yes/No
3.	Pressures used for the testing were as follows:-		
	Working : _____	*Yes/No	*Yes/No
	Testing : _____	*Yes/No	*Yes/No
4.	Are all pipeworks and metal works properly painted in accordance with the specification?		
5.	Are proper identification provided for water / steam / refrigeration / fuel oil / fuel gas pipeworks, wirings and equipment?	*Yes/No	*Yes/No
6.	Are results of pressure test on water / steam / refrigeration / fuel oil / fuel gas pipeworks satisfactory?	*Yes/No	*Yes/No
	(B) Valves and Accessories		
1.	During the pressure testing, have all isolating valves and quick-acting shut-off valves been checked and no leakage at fully closed positions?	*Yes/No	*Yes/No
2.	Are all pressure gauges working properly and reading correct figures?	*Yes/No	*Yes/No

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
(C)	Cables, Wiring and Other Interconnections		
1.	Are insulation test of all cables and wiring tested with all insulation resistance ≧ 0.5 MΩ ?	*Yes/No	*Yes/No
2.	Is the completed circuit tested as recommended by the equipment manufacturer?	*Yes/No	*Yes/No
3.	Is earth continuity and earth-loop impedance tested with results in compliance with the Code?	*Yes/No	*Yes/No

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.1.3 Miscellaneous and Document

(A) Miscellaneous

1.	Are water tanks clear of debris?	*Yes/No	*Yes/No
2.	Is permanent water supply connected?	*Yes/No	*Yes/No
3.	Is permanent electricity supply connected?	*Yes/No	*Yes/No
4.	Is emergency electricity supply available?	*Yes/No/N.A.	*Yes/No/N.A.

(B) As-fitted Catering Equipment installation drawings including the followings are provided :

1.	Schematic control diagrams showing the types, size and connection of all cables and wiring for safety / protection devices;	*Yes/No	*Yes/No
2.	Floor layout plans showing the location of quick isolating valves / switches for emergency operation.	*Yes/No	*Yes/No

(C) Approval/Acceptance letters from various Authorities for the following equipment are provided:

1.	WSD Ref. : _____	*Yes/No	*Yes/No
2.	FSD Ref. : _____	*Yes/No	*Yes/No
3.	GasSO Ref : _____	*Yes/No	*Yes/No

3.2 Inspection, Testing and Commissioning of Catering Equipment/Appliances

3.2.1 Visual Inspection

(A) General

1.	Are all equipment/appliances of correct and approved models?	*Yes/No	*Yes/No
2.	Are all equipment / appliances installed properly in accordance with manufacturer's instructions?	*Yes/No	*Yes/No

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
3	Are adequate access panels provided for equipment operation/maintenace?	*Yes/No	*Yes/No
4.	Are adequate spaces adjoining the equipment allowed to facilitate cleansing?	*Yes/No	*Yes/No
5.	Is manual isolating valve, switch or control provided for each equipment / appliances for the steam, gas, water or electricity supply?	*Yes/No	*Yes/No
6.	Is the manual isolating valve located at a readily accessible position?	*Yes/No	*Yes/No
7.	Are the materials for the equipment / appliances were constructed in accordance with the Specification?	*Yes/No	*Yes/No
8.	Are the thickness of the stainless steel sheet in accordance with the specification?	*Yes/No/N.A.	*Yes/No/N.A.
9.	Is welding of stainless steel carried out in accordance with Specification and completed with a high quality finish?	*Yes/No/N.A.	*Yes/No/N.A.
10.	Are all metal casings of the equipment / appliances provided with continuous equipotential bonding and connected to the main isolating switch?	*Yes/No	*Yes/No
11.	Are all floor mounting equipment provided with adjustable legs?	*Yes/No/N.A.	*Yes/No/N.A.
12.	Is drain of equipment properly connected to drain water channel or drain point?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

