SUPERVISION GUIDE
For Architectural Works



© HDB

2012 Edition

architectural I civil I electrical I mechanical I structural

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This publication is reference material for Consultants to develop an effective quality management system ('QMS') in their respective HDB-related projects. It is not a set of exhaustive standards for Consultants to adhere to in their management of architectural works. Consultants are responsible for meeting the standards imposed by the Building Control Act and related Regulations as well as relevant Codes of Practice, and for observing good industry practices to develop and implement their QMS.

For the avoidance of doubt, if there is a difference between the contractual obligations exacted on Consultants and the guidelines set out in this publication, Consultants will be held to their respective contractual obligations.

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Foreword

Housing & Development Board (HDB) takes pride in housing more than 80% of the population in Singapore. Delivering well-designed HDB flats of high quality has always been our top priority.

HDB started to outsource the consultancy services for the design and supervision of construction of HDB flats since 2003. We now have more than 100 consultants participating in HDB projects. To ensure consistency in supervision practice and standard, HDB has embarked on this project to produce a set of Supervision Guide. They aim to serve as reference to the consultants in developing a comprehensive Quality Assurance System for managing our projects.

There are altogether five Guides covering the supervision of architectural, structural engineering, civil engineering, mechanical engineering and electrical engineering works. These guides set out our expectations, share HDB's requirements and illustrate good practices.

These Guides are now available at HDB BGBiz Portal (http://bgbiz.hdb.gov.sg/) for your easy reference. We hope you will find them useful and informative. We will be reviewing the guides regularly and we welcome your valuable feedback to further improve the guides. Let's work together in the pursuit of quality excellence in our projects.



Thomas Seow
Group Director
Building Quality Group
Housing & Development Board

Contents

1	Introduction	Pg 1
2	Materials	Pg 2
3	Workshop Drawings for Specialist Architectural Items	Pg 7
4	Work Method and Trade Demonstration	Pg 10
5	Timber Mock Up	Pg 14
6	Sample Units	Pg 17
7	In-process Supervision Works	Pg 25
8	Handing Over of Completed Works	Pg 27
9	CONQUAS	Pg 28
10	Annex – Quality Checklists	Pg 30

1 Introduction

This guide book is to share with the Consultants on HDB's specific requirements, quality management system, and some good practices in the supervision of architectural works in HDB projects.

As part of the consultancy services, Consultants are required to submit their Quality Assurance System to HDB before commencement of the building project. The system shall cover the following:

a) Accountability and responsibility of the Consultant and his team in supervising the project

b) Duty and responsibility of the consultant and his team in inspecting the works at different stages of construction

c) Quality control system (e.g. checklist, inspection and testing records) and guidelines put in place for in-process supervision works

Consultants can use this guide book to develop the quality management system and checklists/forms for supervising architectural works in HDB new development projects.

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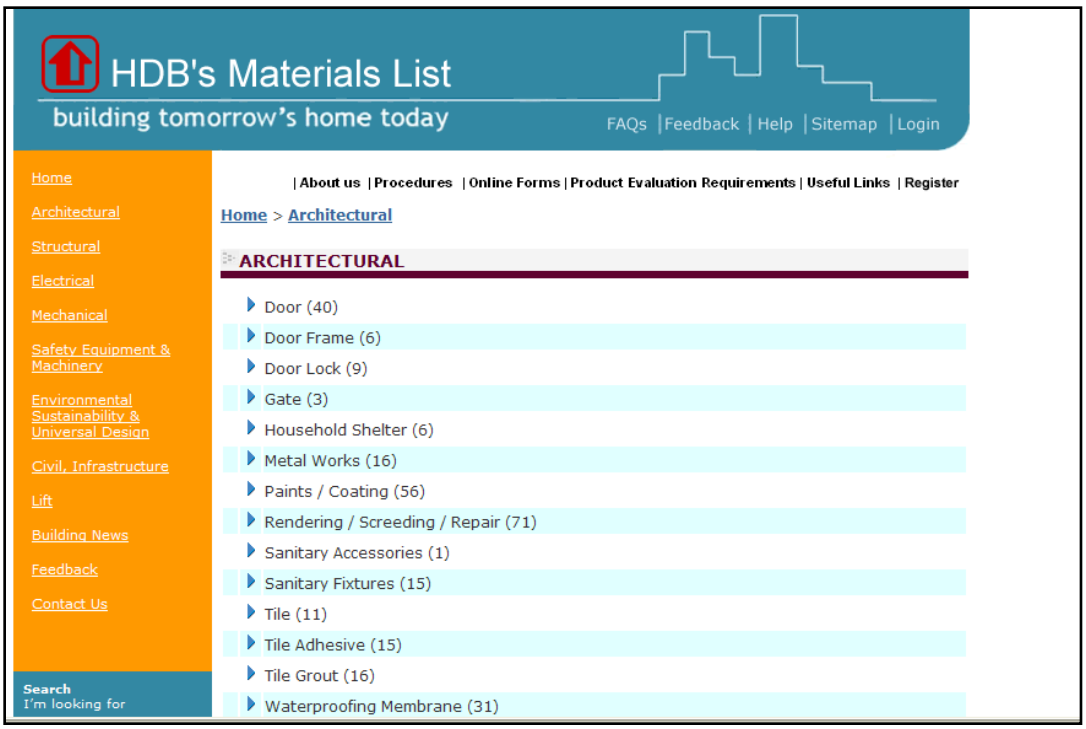
2 Material Selection

2.1 Materials List

HDB's Materials List provides a comprehensive selection of quality products needed for the HDB construction projects. The Consultant will find the Materials List useful in helping them select the right quality products for their HDB projects.

The Consultants can also select products that are not listed in the Material List. However, these products must comply fully with the technical specifications, standards, approved drawing and/or other statutory requirements.

The Consultants can visit http://ml.eptc.sg/ to view the HDB's Materials List.



2.2 Timeline for Approval of Material

Within 6 weeks after the project starts, the Consultants and Contractor must jointly compile a complete list of materials required for the project. All materials needed for the sample units are to be approved by the Consultant within 6 months after the project starts.

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2.3 Display of Approved Materials

The materials approved by the Consultants are to be displayed in the sample display room. This is to facilitate the verification of the materials installed on site against those approved by Consultants earlier.



2.4 Testing of Materials

The Consultants are to ensure that material tests are carried out on items listed in the "Schedule of Material Tests" and Specifications. The purpose of tests is to ascertain that the material properties or application workmanship comply with the performance standard as stated in the building specifications.

2.5 Sampling of Materials

All test samples are to be randomly selected from the materials on site and sent to an accredited laboratory for testing. The samples are to be marked for identification before sending to the laboratory.

For testing of completed works, the Consultants are required to carry out these tests in tandem with the progress of works. This is to ensure consistency in quality of the various batches of supplies and the workmanship achieved.

2.6 Evaluation of Test Report

Routing stamp shall be used to document the test report reviewed by Consultant. For any test failures, HDB is to be informed of the follow-up actions taken.

The Consultants are also required to track the status of the material testing using the Material Testing Register.

