

**Memorandum for the Review Committee on Quality Assurance Issues  
Relating to Fresh Water Supply of Public Housing Estates  
of the Hong Kong Housing Authority**

**Material Submission for Fresh Water Supply System  
in Housing Authority's Public Housing Developments**

**PURPOSE**

This paper informs Members about the submission and approval of materials for fresh water supply system in Housing Authority (HA)'s Public Housing Developments.

**BACKGROUND**

2. **Paper No. RC 6/2015** informs Members about the major processes shown in a Flow Chart for Design, Construction and Completion of Fresh Water Supply System in the HA's Public Housing Developments, to facilitate Members' understanding of the existing mechanism as described in **Paper No. RC 3/2015**, and to enable them to make informed decisions. Further details for each job stage would be presented in greater details by supplementary information under separate cover. This paper outlines the major processes in submission of materials for installation of Fresh Water Supply System in post contract stage (**Step 9 in Annex 1 of Paper No. RC 6/2015** refers).

3. Upon commencement of the Works after award of the HA's building contract, the Registered Contractor (RC) may sublet a part of the Works to a domestic plumbing subcontractor for execution of plumbing installation works, with the exception of the water pump installation works, which are executed by a Nominated Subcontractor (NSC) under the supervision of the RC.

4. RC, with his domestic subcontractor and NSC, submits plumbing materials to the Contract Manager (CM) for approval. Disapproval by the CM would mean resubmission by RC until approval is obtained before such materials could be used on site.

## **MATERIAL SUBMISSION**

5. Materials used in the HA's public housing developments are governed by the specifications forming part of the Contract between the HA and RC. According to the specifications, materials used in fresh water supply system shall be in full compliance with all statutory requirements together with any revisions or amendments according to specifications, such as, Waterworks Ordinance (WO) and its Regulations, Noise Control Ordinance, Hong Kong Waterworks Standard Requirements for Plumbing Installations in Buildings and Circular Letters issued by Water Supplies Department and, inter alia, relevant sections of appropriate British/European Standards on materials and workmanship, etc. (**Annex 2** refers).

6. All pipes and fittings shall be constructed of materials suitable for the required working and test pressures and temperatures of the fluid carried and capable of withstanding working pressures, maximum static pressure, be of standard products and, inter alia, approved by the Water Authority (WA) (**Annex 3** refers).

7. According to the Contract, RC is required to submit materials and test certificate to certify they fully comply with the specifications for use in the works for approval of the CM -

- (a) In practice, the Quality Control Coordinator (QCC) of RC submits the following materials in the prescribed forms to Site Inspection Team (SIT) for checking of copper pipe and fittings, lead free solder wire and flux, sink and basin mixers, shower mixer with flexible hose and handset, stainless steel braid flexible hose, brass bib tap, loose jumper type stop cock, gunmetal gate valve, ductile iron resilient seat gate valve, ductile iron pipe and fittings, flange gasket, gunmetal puddle flange, cast iron swing check valve with bronze trimmed for fresh water installation, gunmetal pressure reducing valve, pressure dial gauge, cast iron Y strainer and stainless steel flexible connector; and

- (b) RC's Building Services Engineer vets the NSC's submission and further submits fresh water pump, modulating float valve with ball cock, stainless steel pipe & fitting, ductile iron pipe & fitting, gate valve, cast iron basket strainer, stainless steel flexible connector, pressure reducing valve (inside pump rooms), pressure dial gauge, pressure switch, non-return valve, stainless steel pneumatic pressure vessel and pressure transducer.

8. A list of 30 materials for use in plumbing and water pump installations in HA's public housing developments is given in **Annex 2 of Paper No. RC 10/2015** (**Annex 4** refers). Origin of manufacture of the equipment and materials shall also be submitted for approval. Where necessary, CM's Representatives (CMR) may order for testing of the submitted material sample by an independent laboratory for the verification of compliance with the Specification.

9. In gist, approval procedures for material submission are summarized as follows –

- (a) SIT checks the material submission against specification requirements and gives recommendations to CMR for approval in prescribed form no. DCMP-F716, F717 and F718 (**Annex 5** refers) for related domestic contractor's submissions and in DBSP-F27 and F28 (**Annex 6** refers) for related Fire Services and Water Pump (FSWP) NSC submissions<sup>Note 1</sup>;

- (b) CMR checks the submission to ensure compliance with specification requirements on material, construction and performance characteristics based on the information submitted by the RC, including catalogue, construction drawings, necessary certificates, test reports, relevant authorities' approval letters, manufacturers' undertaking of compliance with relevant standards and physical samples;

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Note 1 Paper No. RC 7/2015 sets out the scope of work of the Domestic Plumbing Subcontractor and the Fire Services and Water Pump Nominated Subcontractor in the fresh water supply system.

- (c) CMR takes into consideration job references quoted by the RC and check for any Material Quality Alerts issued by HD in respect of the submitted materials; and
- (d) CMR approves the material submission by letter or prescribed forms.

10. After approval of the material submission with submitted samples, the approved samples mounted on a sample board are kept in a lockable store room for record and for reference by SIT for routine checking during the construction process. The samples are to be kept until the completion of the Works. For those material submissions without samples, such as pumps, pneumatic pressure vessel etc. which involve bulky installation, approval is based on documental check, and as such, no such sample is kept on site.