	Items tested by Contractor	Items witnessed by BS site staff
(B) Electrical Equipment / Appliances		
1. Are the electrical equipment / appliances suitable for 380V/3 ph/50 Hz or 220V/1 ph/50 Hz?	*Yes/No/N.A.	*Yes/No/N.A.
2. Are the electrical equipment / appliances provided with isolating switch?	*Yes/No/N.A.	*Yes/No/N.A.
3. Are the electrical equipment / appliances provided with sufficient length of flexible cable with plug as specified?	*Yes/No/N.A.	*Yes/No/N.A.
4. Are the rating of the equipment / appliances matched that of the power supply switch or socket?	*Yes/No/N.A.	*Yes/No/N.A.
(C) Gas Equipment/Appliances		
1. Are flues readily accessible for inspection and suitable for future maintenance?	*Yes/No/N.A.	*Yes/No/N.A.
2. Are flues properly installed where they pass through roof, ceiling and seal with non-combustible materials?	*Yes/No/N.A.	*Yes/No/N.A.
3. For flues incorporating forced draught devices and automatically operated damper devices :	*Yes/No/N.A.	*Yes/No/N.A.
Are these devices interlocked with the gas supply to burners?	*Yes/No/N.A.	*Yes/No/N.A.
4. Are manual operated dampers incorporated in flue systems and maintained in fixed open position?	*Yes/No/N.A.	*Yes/No/N.A.
5. Is flue discharge to exhaust hood provided with fume diverter?	*Yes/No/N.A.	*Yes/No/N.A.
6. Are flame failure devices of approved type provided for totally enclosed and semi-enclosed burner?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
7.	Are the flame failure devices protected against draught and sheltered from over-spilling and over heating?	*Yes/No/N.A.	*Yes/No/N.A.
(D)	Non-pressure Type Water Heating Appliances		
1.	Is vent to atmosphere provided?	*Yes/No/N.A.	*Yes/No/N.A.
2.	Is low level water protective and safety devices tested to the manufacturer's recommendation?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Are the accuracies of all meters and gauges tested to its proper operating ranges?	*Yes/No/N.A.	*Yes/No/N.A.
(E)	Pressure Type Water Heating Appliances		
1.	Is pressure safety valve provided?	*Yes/No/N.A.	*Yes/No/N.A.
2.	Is vacuum release valve provided?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Is pressure gauge provided and tested to its accuracies / proper operating ranges?	*Yes/No/N.A.	*Yes/No/N.A.
4.	Is low water level cut out provided?	*Yes/No/N.A.	*Yes/No/N.A.
5.	Is water level gauge(s) provided (except boiling pan)?	*Yes/No/N.A.	*Yes/No/N.A.
(F)	Fryer		
1.	Is high temperature cut-out provided?	*Yes/No/N.A.	*Yes/No/N.A.
2.	Is cut-out device provided when tilting pan displaced?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Is permanent maximum oil level marker provided?	*Yes/No/N.A.	*Yes/No/N.A.
(G)	Steam Equipment		