Test Report for	
Contract No.: D/193/10	
Ref:	
Test Result ☐ Passed ☐ Reject ☐ Retest	TP / QP Name, Signature & Date
Consultant PM	Company, Name, Signature & Date

* Delete as appropriate

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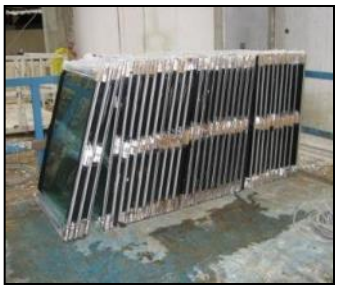
Example on Material Testing Register

S/N	Type Of Material To Be Tested	Type OF Test To Be Carried Out	Frequency Of Test For Each Type Of Test	No. Of Samples Per Test	Schedule Date	Date Sent for Testing	Testing Date	Result
1	Scaffold wall ties	a)Tensile test b) Compression test	a) 1 test b) 1 test	a) 3 samples b) 3 samples	25-Jul-09	4-Aug-09	6-Aug-09	Passed
2	Pre-packed waterproofing screed	a) Average Compressive Strength b) Water penetration c) Shrinkage	1 test	1 sample	2-Dec-09	26-Nov-09	31-Dec-09	Passed
3	Pre-packed Floor screed	a) Average Compressive Strength b) Shrinkage	1 test	1 sample	2-Dec-09	26-Nov-09	31-Dec-09	Passed
4	Pre-packed skimmed coat (Internal)	a) Tensile Pull out test b) Tensile Adhesion strength tests c) Average Shrinkage a) Tensile Pull out test b) Tensile Adhesion strength tests c) Average Shrinkage	3 tests per block	5 spots per test	2-Dec-10	26-Nov-09	30-Dec-09	Passed
5	Tile grout	a) Shrinkage b) Water absorption c) Compressive strength d) Tensile strength e) Flexural strength f) Abrasion Resistance	))) 1 test per type)))	))) 1 sample per test)))	30-Jul-10	4-Jan-11	8-Feb-11	Passed

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2.7 Protection of Materials

All materials including pre-packed materials are to be stored, stacked and protected properly on site. Improper protection and storage of material will affect the quality of the finished product. The Consultants are required to conduct regular checks on material storage.

S/No	Trades	Protection
1	Metal Gate *e.g. wrapped with plastic sheets and cardboard sheets*	
2	Timber Door *e.g. wrapped with plastic sheets, cardboard sheets, bubble foam or other suitable materials of adequate thickness to cushion the door surface against impact*	 
3	Window Glazing with Frame *e.g. wrapped with stout paper, cardboard or other protective material which could cushion the surface against impact*	 
4	Window Frame *e.g. wrapped with translucent self-adhesive tape (no-staining), stout paper, cardboard or suitable protective material which could cushion the surface against impact*	 

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Examples on Protection of Materials

S/No	Trades	Protection
5	Floor Tiles *e.g. covered with thick polyethylene sheet or other suitable protective material which could cushion the surface against impact*	
6	Timber Floor *e.g. covered with thick polyethylene sheet or other suitable protective material which could cushion the surface against impact*	
7	Cementitious pre-packed materials *e.g stored, stacked and protected against weather on site*	

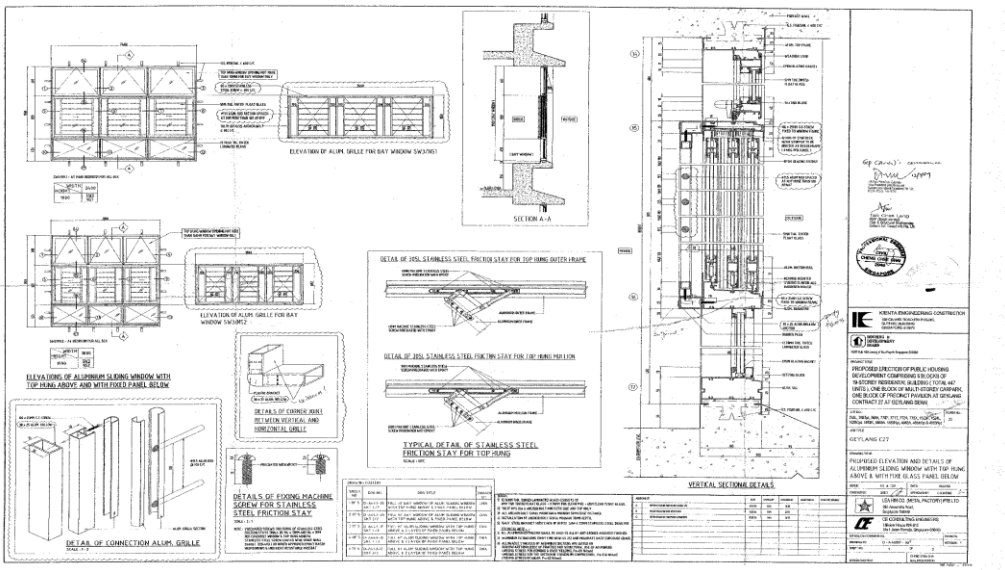
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3 Workshop Drawings for Specialist Architectural Items

3.1 Workshop Drawings

Workshop drawings are required for Specialist Architectural Items. These items are proprietary/non-standard in nature and require Contractor's Professional Engineer (Specialist) to design.

The Consultants are required to supervise the installation of these items and ensure that it is done according to the approved workshop drawings. Any deviations from the approved workshop drawing or specifications are to be highlighted and resolved so as to minimize subsequent design adjustments on site.



Example of Shop Drawing

3.2 Timeline for Submission and Approval

The Consultants shall make provision in the Contractor's construction planning for the submission of workshop drawings for the specialist architectural items.

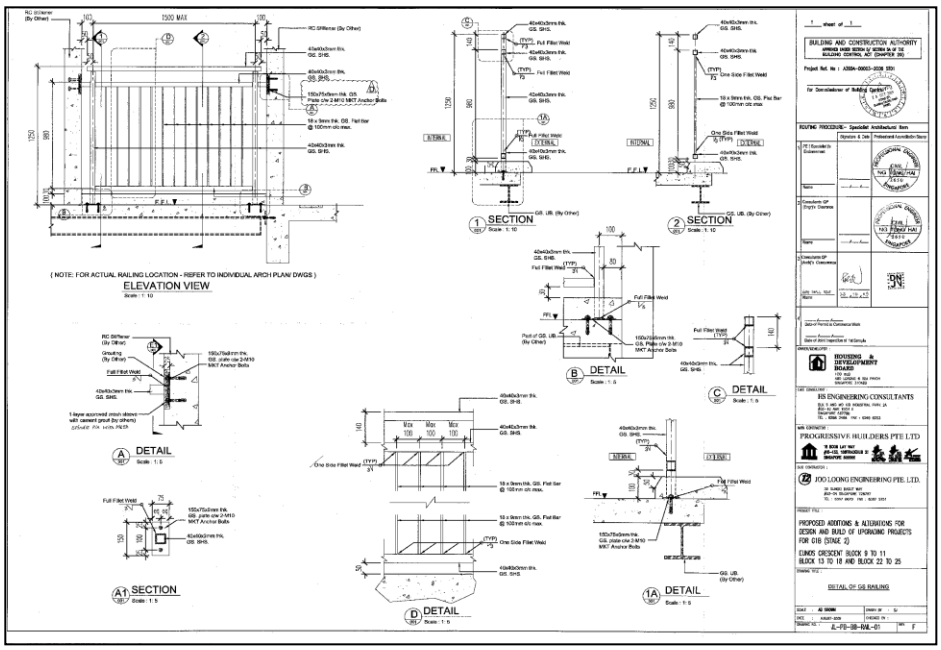
The Consultant shall ensure approval is obtained for the submitted workshop drawings, preferably 3 months before the commencement of the specialist architectural works.