11. The building services materials approved by various project teams are compiled to form a database as a reference and platform for experience sharing. In addition, Specialist Vetting Team has been set up in 2015 to vet the Base Documents<sup>Note 2</sup> of commonly used major building services (BS) materials and products including those for water pump installations. The vetted Base Documents are submitted to Joint Material Group (Building Services) for endorsement and then uploaded to the BS Material Database (BSMD) for reference by project teams and Building Services Engineering Services Providers undertaking projects for the HA. RCs are also given access to the BSMD for reference and checking against their intended submission of the corresponding material or product to be used in a project.

12. The site supervision of fresh water supply system, including material checking and surveillance and supervision of workmanship, is covered in **Paper No. RC 14/2015**.

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Note 2 Base Documents pertaining to a product may comprise catalogues, photographs, drawings, schedule of materials employed, test certificates and test reports etc. as appropriate for the particular product.

## **STATUTORY SUBMISSION**

13. The Licensed Plumbers (LPs) separately engaged by the domestic plumbing subcontractor and the FSWP NSC, request CM serving the Authorized Person (AP) role of the public housing project via the RC, to jointly sign and submit Form No. WWO46 Part I to the WA of the commencement date and scope of plumbing works to be carried out, quoting WSD approval reference and approved drawing no., size and no. of water meters involved, anticipated date when water supply is required. A set of duly completed Annex to this Form has to be attached to show details of pipes and fittings installed/intended to be installed<sup>Note 3</sup>. The WA will return Form No. WWO46 Part III to notify the LPs of the comments, if any, on the submission. If the submission is acceptable, the WA will give permission, also vide Form No. WWO46 Part III, for the LP to proceed with the installation as detailed in Part I of the Form.

## **INFORMATION**

14. This paper is for Members' information.

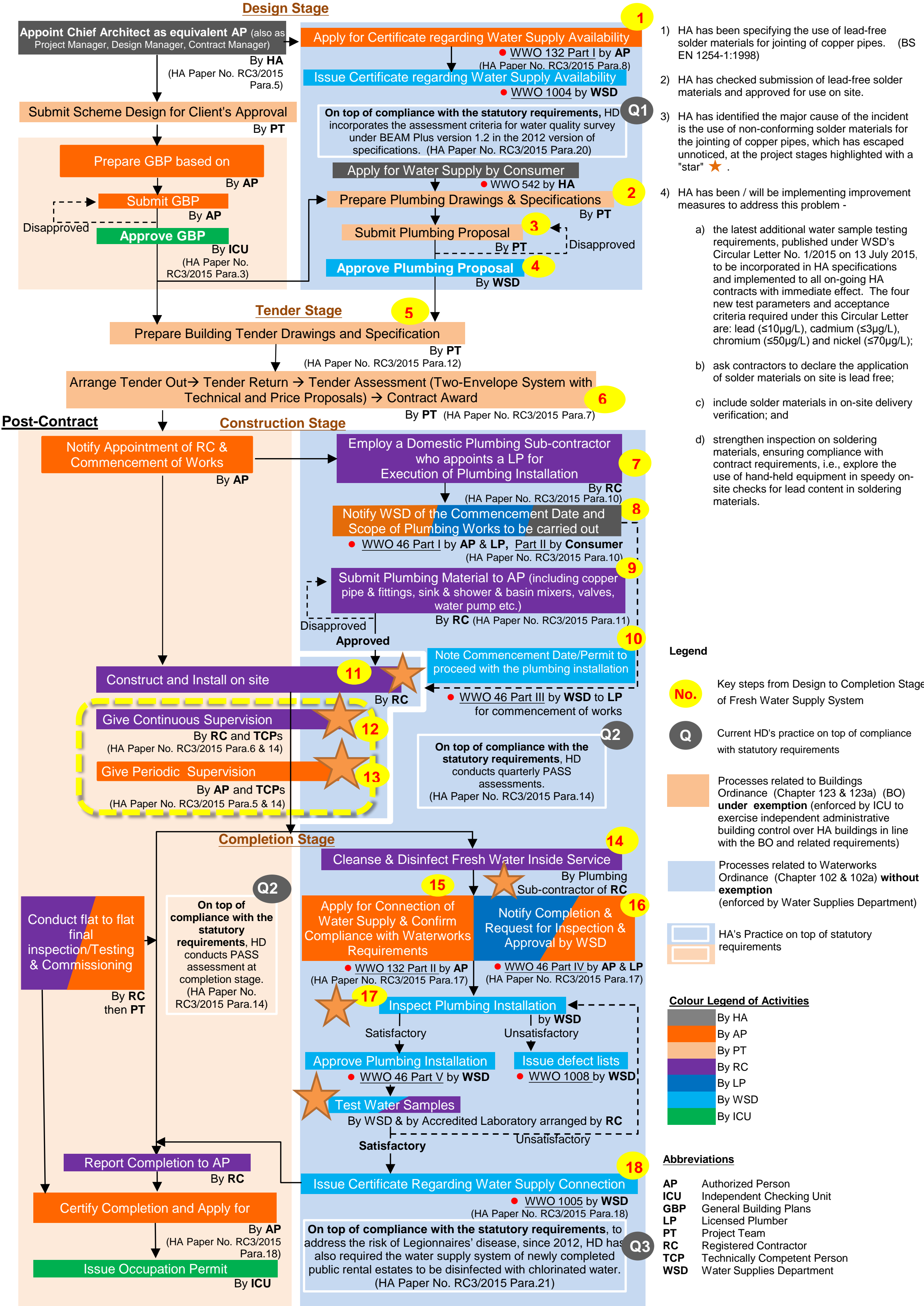
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File Ref. : HD (C) DS 624/1  
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Note 3 According to Note 7 of Form WWO46, all pipes used/intended to be used are required to be reported in the Annex. For fittings, only draw-off taps, stop valves, gate valves, ball valves and combination fittings need to be reported. According to Water Supplies Department's Circular Letter no. 1/2015 issued on 13 July 2015, if soldering is used in the connection between water pipes, a supporting document of lead free grade soft solder or filler metal used in soldering, brazing and/or welding construction methods is required.