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
1.	Is working pressure of the equipment suitable for the supply pressure?	*Yes/No/N.A.	*Yes/No/N.A.
2.	Are the pressure reducing valves provided for lower pressure equipment and accessories?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Are steam trap facilities provided for collecting condensate?	*Yes/No/N.A.	*Yes/No/N.A.
4.	Is adjustable thermostatic control provided for the equipment with accuracies tested??	*Yes/No/N.A.	*Yes/No/N.A.
(H)	Refrigeration Equipment/Appliances		
1.	Is internal light provided as specified in the Particular Specification?	*Yes/No/N.A.	*Yes/No/N.A.
2.	Is low voltage strip heater provided for doors?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Is dial gauge or other type of thermometer provided as specified in the Particular Specification with accuracies tested?	*Yes/No/N.A.	*Yes/No/N.A.
(I)	Sink and Fixture		
1.	Is the sink provided with chromium plated brass/bronze faucet?	*Yes/No/N.A.	*Yes/No/N.A.
2.	Is the exposed surface free of bolt, screw and rivet head?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Are the legs rigid enough and not more than 1800 mm centre?	*Yes/No/N.A.	*Yes/No/N.A.
4.	Are bracing provided under stainless steel counter table, drain board, dish tabletop, etc.?	*Yes/No/N.A.	*Yes/No/N.A.
5.	Is sink provided with connected overflow?	*Yes/No/N.A.	*Yes/No/N.A.
6.	Is anti-syphon provided for hand basin?	*Yes/No/N.A.	*Yes/No/N.A.
7.	Is splashback provided for sink, and table counter against wall?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
3.2.2	Testing and Commissioning		
1.	Are gas supply pressure, water supply pressure and electricity supply voltage within the operating range of the equipment / appliances?	*Yes/No/N.A.	*Yes/No/N.A.
2.	Are all safety controls tested and ensured in proper working order?	*Yes/No/N.A.	*Yes/No/N.A.
3.	Are indicating lamp(s) and light(s) in proper function?	*Yes/No/N.A.	*Yes/No/N.A.
4.	Do the meter, gauge and other indication devices function accurately?	*Yes/No/N.A.	*Yes/No/N.A.
5.	Is the manual control switch working properly?	*Yes/No/N.A.	*Yes/No/N.A.
6.	Is the automatic on / off or modulating thermostatic control working properly?	*Yes/No/N.A.	*Yes/No/N.A.
7.	Is the timer switch and sequencing control switch working properly?	*Yes/No/N.A.	*Yes/No/N.A.
8.	Are the ignition, combustion and air supply properly sequenced for automatic combustion system?	*Yes/No/N.A.	*Yes/No/N.A.
9.	Are the gas / air ratio of burners adjusted correctly for proper combustion?	*Yes/No/N.A.	*Yes/No/N.A.
10.	Is the interlock between gas supply and forced draught dampers working properly?	*Yes/No/N.A.	*Yes/No/N.A.
11.	Are the ignition devices working properly?	*Yes/No/N.A.	*Yes/No/N.A.
12.	Are the flame failure devices working properly?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested by Contractor	Items witnessed by BS site staff
13.	Is the compressor for refrigeration equipment / appliances working properly without excessive noise?	*Yes/No/N.A.	*Yes/No/N.A.
14.	Is the condenser of the refrigeration equipment / appliances ventilated effectively and not over heated?	*Yes/No/N.A.	*Yes/No/N.A.
15.	Does the door strip heater for refrigeration equipment/appliances function properly?	*Yes/No/N.A.	*Yes/No/N.A.
16.	Is the refrigeration equipment/appliances able to maintain the specified temperature?	*Yes/No/N.A.	*Yes/No/N.A.
17.	Is the refrigeration equipment/appliances able to achieve the required temperature within the specified period from the loading temperature	*Yes/No/N.A.	*Yes/No/N.A.
18.	Is the insulation and earth continuity of the electrical circuit of the equipment/appliances within the standards?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.3 COMMENTS (if any) :

Testing and Commissioning for Other Equipment	Items tested by Contractor	Items witnessed by BS site staff
1.	*Yes/No/N.A.	*Yes/No/N.A.
2.	*Yes/No/N.A.	*Yes/No/N.A.
3.	*Yes/No/N.A.	*Yes/No/N.A.
5.	*Yes/No/N.A.	*Yes/No/N.A.
6.	*Yes/No/N.A.	*Yes/No/N.A.
7.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Part 4 : Test Records attached to the Test Certificate

4.1 : Test Record

Date of test	Type of test	Test result

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.2 Test Certificates

Location and address of installation : _____

_____

This is to certify that the following catering equipment installation *has/have been tested with the following test certificates :-

Date of test	Type of test	Test certificate and details

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

List of Calibrated Instrument Necessary for the T&C Works

Project Title :

*P.W.P./Project No. :

*Contract/Sub-contract/Quotation No. :

Test instruments used :

Type	Model	Serial No.

Tested / Checked by : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	