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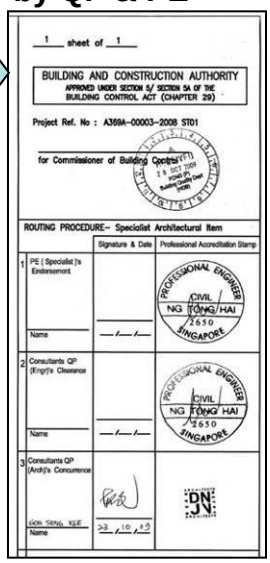
3.3 Endorsement of Workshop Drawings

The workshop drawings of specialist architectural items are to be jointly endorsed by the Contractor's PE (Specialist) and the Consultants. The Contractor's PE (Specialist) and Consultants are fully responsible for these designs.

The Consultants shall ensure that these items are designed to be easily constructible, robust, maintainable and durable.



Endorsements by QP & PE



3.4 Examples of Specialist Architectural Items

The examples of these Specialist Architectural Items are :

- Non-standard aluminium windows (non cast-in type)
- ¾ height/full height aluminium windows (non cast-in type)
- Laminated safety glass and grilles
- Grille panel, railing, aluminium louvre, perforated aluminium panel at lift lobby
- Perforated aluminium infill panel for stainless steel railing

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3.5 Examples of Good Installation

1) Window Friction Stay Rivet



Rivet must be properly tightened



Rivet easily removed

2) Safety Stopper for Sliding Window



Two safety stoppers installed for single panel window



Only one safety stopper installed for single panel window

3) Cast-In Bolt and Nut



Sufficient cast in bolt



Insufficient cast in bolt

4) Impact Anchor for Non Cast-In Aluminum Window Frame



Anchor to be fully embedded



Anchor not fully embedded

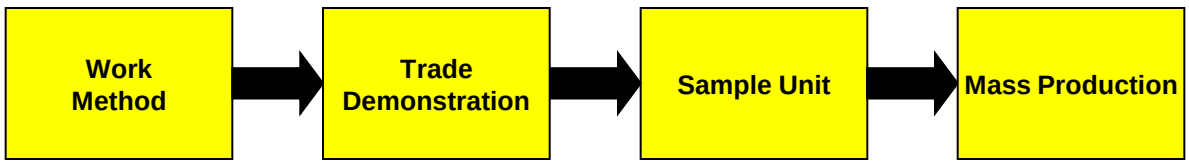
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4 Work Method and Trade Demonstration

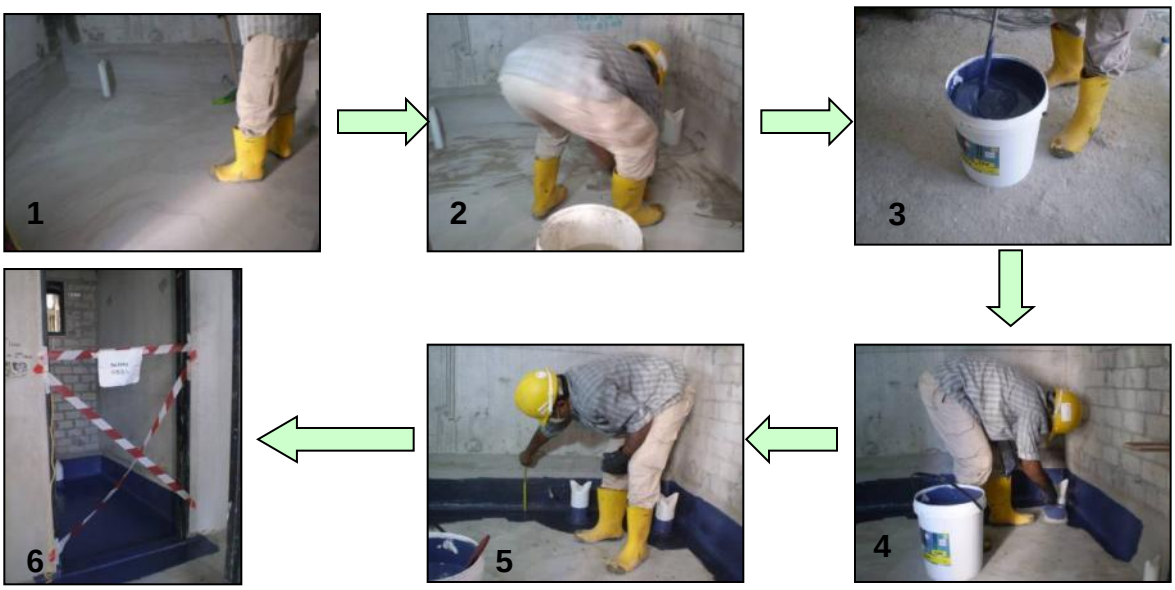
4.1 Work Method and Trade Demonstration

The approval of work method and trade demonstration is to ensure the works are carried out in accordance to the specifications and drawings.

It is important that work demonstration is carried out prior to mass production. This would prevent abortive work and reduce defects.



Trade demonstrations are to be conducted for architectural trades e.g. ferrolite partition wall installation, waterproof membrane application etc., prior to mass production. The Consultants are responsible for the inspection and approval of the work methods and workmanship. When approved, the Contractor may then proceed with the works according to the approved work methods.



Trade demonstration on the application of waterproofing membrane

The demonstration on work method will enable the supervisory staff from Consultants and Contractor to know what to look out for during the mass production stage.

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4.2 Procedures for Trade Demonstration

a) The work method of the trade has to be approved by the Consultant before the trade demonstration.

b) The trade demonstration should be preceded by a briefing by the Contractor.

c) The briefing session is for the understanding and agreement of the work method amongst all parties concerned.

d) Any refinement and amendment made to the approved work method during the trade demonstration are to be recorded in the original method statements and endorsed by the Consultant.

e) Copies of the method statements are to be distributed to Consultant and Contractor supervisory staff for reference and supervision.

f) The trade demonstration is to be conducted at the actual work area. This is to simulate the real work situation such that practical problems/constraints can be dealt with prior to mass production stage.

g) Photographs of the various steps in the trade demonstration are be displayed in the site meeting room to serve as records and reference for supervision.