Pre-Contract



## PLU1.G020.7

## REGULATIONS AND STANDARDS

1. Comply with all statutory regulations together with any revisions or amendments made thereto. The following regulations and standards are particularly relevant:
  - a. The Waterworks Ordinance and its Regulations;
  - b. The Fire Services Ordinance and its Regulations;
  - c. The Noise Control Ordinance;
  - d. Hong Kong Waterworks Standard Requirements for Plumbing Installations in Buildings and Circular Letters issued by the Water Authority;
  - e. Codes of Practice for Minimum Fire Services Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment and Circular Letters issued by the Fire Services Department;
  - f. Factories and Industrial Undertakings (Confined Spaces) Regulation;
  - g. Where applicable, relevant sections of appropriate international standards on materials and workmanship as listed in PLU1.APPEND1.

## PLU1.M110.7






## GENERAL

All pipes and fittings shall:












1. Conform to this Specification. Alternative materials may be used if approved by the Contract Manager;
2. Be constructed of materials suitable for the required working and test pressures and temperatures of the fluid carried;
3. Be capable of withstanding system working pressure and maximum static pressure that may arise upon failure of the associated pressure reducing devices;
4. Be of standard products. Do not use on-site fabricated and locally manufactured pipes and fittings except specified elsewhere or where shown on the Drawings or approved by the Contract Manager;
5. Be approved by the Water Authority for the intended application. Submit type test reports/certificates for pipes, elbows and equal tees issued by laboratories that comply with PRE.B9.570 for verification of compliance with this Specification. Submit type test reports/ certificates of fittings other than elbows and equal tees upon Contract Manager's request;
6. Be taken with all necessary precautions to avoid surface damage or contamination during shipping, handling, storage and fabrication;
7. Be provided with protective wrapping, including the pipe ends.







Specifications for Plumbing Materials in Housing Authority's Public Housing Developments

Item	Material Description	Current WSD Requirements		Highlight of Current HD Specification Requirements	Site Checking Procedure	Photo
		WSD Approval Required (Y/N)	Standards (BS / BS EN)			
1	Copper Pipe	Y (Cat. C)	BS EN 1057	SL clause no. PLU1.M120 - Comply with BS EN 1057	Job Reference is attached in the <b>Sample Submission Form</b> .  Quality Control Manager (QCM) / Architectural Quality Control Coordinator (AQCC) of the Contractor endorses the Material Information Sheets, Catalogue and Test Certificates to certify they are genuine documents and attach them in the <b>Sample Submission Form</b> ;  Housing Department (HD) site staff check and vet the attachment against Specification requirements and give recommendations in <b>DCMP-F716, F717 &amp; F718</b> to PA for approval;  If approved, keep the sample board in site office for record;	
2	Copper Fittings	Y (Cat. C)	BS 864 (obsolete and replaced by BS EN 1254)	SL clause no. PLU1.M130 - Comply with BS EN 1254	Upon delivery of the pipes/ fittings on site, HD site staff check its storage using standard form no. <b>DASM-F5003</b> if the materials, including copper pipes/ fittings, are stored at external area when necessary and appropriate;  For installation works on site, HD site staff check its workmanship according to Architectural Site Inspection Guide, using standard form no. <b>DASM-F0001</b>  At final inspection stage, HD site staff check the installed materials' logo/ labels/markings...etc. If in doubt, HD site staff will refer to the approved samples kept in site office or those installed in the Sample Flats/ Wings for confirmation;  The Contractor conducts the Water Pressure Test and cleansing/ disinfection to the water supply system and HD site staff witness the process.	
3	Lead Free Solder Wire and Flux	N	BS 864 (obsolete and replaced by BS EN 1254)	SL Clause: PLU1.M150 for brazing alloy - Comply with BS EN 1254-1, Table 6 Section VI - Use cadmium-free category brazing alloy to BS EN ISO 17672 - Do not use flux when brazing copper-to-copper joints - For joints other than copper to copper, use only a flux that is recommended by the brazing alloy manufacturer  SL clause no. PLU1.M160 for soldering alloy - Comply with BS EN 1254-1, Table 6 Sections II & III - Use of integral solder fittings is permitted provided they comply with BS EN 1254-1 - Use only lead-free category solders - Use only a non-corrosive type of flux that is recommended by the solder alloy manufacturer.	Job Reference is attached in the <b>Sample Submission Form</b> .  QCM/AQCC of the Contractor endorses the Material Information Sheets, catalogue and the Test Certificates to certify they are genuine documents and attach them in the <b>Sample Submission Form</b> ;  HD site staff check and vet the attachments against Specification requirements and give recommendations in <b>DCMP-F716, F717 &amp; F718</b> , to Contractor manager's representative (CMR) for approval;  If approved, keep the sample board in site office for record.	
4	Sink & Basin Mixers, Shower Mixer with Flexible Hose and Handset	Y (Cat. C)	General: <b>BS 5412: 1996</b>  Temperature and Pressure Requirement: <b>BS 1415: Part 1: 1976</b>  Performance Requirement: <b>BS 1415: Part 1: 1976</b> <b>BS 5412: 1996</b> <b>BS 5779: 1979</b> <b>BS 1010: Part 2: 1973</b>	<b>Mixers</b> (i) <u>Standard</u> - (SL clause: PLU2.M020(3)) BS 5412:1996; Material : chromium plated brass (ii) <u>Submission Requirements</u> - (SL clause: PLU2.M510(1)) - Sample, catalogue, details of the supplier and manufacturer - Approval by the Water Supplies Department - Flow rates calculation - ISO 9001 and 14001 certificates - Test reports (comply with the performance requirements) (iii) <u>Quality requirement</u> : (SL clause: PLU2.M510(2)) - <u>Design and construction requirements</u> : Chromium plated brass - <u>Pressure and temperature requirements</u> : Suitability for both working and test pressure and temperature of the plumbing system in which it is installed - <u>Water efficiency requirement</u> : Grade 2 WELS with nominal flow rate not less than 6 litres/minute (basin and sink mixers) Grade 1 WELS with nominal flow rate not less than 7 litres/minute (Shower head)  - <u>Perfromance requirement</u> : Flow rate; Water tightness tests; Pressure resistance tests Mechanical strength test; Endurance test of the operation mechanism; Endurance test of diverters (for bath mixer only); Endurance test of Swivel Nozzles (for sink mixer only); Pressure drop test (for bath mixer and shower mixer only); Blend Water Extreme Temperature; Flexible Hose Assembly with Stainless Steel Wire Braiding (since 2013); Mean spray spread angle (for shower handset only); Temperature drop (for shower handset only); Hot water resistance test (for shower handset only)	Job Reference is attached in the <b>Sample Submission Form</b> .  QCM/AQCC of the Contractor endorse the Material Information Sheets, Catalogue and the Test Certificates to certify they are genuine documents and attache them together with Water Supplies Department (WSD) Approval Letter in the <b>Sample Submission Form</b> ;  HD Site staff check and vet the attachments against Specification requirements and give recommendations in <b>DCMP-F716, F717 &amp; F718</b> to CMR for approval;  If approved, keep the sample board in site office for record;  Upon delivery of the mixers on site, HD site staff conduct On-site Verification Check using standard form <b>DASM-F6210</b> . The Delivery Note, visual inspection on materials' surface quality and logo/ labels are conducted;  HD site staff may use <b>DASM-F5003</b> for checking the storage of the materials including these mixers when necessary and appropriate,  For installation works on site, HD site staff check its workmanship according to Architectural Site Inspection Guide, using standard form <b>DASM-F0001</b> ;  At final inspection stage, HD site staff check the installed materials' logo/ labels/markings...etc. If in doubt, HD site staff will refer the samples kept in site office or those installed in the Sample Flats/ Wings for confirmation.  The Contractor conducts the water presuure test and cleansing/ disinfection to the water supply system and HD site staff witness the process.	
5	Stainless Steel Braid Flexible Hose	Y (Cat. C)	NA	PLU2.M510(2)(b)(i) & (2)(c)(i) (Mixers (Bath/Shower, Basin and Kitchen Sink) and Shower Handsets)	Job Reference is attached in the <b>Sample Submission Form</b> .  QCM/AQCC of the Contractor endorses on the Material Information Sheets, Catalogue and the Test Certificates to certify they are genuine documents and attaches them together with WSD Approval Letter in the <b>Sample Submission Form</b> ;  HD site staff check and vet the attachments against Specification requirements and give recommendation in <b>DCMP-F716, F717 &amp; F718</b> to CMR for approval;  If approved, keep the sample baord in site office for record;  Upon delivery of the mixers on site, site staff cconduct On-site Verification Check using standard form <b>DASM-F6210</b> . Its dimensions, visual inspection on its surface quality and logo/ labels are conducted;  For installation works on site, HD site staff check its workmanship according to Architectural Site Inspection Guide, using standard form <b>DASM-F0001</b> ;  At final inspection stage, HD site staff check the installed material such as its logo/ labels/markings. If in doubt, HD site staff will refer the approved samples kept in site office or those installed in the Sample Flats/ Wings for confirmation;  The Contractor conducts the water presuure test and cleansing/ disinfection to the water supply system and HD site staff witness the process.	