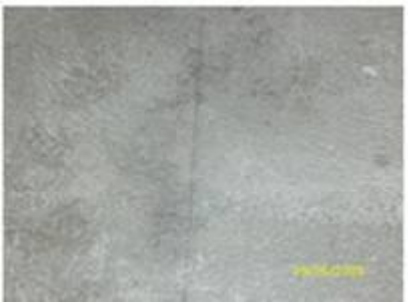
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4.3 Example on Trade Demonstration on Floor Tiling Works

TRADE DEMO-FLOOR TILING



1. **Sweep and clean floor before laying screed.**



2. **Set tile layout according to approved shop-drawing.**



3. **Clean screed surface before laying floor tile.**



4. **Sort tiles to consistent size before laying.**



5. **Mix tile adhesive according to manufacture's instruction.**



6. **Apply tile adhesive on screed surface using notch trowel.**

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Example on Trade Demonstration on Floor Tiling Works (con't)

Con't – Trade Demo-Floor Tiling



7. **Apply tile adhesive onto the back of tile and spread it uniformly.**



8. **Tap tile using rubber hammer to ensure full contact.**



9. **Adjust the tile position within 5 minutes of laying.**



10. **Insert tile spacer to achieve consistent joint width.**



11. **Fill tile joint between floor tiles with tile grout.**



12. **Remove excess grout using spreader and damp cloth.**

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5 Timber Mock Up

5.1 Construction of Timber Mock Up

The construction of the timber mock up for kitchen, toilet and service yard is to identify any issues related to design, maintenance and practicality of the proposed layout. It is important to confirm the layout, sanitary fitting arrangement and locations of M&E services so that the openings and recess for these services can be finalised before the approval of precast workshop drawings.

The timber mock up will help to minimise subsequent changes in precast components and prevent abortive works during construction stage.







5.2 Timeline for Completion of Timber Mock Up

The timber mock up for toilet, kitchen and service yard are to be erected within 3 months after the commencement of work.

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5.3 Inspection of Timber Mock Up

The timber mock-up must show the provision of all sanitary pipes and fixtures position, marking of water supply pipes layout, power points and switches locations, electrical water heater socket locations and provision of UPVC entry pipe for water supply using gas water heater. Actual UPVC sanitary pipes, wash basin and pedestal pan; and mock-up of ceiling duct, doors, vanity top (if any) and clothes drying racks shall be installed with respect to the architectural and structural layout. Marking of beams, wall tiles, floor tiles, window layout must also be shown.

The timber mock-ups must be built accurately to facilitate resolution of the following common issues:

a) floor waste/trap not obstructed by structural beam;

b) lighting points not obstructed by ceiling-mounted clothes drying rack, beams;

c) use of external clothes drying rack not hindered by air-con ledge;

d) sufficient clearance for access to the air-con ledge for installation and maintenance of the air-con compressors;

e) toilet vent and other fittings do not obstruct future installation of shower screen;

f) opening of door not obstructed by pedestal, wash basin or sanitary pipe;

g) sufficient clearance for installation of heater and washing machine (to be installed by resident);

h) piping arrangement is optimal and facilitate future maintenance; and

i) any other practical considerations.

The inspection of timber mock up must be carried out in the presence of Architectural, C&S, and M&E Consultants. The layout of the timber mock-up must conform to Sales Brochure (e.g. no deviation on the locations of pedestal, wash basin and door)

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5.4 Examples of Timber Mock Up



Bathroom



Bathroom



Bathroom



Service Yard and A/C Ledge



Kitchen



Kitchen

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6 Sample Units

6.1 Construction of Sample Units

Sample units are to be constructed for all flat types with different layout. The objectives of setting up the sample units are to :

(a) Ensure each flat type is constructed according to specifications & drawings before mass production

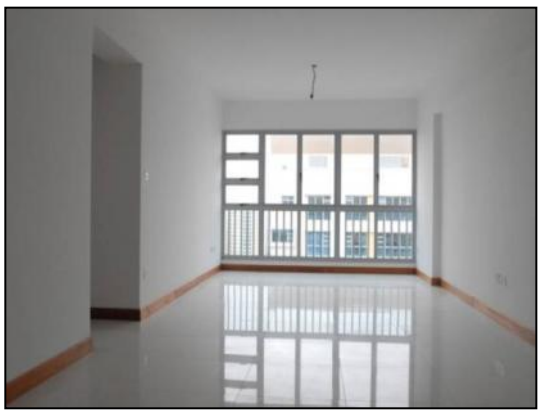
(b) Eliminate any discrepancies between drawings and sales brochures

(c) Minimise subsequent design adjustment and

(d) Serve as visual reference for workmanship standard for finishing works.

The workmanship standards set in the approved sample units will be used as a common reference standard when Contractor proceeds with mass production. Hence, the workmanship set in sample units must comply with Quality Standards stated in the specifications.





Sample Unit

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6.2 Timeline for Completion of Sample Units

The sample unit construction shall commence when casting slab reaches 5th storey and be completed within 3 months. For a typical 20-storey development, the sample shall be completed one year after commencement of the works

The approval of sample unit by Consultant is a critical milestone. The Consultant is required to track the works and approve it timely so as not to hold back the mass production.



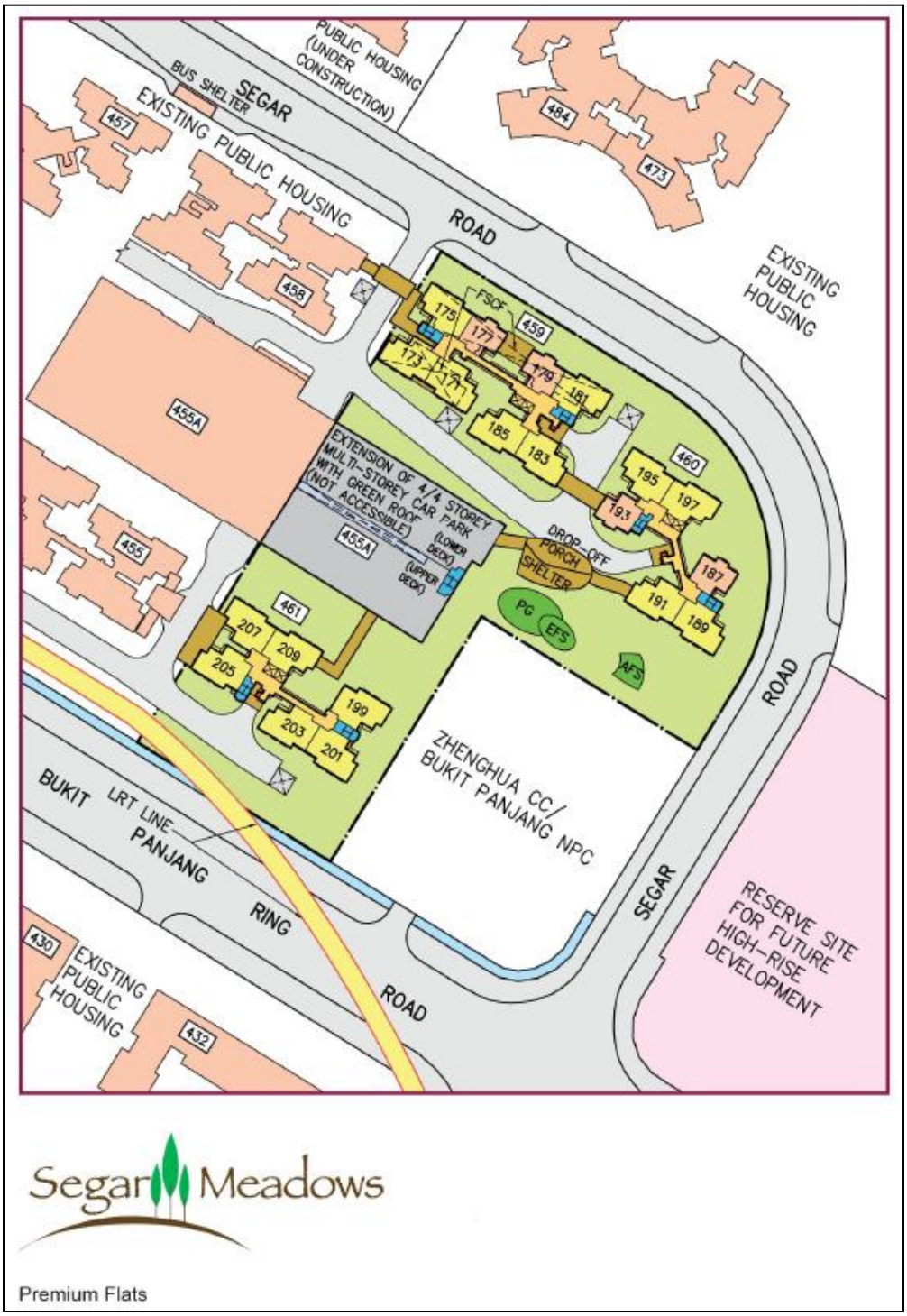
6.3 Documents for Sample Unit Inspection