**Specifications for Plumbing Materials in Housing Authority's Public Housing Developments**










Item	Material Description	Current WSD Requirements		Highlight of Current HD Specification Requirements	Site Checking Procedure	Photo
		WSD Approval Required (Y/N)	Standards (BS / BS EN)			
6	CP Brass Bib Tap	Y (Cat. C)	BS 1010-2	SL Clause: PLU1.M680 - Comply with BS 1010-2	Job Reference is attached in the <b>Sample Submission Form</b>  QCM/AQCC of the Contractor endorses on the Material Information Sheets, catalogue and the Test Certificates to certify they are genuine documents and attaches them together with WSD Approval Letter in the <b>Sample Submission Form</b> ;  HD site staff check and verify the attachments and give recommendations in <b>DCMP-F716, F717 &amp; F718</b> to CMR for approval;	
7	Loose Jumper Type Stop Cock	Y (Cat. C)	BS 5154 (obsolete and replaced by BS EN 12288)	SL Clause: PLU1.M610 - Comply with BS EN 12288 where a) Body, bonnet and disc: bronze to BS EN 1982 b) Stem: high tensile brass to BS EN 12163	HD site staff may use <b>DASM-F5003</b> for checking the storage of the materials including these valves & taps when necessary and appropriate;  For installation works on site, HD site staff check its workmanship according to Architectural Site Inspection Guide, using standard form <b>DASM-F0001</b> ;  At final inspection stage, HD site staff check the materials installed, such as its logo/ labels/markings. If in doubt, site staff will refer the approved samples kept in site office or those installed in the Sample Flats/ Wings for confirmation;  The Contractor conducts the Water Presuure Test and cleansing/ disinfection to the water supply system and HD site staff witness the process.	
8	Gunmatel Gate Valve	Y (Cat. C.)	BS 5154 (obsolete and replaced by BS EN 12288)			
9	Ductile Iron Resilient Seat Gate Valve	Y (Cat. C)	BS 5163 (obsolete and replaced by BS 5163-1, BS5163-2, BS EN 1074-1, BS EN 1074-2)	SL Clause: PLU1.M610 - Comply with BS 5163-1  SL Clause: PLU1.M620 - Components to comply with BS EN 1561 (for mechanical strength), BS EN 1563 (for mechanical strength), BS EN 1982, BSEN 12163 (same as requirement of gunmetal gate valve) or BS EN 10088-3 (for stainless steel construction) - Resilient non-metallic material to comply with BSEN 681-1	Job Referenc is attached in the <b>Sample Submission Form</b> .  QCM/AQCC of the Contractor endorses on the Material Information Sheets, Catalogue and the Test Certificates to certify they are genuine documents and attaches them together with WSD Approval Letter in the <b>Sample Submission Form</b> ;  HD site staff check and verify the attachments and give recommendations in <b>DCMP-F716, F717 &amp; F718</b> to CMR for approval;	
10	Ductile Iron Pipe and Fitting	Y (Cat. C)	BS 4772 (obsolete and replaced by BS EN 545)	SL Clause: PLU1.M170) - Comply with BS EN 545	If approved, keep the sample baord in site office for record;  HD site staff may use <b>DASM-F5003</b> for checking the storage of the materials including these valves when necessary and appropriate;  For installation works on site, HD site staff will check its workmanship according to Architectural Site Inspection Guide, using standard form <b>DASM-F0001</b> ;  At final inspection stage, HD site staff check the installed materials' logo/ labels/markings. If in doubt, HD site staff will refer the approved samples kept in site office or those installed in the Sample Flats/ Wings for confirmation;	
11	Flange Gasket	N	BSEN 681-1:1996 (Superseds BS 2494 : 1990, Type W (water)	WSP.M220 (Elastomeric Joint Rings)	The Contractor conducts the Water Presuure Test and cleansing/ disinfection to the water supply system and HD site staff witness the process.	
12	Gunmetal Puddle Flange	N	Nil	SL Clause: PLU1.M320 - Same as requirement for gunmetal gate valve		
13	Cast Iron Swing Check Valve with bronze trimmed for Fresh Water Installation	N	Nil	SL Clause: PLU1.M610 - Same as requirement of cast iron gate valve		
14	Gunmetal Pressure Reducing Valve	N	Nil	SL Clause: PLU1.M920 - Same as requirement of gunmetal gate valve		
15	Pressure Dial Gauge	N	Nil	Not Specified	Site checking procedure same as that of items 9-14.	
16	Cast Iron Y Strainer	N	Nil	SL Clause: PLU1.M510 - Same as requirement of cast iron gate valve	Job Reference is attached in the <b>Sample Submission Form</b> Epoxy Coat approved by WRAS  Site checking procedure same as that of items 9-14.	

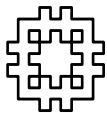
Specifications for Plumbing Materials in Housing Authority's Public Housing Developments

Item	Material Description	Current WSD Requirements		Highlight of Current HD Specification Requirements	Site Checking Procedure	Photo
		WSD Approval Required (Y/N)	Standards (BS / BS EN)			
17	Stainless Steel Flexible Connector	N	Nil	SL Clause PLU1.M220 - Material of bellow: austenitic chromium nickel or austenitic chromium nickel molybdenum stainless steel sheet to BS 1449-2 or BS EN 10029 or BS EN ISO 9445-2 or BS EN 10048 or BS EN 10051 or BS EN 10095 - Material of braiding: stainless steel wires or plates - Material of flange: corrosion resistant carbon steel	Job Referenc is attached in the <b>Sample Submission Form</b> .  QCM/AQCC of the Contractor endorses on the Catalogue, Material Information & Test Certificates and attaches them in the <b>Sample Submission Form</b> ;  Approval Letter in the Sample Submission Form, HD site staff checks and vet the attachments against Specification requiements and give recommendations in <b>DCMP-F716, F717 &amp; F718</b> , to CMR for approval;  If approved, keep the sample board in site office for record;  HD site staff may use <b>DASM-F5003</b> for checking the storage of the materials including this material when necessary; For installation works on site, HD site staff will check its workmanship according to Architectural Site Inspection Guide, using standard form <b>DASM-F0001</b> ;  At final inspection stage, HD site staff checks the installed materials' logo/ labels/markig. If in doubt, HD site staff will refer the approved samples kept in site office, The Contractor conducts the Water Presuure Test and cleansing/ disinfection to the water supply system and HD site staff witness the process.	
18	Fresh Water pump	N	Nil	SL clause no. FWP6.2.020 <u>Casing</u> - Grey cast iron to BS EN 1561 ( <i>same as requirement of cast iron gate valve</i> ) <u>Impeller</u> a. Bronze casting to BS EN 1982 ( <i>same as requirement of gunmetal gate valve</i> ) ; or b. Austenitic chromium nickel molybdenum stainless steel casting to BS 3100 grade 316. <u>Diffuser</u> (detachable) - Grey cast iron to BS EN 1561 ( <i>same as requirement of cast iron gate valve</i> )  <u>Wearing ring</u> a. Grey cast iron to BS EN 1561 ( <i>same as requirement of cast iron gate valve</i> ) ; or b. Copper-tin alloy to BS EN 1982 (same as requirement of gunmetal gate valve)  <u>Shaft</u> - Stainless steel to BS EN 10088-3	Job Reference is generally attached in the submission.  Upon delivery of the Fresh Water Pump on site, site staff conducts on-site checking according to Building Services Site Inspection Guide: DBSI-104. Site staff visually check the surface quality and general construction of the materials and nameplate/label/markig against the approved drawings and documents. Then record the delivered materials in site record book.  During installation works on site, site staff checks its workmanship according to Building Services Site Inspection Guide: DBSI-207 (form DBSIP-F02-WP) and record the result in form DBSSF-F02-IR.  At final inspection stage, site staff checks the installed materials, such as its logo/ labels/markig according to Building Services Site Inspection Guide: DBSI-208 &209 (form DBSFI-F03-WP for final acceptance & DBSWT-F04-WP for witness tests). The results of checking are recorded in form DBSCL-F05-WP.  If there is any doubt, site staff will take the follow up action according to Building Services Site Inspection Guide: DBSI-104 &105, such as issuing Site Direction.	
19	Modulating float valve with ball cock	N	Nil	SL clause no. FWP4.8.020 <u>Body &amp; bonnet</u> Cast iron to BS EN 1561 or ductile iron to BS EN 1563 ( <i>same as requirements of cast iron or ductile iron gate valve</i> ) . The body of the valve shall be coated with an epoxy based material both on internal and external surfaces; <u>Disc</u> Solid or trimmed with bronze to BS EN 1982 or ductile iron to BS EN 1563 for fresh water use ( <i>same as requiremetns of gunmetal gate valve or ductile iron gate valve</i> ) ; <u>Seat</u> Bronze or stainless steel trimmed as disc for fresh water use; <u>Stem</u> High tensile brass or leaded brass to BS EN 12163 ( <i>same as requirement of gunmetal gate valve</i> ) or 13% chromium stainless steel to BS EN 10088-3 for fresh water use; <u>Ball float</u> Spherical or cylindrical and comply with BS 1968 (for dimensional requirement); constructed of tinned copper or stainless steel	Site checking procedure same as fresh water pump (item 18)	
20	Stainless steel pipe and fitting	Y (Cat. C)	BS 4127 (obsolete and replaced by BSEN 10312)	SL clause no. FWP3.1.2.050 item 1 - Comply with BSEN 10312 series 2	Job Reference is generally attached in the submission.  Upon delivery of the Stainless steel pipe and fitting on site, site staff conducts on-site checking according to Building Services Site Inspection Guide: DBSI-104. Site staff visually check the surface quality of the materials and label/markig against the approved drawings, documents and samples. Then record the delivered materials in site record book.  During installation works on site, site staff checks its workmanship according to Building Services Site Inspection Guide: DBSI-207, (form DBSIP-F02-WP) and record the result in form DBSSF-F02-IR.  At final inspection stage, site staff checks the installed materials, such as its logo/ labels/markig according to Building Services Site Inspection Guide: DBSI-208 &209 (form DBSFI-F03-WP for final acceptance & DBSWT-F04-WP for witness tests). The results of checking are recorded in form DBSCL-F05-WP.  If in doubt, site staff will take the follow up action according to Building Services Site Inspection Guide: DBSI-104 &105, such as issuing Site Direction.	
21	Ductile iron pipe and fitting	Y (Cat. C)	BS 4772 (obsolete and replaced by BS EN 545)	SL clause no. FWP3.1.2.010 - Comply with BS EN 545	Site checking procedure same as stainless steel pipe and fitting (item 20)	