The sample units are to be approved by Consultant first before arranging HDB to view it. The following documents are to be ready before the viewing of the sample unit by HDB :

a) Site layout plan
b) List of materials used in sample units
c) Sales brochure unit layout
d) Sales brochure general specifications
e) QP declaration form

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a) Site Layout Plan



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b) Example on List of Materials Used in Sample Unit

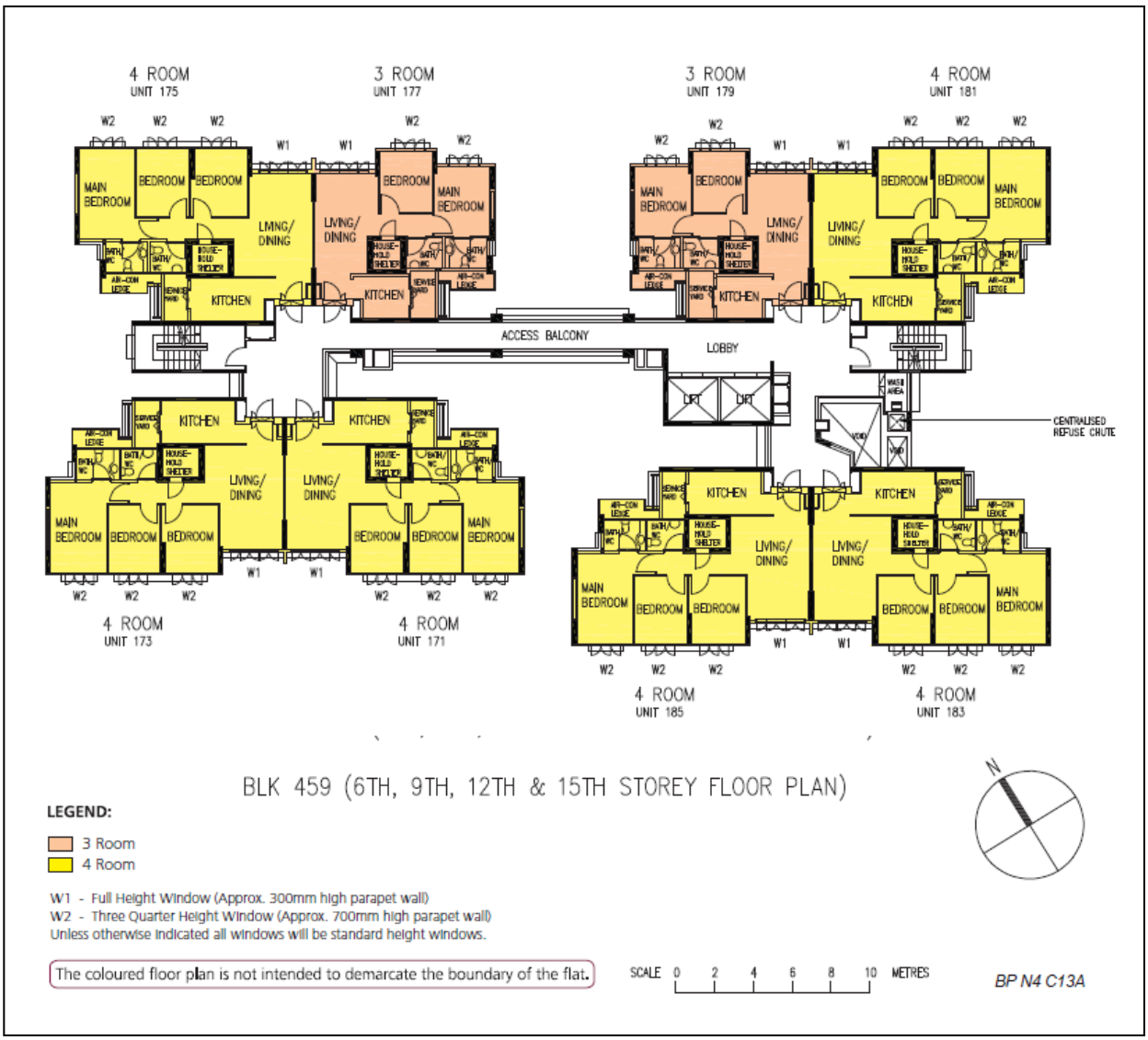
Precise Development Pte. Ltd
BPN4C13
Architectural and M&E Materials List

Date : 10/10/2009

Item	Name of Trade and Sub Contractor	Name of Materials	Name of Suppliers
1	Ceiling skimming		
	(Wee Chong Builders Pte Ltd)	Skim coat (Internal)	Parex davco (Singapore) Pte Ltd
		Exmet	Kong Foh & Co.
2	Brick Laying and Wall Plastering		
	(Wee Chong Builders Pte Ltd)	Common Brick	Soon Sen Beng Co Pte Ltd
			Lian Wang Trading Pte Ltd
		Solid Block	Soon Sen Beng Co Pte Ltd
			Lian Wang Trading Pte Ltd
		Galvanised Bonding Bar	Kong Foh & Co.
		Exmet	Kong Foh & Co.
		Render Coarse	Parex davco (Singapore) Pte Ltd
		Render Fine	Parex davco (Singapore) Pte Ltd
		Skim coat (Internal)	Parex davco (Singapore) Pte Ltd
		Skim coat (External)	Parex davco (Singapore) Pte Ltd
3	Ferrolite Partition Wall		
	(Wee Chong Builders Pte Ltd)	Ferrolite partition wall	Eng Seng Cements
		Polymer Fibre modified filler	Eng Seng Cements
		Fibre glass tissue (CRAKGON)	Vivian Regina Marketing Pte Ltd
		Non-shrink grout	LCS Optiroc Pte Ltd
		Fishtail brackets	Kong Foh & Co.
		Top Brackets	Kong Foh & Co.
		U-channels	Kong Foh & Co.
		Bolts & nuts	Eng Seng Cements
4	MS Door / Door Frame		
	(HYS Enterprise Pte Ltd)	MS door frame	Yong Tai Loong Pte Ltd
		Fishtail Holdfast	Yong Tai Loong Pte Ltd
5	Timber Door Frame / Doors Leaf		

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c) Sales Brochure Unit Layout



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d) Sales Brochure General Specifications

General Specifications for Segar Meadows
(For 3-Room, 4-Room)

Foundation
Reinforced concrete bored piles.

Structure
Reinforced concrete structural framework with reinforced concrete slabs.

Roof
Reinforced concrete roof slab with precast concrete secondary roofing.

Walls
All external and internal walls are constructed with reinforced concrete/solid blocks/bricks with cement plastering/precast panels/ precast lightweight concrete partitions.

Windows
Aluminium framed windows with tinted glass

Doors

Entrance	:	decorative solid timber door and metal gate
Bedroom	:	decorative solid timber doors (Type D10) (optional)
Bathroom/WC	:	laminated semi-solid timber doors (Type D10a) (optional)
Household Shelter	:	metal door
Service Yard	:	aluminium framed door with glass

Finishes

Ceiling	:	skim coated or plastered and painted
Bathroom/WC/kitchen walls	:	ceramic tiles
Other walls	:	skim coated or plastered and painted
Living/Dining floor	:	polished porcelain tiles with timber skirting
Bedroom floor	:	timber strip flooring with timber skirting
Kitchen floor	:	glazed porcelain tiles
Household shelter floor	:	polished porcelain tiles
Bathroom/WC floor	:	ceramic tiles
Service yard floor	:	glazed porcelain tiles with tiles skirting

Fittings
Quality locksets
Quality sanitary fittings
Vanity top wash basin for attached bathroom/WC, wash basin for other bathroom/WC
Clothes Drying Rack

Services
Gas services & concealed water supply pipes
Concealed electrical wiring to lighting and power points (including water heater and air-conditioning points).
Television points.
Telephone points.

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e) QP Declaration Form

CHECKLIST ON COMPLIANCE WITH BTO/SERS SALES BROCHURE
DURING SAMPLE INSPECTION (To attach copies of Sales Brochure Unit Type Plan & General Specifications)

Project	:	_____
Type of Dev.	:	**Standard / Premium**
Consultant	:	_____
Architect-in-charge	:	_____
Date	:	_____
Block	:	_____
Unit Type	:	_____

1.0 Actual Sample Unit Layout	Complied with Sales Brochure	Remarks
1.1 Position of sanitary fittings	☐	
1.2 Direction of swing of Main door	☐	
1.3 Direction of swing of Bedroom & Bathroom/WC door	☐	
1.4 Provision/size of Vanity Top	☐	
1.5 Location of structured cable system	☐	
1.6 Clothes Drying rack (Internal/External)	☐	
1.7 Window (Full, 3/4 Height, Standard,casement/sliding/louvred/fixed)	☐	
1.8 Direction of swing of Window	☐	
1.9 Others (please specify)	☐	
2.0 Actual Finishes		
2.1 Type of Bedroom / Bathroom/WC doors provided under OCS (To specify type in remarks column)	☐	
2.2 Floor finishes to Kitchen / Bathroom/WC	☐	
2.3 Floor finishes to Living Room / Bedroom	☐	
2.4 Wall Finishes to Bathroom/WC / Kitchen	☐	
2.5 Others (please specify) eg. prefabricated/pre-essembled bathroom/WC	☐	

I confirmed that all Actual Provisions (finishes/layout) complied with the Sales Brochure (Plans & General Specifications)

_____ Name & Signature of QP (Arch)
Name of Lead Consultant Company

_____ Date of Sample Unit inspection /

Note:
To be submitted at Sample Approval stage. 1 copy per Unit Type including those without sample inspection/approv

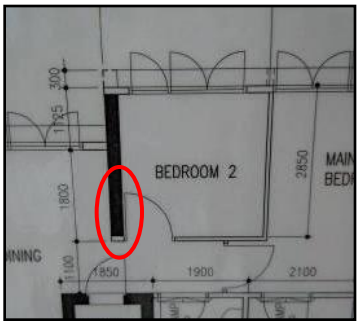
6.4 Examples of Non-conformance in Sample Units

1) Column profile at sample unit differs from sales brochure

Sample unit



Sales brochure

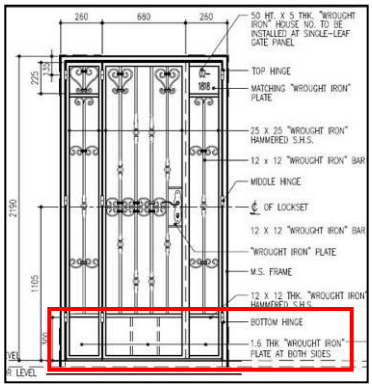


2) Base plate of metal gate differs from guide drawing

Sample unit



Guide drawing



3) Tile at main entrance ramp differs from specifications

Sample unit



Smooth tile is used

Building specifications



Textured /structured tile is specified.

7 In-Process Supervision Works

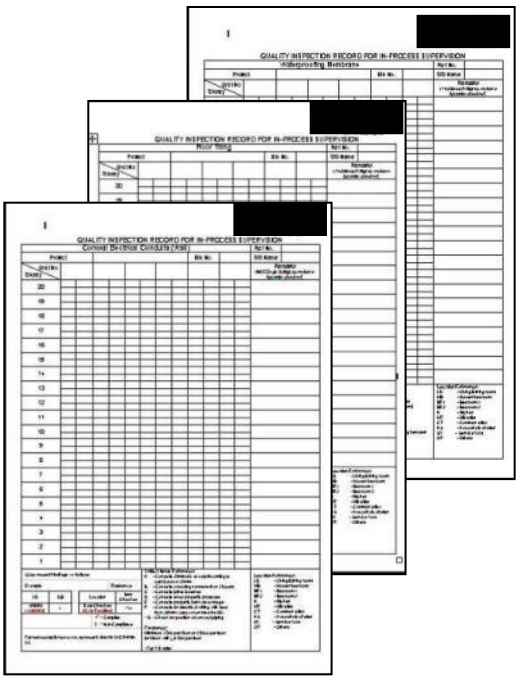
7.1 Quality Control System

Work method demonstration, sample unit inspection, materials testing, work sequence inspections and functional testing of completed works are key processes of good quality assurance system. This is to ensure that acceptable quality materials are used, right work procedures are employed and a high level of workmanship standard is executed to produce a quality finished product.

7.2 Guide and Checklist for In-process Supervision

After the approval of sample units and the commencement of mass production, the Consultant shall carry out in-process checking during the entire construction stage. More regular checks shall be carried out when works just commenced or a new group of workers joins the workforce. This is to ensure that non-compliances are detected early and minimise the need for rectification works.