**Specifications for Plumbing Materials in Housing Authority's Public Housing Developments**

Item	Material Description	Current WSD Requirements		Highlight of Current HD Specification Requirements	Site Checking Procedure	Photo
		WSD Approval Required (Y/N)	Standards (BS / BS EN)			
22	Gate valve	Y (Cat. C)	BS 5154 (obsolete and replaced by BS EN 12288) for gunmetal gate valve  BS 5163 (obsolete and replaced by BS 5163-1, BS5163-2, BS EN 1074-1, BS EN 1074-2) for cast iron and ductile iron gate valve	SL clause no. FWP4.1.020 - Comply with BS EN 12288  SL clause no. FWP4.1.020 - Comply with BS 5163-1  SL Clause no. FWP4.1.080 & 4.1.090 - Components to comply with BS EN 1561 (for mechanical strength), BS EN 1563 (for mechanical strength), BS EN 1982, BSEN 12163 (same as requirement of gunmetal gate valve) or BS EN 10088-3 (for stainless steel construction) - Resilient non-metallic material to comply with BSEN 681-1  SL clause no. FWP4.1.100 - Cast iron parts of all valves shall be coated with an epoxy based material both on internal and external surfaces. - Coating to BS 6920 and to the satisfaction of the Water Authority.	Site checking procedure same as fresh water pump (item 18)	
23	Cast iron basket strainer	N	Nil	SL clause no. FWP3.1.5.030 - Same as requirement of cast iron gate valve	Site checking procedure same as fresh water pump (item 18)	
24	Stainless steel flexible connector	N	Nil	SL clause no. FWP3.1.4.030 - Material of bellow: austenitic chromium nickel or austenitic chromium nickel molybdenum stainless steel sheet to BS 1449-2 or BS EN 10029 or BS EN ISO 9445-2 or BS EN 10048 or BS EN 10051 or BS EN 10095 - Material of braiding: stainless steel wires or plates - Material of flange: corrosion resistant carbon steel	Site checking procedure same as fresh water pump (item 18)	
25	Pressure reducing valve	N	Nil	SL clause no. FWP4.6.030 - Same as requirement of cast iron gate valve	Site checking procedure same as fresh water pump (item 18)	
26	Pressure dial guage	N	Nil	SL clause no. FWP11.6.060 - Comply with BS EN 837-1	Site checking procedure same as stainless steel pipe and fitting (itme 20)	
27	Pressure switch	N	Nil	SL clause no. FWP11.6.050 - with silver or Approved alloy plated contacts rated to suit the working voltage and current of the circuits controlled		
28	Non-return valve	Y (Cat. C)	Nil	SL clause no. FWP4.1.080 & FWP4.4.010 - Same as requirement of gunmetal, cast iron or ductile iron gate valve	Site checking procedure same as fresh water pump (item 18)	
29	Stainless steel pneumatic pressure vessel	N	Nil	SL clause no. FWP5.2.056 <u>Construction</u> to BS EN 13831 or equivalent international standards. <u>Body, flange, bolts and nuts</u> of AISI grade 304 stainless steel or better in corrosion resistivity.	Site checking procedure same as fresh water pump (item 18)	
30	Pressure transducer	N	Nil	SL clause no. FWP11.6.080 <u>Enclosure and wetted parts</u> Grade 316 stainless steel.	Site checking procedure same as fresh water pump (item 18)	



## SAMPLE SUBMISSION AND APPROVAL FORM

Contract Title :	_____	Ref. No. :	_____
	_____	Date :	_____
Contract No. :	_____	Ref. No. of Previous Submission :	_____
File Reference :	_____	(1)	_____
		(2)	_____

**DETAILS OF SUBMISSION**

To : Contract Manager's Representative (Attn : \_\_\_\_\_ / \_\_\_\_\_ )  
 \*(Name of Consultant for Consultant Projects) via PCOW

From : (State Name of Contractor) \_\_\_\_\_

The enclosed sample and catalogue\* / **Product Certificate\*** / certificate of origin\* / technical data\* / test report\* / job reference\* as described below have been checked for compliance with the Specifications and Drawings, and are submitted for approval.

**1. General Information**

- a. Materials Description : \_\_\_\_\_  
 \_\_\_\_\_  
 b. Location : \_\_\_\_\_  
 c. Specification Ref. page : \_\_\_\_\_ Item : \_\_\_\_\_  
 d. Drawing Ref. No. : \_\_\_\_\_  
 e. B.Q. Ref. No. : \_\_\_\_\_  
 f. Anticipated date of approval : \_\_\_\_\_

**2. Technical Information**

The submitted sample has been checked against the specification and drawings as listed below –

Specification Requirements	Submitted Sample (State details against each item)
a. <b>Brand</b> _____ _____ _____	_____ _____ _____
b. <b>Country of Origin</b> _____ _____	_____ _____
c. <b>Manufacturer's Name &amp; Address</b> _____ _____ _____	_____ _____ _____
d. <b>Factory's Name &amp; Address(es)</b> _____ _____ _____	_____ _____ _____
e. <b>Supplier(with Applicator, if any)</b> _____ _____	_____ _____
f. <b>Appearance</b> _____	_____ _____

g. <b>Colour<sup>+</sup></b> _____	_____
h. <b>Specification</b> _____ _____	_____ _____
i. <b>Manufacturer's Catalogue</b> _____	_____
j. <b>Test Report</b> (Original/Certified True Copy) _____	_____
k. <b>Previous Job Reference</b> _____	_____
l. <b>Supplementary Information</b> _____	_____

For and on behalf of the Contractor

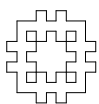
\_\_\_\_\_  
(Quality Control Coordinator)

<b>CONTRACT MANAGER'S COMMENTS</b>	
To	: ( State Name of Contractor )
From	: Contract Manager's Representative * ( Name of Consultant for Consultant Projects )
On the basis of the sample and information given, the above sample submitted is :	
(1) *	<b>Approved.</b>
(2) *	<b>Not approved</b> because _____
Remarks : _____	
_____	
<b>Approval does not alter the requirements of the Contract.</b>	
<b>Contract Manager's Representative</b> (            /            )	
_____	
Date	:

c.c. Project Clerk of Works with sample  
PQS  
Contract File  
Designated Unit for BMD (            ) w/e catalogue, certificate of origin and test report

( \* Delete if inappropriate )

( <sup>+</sup> For glass or vitreous mosaic tiles, the contractor is required to confirm the colour range(s) of the submitted sample, i.e. a) light and /or medium; or b) dark )



HOUSING DEPARTMENT

**APPROVAL LABEL** (for use with Form DCMP-F716)

Contract Title : \_\_\_\_\_

Contract No. : \_\_\_\_\_

Submission Ref. : \_\_\_\_\_

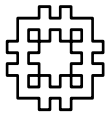
Description : \_\_\_\_\_

Approved by : \_\_\_\_\_

Contract Manager (     /     )  
\*(State Name of Consultant for Consultant Projects)