The Consultant is required to set the guidelines and develop checklists to guide the supervisory staff in the supervision of in-process work. The guidelines shall include the frequency of checks for various trades. For critical trades such as application of waterproofing membrane, 100% check would be required before the works are covered up.



Checklist and Inspection Record for in-process supervision.

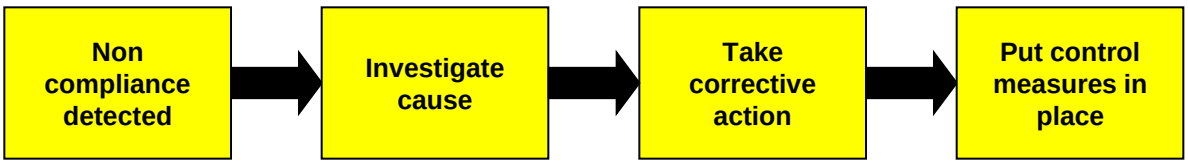
Refer to Annex for sample of checklists.

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7.3 Control Of Non-Conforming Products

It is important to check for irregularities while the works are in progress as failure to detect these irregularities may lead to potential latent defects. In addition, by stopping the wrong practice during the in-process supervision, it will educate the Contractor the concept of “Do It Right The First Time”.

When non-conforming procedures, materials or workmanship are discovered, the Consultants are required to investigate the cause of the non-conformance and take corrective actions promptly to rectify it. In addition, the Consultant must also review with Contractor to identify shortcomings and take measures to prevent recurrence.



Example of Non-Conformance	Corrective Action
 Sanitary pipes were damaged in some toilets.	 Damaged pipes had been replaced and ponding test was conducted to the toilets.
 Fish tail bracket was not properly secured using bolt and nut.	 Fish tail bracket was secured with bolt and nut and tag welding.

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8 Handing Over of Completed Works

8.1 Handing Over Inspection

The completed residential blocks will be taken over on a block by block basis. The Consultants must ensure that Temporary Occupation Permit (TOP) is obtained and the block passed HDB's inspection before certifying completion for the block.

8.2 Pre-Inspection Briefing

The Consultant is required to attend the "pre-inspection briefing" by HDB's Building Inspection Team (BIT). The briefing is to prepare the project team on the requirements and procedures for proper handing over of the completed blocks. The briefing will cover BIT inspection procedures, critical functional tests, locking-up inspection and handing over of keys to HDB and Town Council.

8.3 Site Showround

Consultant is required to conduct a site showround for the Branch Office and Town Council before handing over of first block. This is to prepare and facilitate the management of defects during the defects liability period (DLP) by the contractor, Branch Office and Town Council.

The Consultant shall provide the following information and drawings to the Branch Office :

- Contract particulars
- Particulars of the Consultants
- Particulars of contractor's essential personnel during DLP
- Approved method statements on repair of common defects
- Estate layout plan
- Service road/driveway plan
- MSCP plan for all decks
- Electrical layout plan of street lighting
- List of suppliers for main fixtures/installations
- Concealed wiring and piping plans
- Brochure for various fixtures and fittings
- As-Built drawings (Elevation & Plan View of Block)

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9 CONQUAS

9.1 Role of Consultant

BCA's CONQUAS Score is a Quality Benchmark for new development project. The Consultant is required to be actively involved in raising the CONQUAS Score of the project. This includes:

a) Be trained and familiarized with the CONQUAS 21 assessment procedures and the Quality Standards.

b) Work with HDB to seek commitment from Contractor's Senior Management during the Construction Programme signing Ceremony to set high CONQUAS Target.

c) 'Design to CONQUAS' e.g. avoid detailing that demand highly on the skills of workers on site

d) Put in place a monitoring system and resolve quality issues

e) Conduct pre-assessment of the completed works before contractor proceeds to book for BCA assessment.

f) Check that the Contractor conducts their own "Materials and Functional Test" indicated in the CONQUAS Manual before arranging for BCA assessment.

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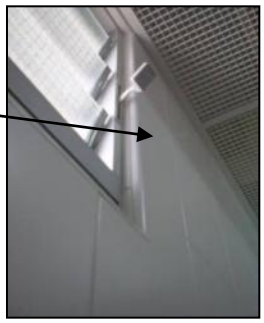
9.2 Examples of detailing that can help to improve CONQUAS Score

1) Window frame setting

Window frame is flushed with wall tile.



Window frame is set in resulting in many cut tiles.



2) Corners at beam/wall



Too many edges at beam/wall.



3) Cut-tile below beam





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10 ANNEX

Example: Inspection Checklist for Internal Waterproofing Works

PROJECT TITLE:			
PROJECT NO.:			
BLOCK NO.:			
UNIT NO. / COMMON AREA (*delete where necessary):			
WATERPROOFING WORKS AT INTERNAL WET AREAS		**Verification**	
		Complied	**Remarks**
1. Records and Documentation by Consultant	a) Proper supervision records by Consultant Site Supervisor	Yes/No/NA	
	b) Testing of material according to specification (e.g. pre-packed waterproofing screed)	Yes/No/NA	
	c) Approval of method statement by Consultant	Yes/No/NA	
	d) Approval of work demonstration by Consultant	Yes/No/NA	
2. Material	a) Use of correct type of waterproofing system under HDB's materials list	Yes/No/NA	
	b) Use of mechanical mixer (for two-part system)	Yes/No/NA	
3. Substrate Preparation	a) Substrate in sound condition (surface flat & even / adequate fall to outlets & wetted to damp)	Yes/No/NA	
	b) Pipe / floor openings fitted with temporary caps so that debris cannot enter and cause chokage	Yes/No/NA	
	c) Wall rendered flat and even	Yes/No/NA	
	d) 45o mortar fillet to edge between floor and wall or pipes	Yes/No/NA	
	e) No surface ponding or running water	Yes/No/NA	
	f) Cleanliness (free of dust & laitance)	Yes/No/NA	
4. Waterproofing Membrane Application	a) Application of 1st coat with a roller or brush (allow first coat to dry to touch)	Yes/No/NA	
	b) Application of 2nd coat in perpendicular direction to the 1st coat	Yes/No/NA	
	c) Corners and pipe properly coated with the aid of a brush	Yes/No/NA	
	d) Upturn of at least 200 mm onto walls	Yes/No/NA	
	e) Upturn of at least 50 mm onto pipes	Yes/No/NA	
	f) Upturn onto the kerb as shown in the drawing	Yes/No/NA	
	g) No air entrapped in the membrane	Yes/No/NA	
	h) Kitchen/service yard outlets – coverage of 400mm radius from the centre of outlet	Yes/No/NA	
	i) Thickness according to manufacturer's recommendation	Yes/No/NA	
	j) Proper protection (after completion cordoned off the areas till protective covering or screed has been laid)	Yes/No/NA	
5. Curing & Protective Screed	a) Adequate curing between 1st & 2nd coat application	Yes/No/NA	
	b) Application of approved pre-packed waterproof screed to protect the waterproof membrane	Yes/No/NA	
	c) Use of mechanical mixer & water measuring gauge	Yes/No/NA	
	d) Adequate fall towards outlets	Yes/No/NA	
	e) Minimum screed thickness = 15mm	Yes/No/NA	
	f) Provision of screed with rough surface	Yes/No/NA	
6. Water Test	a) A minimum depth of 10mm water flooding test for 24 hours within 1 month after application of waterproofing membrane and protective screed Time Start:_____, Time End: _____	Yes/No/NA	
	b) A minimum depth of 10mm water flooding test for 24 hours within 1 month before handing over inspection Time Start:_____, Time End: _____	Yes/No/NA	