Date : \_\_\_\_\_

\*Delete as appropriate

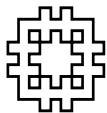


## HOUSING DEPARTMENT

## ASSESSMENT OF MATERIAL SAMPLE

Contract Title : _____ Contract No. : _____ File Reference : _____	Ref. No. : _____ Date : _____
To : <b>Contract Manager's Representative</b> (Attn. : _____ / _____ ) * (Name of Consultant for Consultant Projects)	
From : <b>Project Clerk of Works</b> ( _____ )	
1. * The material sample submitted by the Contractor under reference no. _____ dated _____ has been checked against the Specification and Drawings and is found to comply with all specified requirements.	
1. * The material sample submitted by the Contractor under reference no. _____ dated _____ is an alternative to the specification. It has been checked against the Specification and Drawings by the Contractor as in DCMP-F716. My comments are listed below -	
<b><u>Specified Requirement</u></b>  a. <b>Appearance</b>	<b><u>Comment</u></b>  _____ _____ _____
b. <b>Technical Performance</b>	_____ _____ _____ _____
c. <b>Test Report</b>	_____ _____ _____
d. <b>Other Aspects</b>	_____ _____ _____ _____ _____
2. *Track records in BMD for building materials under C&M's surveillance *is checked. The Alerts issued and test failures recorded in the Consolidated Laboratory Test Reports *is/ is not attached.	
2. *Track records in BMD for building materials under C&M's surveillance is not *checked /applicable.	
3. The submitted sample is * recommended / not recommended for approval.	
( _____ Name _____ ) Project Clerk of Works  Date : _____	
* Delete whichever paragraph is inapplicable c.c. Contract File	





## BUILDING SERVICES SAMPLE SUBMISSION AND APPROVAL FORM

Contract Title :	Ref. No. _____
	Date : _____
	Ref. No. of Previous Submission : _____
Contract No. :	(1) _____
File Reference :	(2) _____

**DETAILS OF SUBMISSION**

To : Contract Manager's Representative (Attn : Building Services Engineer / C \_\_\_\_)

From : (Name of Contractor) \_\_\_\_\_

The enclosed ☐ sample submission status\* ☐ country of manufacture\* ☐ job reference\* as described below have been checked for compliance with the Specifications and Drawings, and are submitted for approval.

**1. General Information**

- a. Materials Description : \_\_\_\_\_
- b. Location : \_\_\_\_\_
- c. Specification Ref. Clauses : \_\_\_\_\_ Item : \_\_\_\_\_
- d. Anticipated date of approval : \_\_\_\_\_ (dd/mm/yyyy)

**2. Technical Information**

Refer to attached technical information sheet(s).

For and on behalf of the Contractor  
(Contractor's Building Services Engineer)

Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Date: \_\_\_\_\_ (dd/mm/yyyy)

**CONTRACT MANAGER'S COMMENTS**

To : ( Name of Contractor ) \_\_\_\_\_

From : Contract Manager's Representative

On the basis of the sample and information given, the above sample submitted is :

- (1) \* ☐ **Approved.**
- (2) \* ☐ **Not approved** because

Remarks : \_\_\_\_\_

**Approval does not alter the requirements of the Contract.****Contract Manager's Representative**

Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Building Services Engineer / C \_\_\_\_  
Date : \_\_\_\_\_ (dd/mm/yyyy)

c.c. Project Building Services Inspector with sample  
Contract File

(\* Delete if inappropriate )

Contract Title: _____ _____	Ref. No.: _____ Date: _____ (dd/mm/yyyy)	For and on behalf of the Contractor (Contractor's Building Services Engineer)  Signature: _____ Name: _____
--------------------------------	---	---

### Technical Information of Submitted Building Services Sample

Item	Material Description	Brand/Model	Country of Origin	Approval of Catalogue Submission (Yes/No/NA)	Job Reference	Remark
1				Yes/No/NA		
2				Yes/No/NA		
3				Yes/No/NA		
4				Yes/No/NA		
5				Yes/No/NA		
6				Yes/No/NA		
7				Yes/No/NA		

8				Yes/No/NA		
9				Yes/No/NA		
10				Yes/No/NA		
11				Yes/No/NA		

DBSP-F27 (25/2/2014)



**HOUSING DEPARTMENT**  
**ASSESSMENT OF BUILDING SERVICES MATERIAL SAMPLE**

Annex 6

<p>Contract Title: _____</p> <p>Contract No.: _____</p> <p>File Reference: _____</p>	<p>Ref. No.: _____</p> <p>Date: _____ (dd/mm/yyyy)</p>																						
<p><b>To : Project Building Services Engineer ( BSE / C__ )</b></p> <p><b>From : Project Building Services Inspector ( BSI / C__ )</b></p> <p>1. My comments on the material sample(s) submitted by the Contractor as in DBSP-F27 under reference no. _____ dated _____(dd/mm/yyyy) are listed below -</p>																							
<b>Item</b>	<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 10%; text-align: center;">Item</th><th style="text-align: center;">Comment</th></tr></thead><tbody><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr><tr><td style="text-align: center;">_____</td><td>_____</td></tr></tbody></table>	Item	Comment	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Item	Comment																						
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_____	_____																						
<p>2. The submitted sample(s) is/are * recommended / not recommended for approval.</p> <div style="text-align: right; margin-top: 20px;"><p>Signature: _____</p><p>Name: _____ Project Building Services Inspector</p><p>Date: _____ (dd/mm/yyyy)</p></div> <p>c.c. Contract File</p>																							

( \* Delete if inappropriate )