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Example: Inspection Checklist for Internal Plastering and Skimming Works

PROJECT TITLE:			
PROJECT NO.:			
BLOCK NO.:			
UNIT NO.:			
LOCATION:			
ITEM		**Verification**	
		Complied	**Remarks**
1. Records and Documentation by Consultant	a) Proper supervision records by Consultant Site Supervisor	Yes/No/NA	
	b) Testing of material according to specification	Yes/No/NA	
	c) Approval of method statement by Consultant	Yes/No/NA	
	d) Approval of work demonstration by Consultant	Yes/No/NA	
2. Material	a) Use of materials under HDB's materials list	Yes/No/NA	
3. Alignment Control	a) Verticality measurement submitted by contractor	Yes/No/NA	
	b) Structural repair, if any, completed	Yes/No/NA	
4. Surface Preparation	a) Sealed tie-bolt & wall plug holes with non-shrink grout	Yes/No/NA	
	b) Cleaned using high pressure water jet	Yes/No/NA	
	c) No loose particles, organic growth, residual form oil etc	Yes/No/NA	
	d) Precast panel joint brackets	Yes/No/NA	
5. *Plastering / Skimming	a) Used approved pre-packed mortar mix	Yes/No/NA	
	b) Used mechanical mixer	Yes/No/NA	
	c) Used water measuring gauge	Yes/No/NA	
	d) *Plaster (1st coat) cured ≥ 12 hrs	Yes/No/NA	
	e) Wetted surface prior to *plastering / skimming	Yes/No/NA	
	f) *Plaster total thickness max 18mm / Skim coat thickness max 6mm	Yes/No/NA	
6. Alignment & Workmanship	a) Surface even	Yes/No/NA	
	b) Surface not rough	Yes/No/NA	

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Example: Inspection Checklist for Wall Tiling Works

PROJECT TITLE:			
PROJECT NO.:			
BLOCK NO.:			
UNIT NO. / COMMON AREA *(* Delete where necessary)*:			
LOCATION:			
ITEM		**Verification**	
		Complied	**Remarks**
1. Preparation	a) Sealed wall-plug holes with non-shrink grout	Yes / No	
	b) Background free from loose particles	Yes / No	
	c) Fixed 150mm wide galv. metal strip lath at joints between different base materials	Yes / No	
	d) Background dampened	Yes / No	
2. Laying of Mortar Rendering	a) Used approved pre-packed mortar mix	Yes / No	
	b) Used mechanical mixer	Yes / No	
	c) Used water measuring gauge	Yes / No	
	d) Control pegs provided	Yes / No	
	e) Lighting provided	Yes / No	
	f) Mortar thickness ≤ 10mm	Yes / No	
3. Laying of Wall Tiles	a) Mortar rendered substrate set ≥ 12 hrs	Yes / No	
	b) Used *tile adhesive / polymer additive	Yes / No	
	c) Tiles soaked for ≥ 12 hrs	Yes / No	
	d) Applied bedding mortar (mix 1 OPC : 1 fine sand) 4mm max on substrate & 2mm max on back of tile	Yes / No	
	e) Used mechanical mixer	Yes / No	
	f) Grid lines indicated on walls	Yes / No	
	g) Used tile spacers	Yes / No	
	h) Lighting provided	Yes / No	
	i) Tilers are of certified worker	Yes / No	
4. Workmanship	a) Surface even & no sharp edges	Yes / No	
	b) Even alignment of joints	Yes / No	
	c) No tonal variation	Yes / No	
	d) Tile cutting neat	Yes / No	

Note: Site Supervisor shall inform Architect of defects or non-compliance found during routine inspections. Site Supervisor shall follow up on remedial action recommended by the Architect to ensure rectification works are carried out by the Contractor.

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Example: Inspection Checklist for Floor Tiling Works

PROJECT TITLE:			
PROJECT NO.:			
BLOCK NO.:			
UNIT NO. / COMMON AREA *(*Delete where necessary):*			
LOCATION:			
ITEM		**Verification (100% checks on all floors)**	
		Complied	**Remarks**
1. Waterproofing Membrane Preparation	a) Surface flat / adequate fall to outlets	Yes / No	
	b) Wall rendered	Yes / No	
	c) 45º mortar fillet	Yes / No	
	d) Damp	Yes / No	
	e) Cleanliness	Yes / No	
2. Waterproofing Membrane Application	a) Used approved material	Yes / No	
	b) Used of mechanical mixer (if 2 part component)	Yes / No	
	c) Applied upturn (50mm onto pipes, 100mm onto kerb & walls)	Yes / No	
	d) Kitchen/balcony outlets - 400mm radius from centre	Yes / No	
	e) Adequate curing between 1st & 2nd coat application	Yes / No	
	f) Thickness _____	Yes / No	
	g) Protection	Yes / No	
3. Protection Screed	a) Membrane sufficiently cured	Yes / No	
	b) Used approved pre-packed screed	Yes / No	
	c) Used mechanical mixer & water measuring gauge mixer	Yes / No	
	d) Gradient provided on screed	Yes / No	
	e) Minimum thickness = 10mm	Yes / No	
4. Water Test (24hr)	a) Min. water depth = 10mm	Yes / No	
	b) No leakage to underside of slab	Yes / No	
5. Laying Of Floor Tiles	a) Grid lines provided on screed	Yes / No	
	b) Screed cured ≥ 3 days	Yes / No	
	c) Bedding on substrate < 1 sq metre	Yes / No	
	d) Used *tile adhesive / polymer additive	Yes / No	
	e) Applied bedding mortar (mix 2 OPC : 1 fine sand) 4mm max on substrate & 2mm max on back of tile	Yes / No	
	f) Used tile spacers	Yes / No	
	g) Height of kitchen floor tile above living room floor level = 45mm	Yes / No	
	h) Clearance of blast door from RC floor level = 70mm (min)	Yes / No	
	i) Kerb height from tiles floor = 75mm max	Yes / No	
6. Grouting To Tile Joints	a) Done within 7 days of tile fixing	Yes / No	
	b) Used approved material	Yes / No	
	c) Used of mechanical mixer	Yes / No	
	d) Used proper tooling	Yes / No	
7. Workmanship	a) Flatness of surface/proper fall & no stagnation	Yes / No	
	b) No tonal variation	Yes / No	
	c) No cracks & chip	Yes / No	
	d) Good & neat alignment of joints	Yes / No	

Note: Site Supervisor shall inform Architect of defects or non-compliance found during routine inspections. Site Supervisor shall follow up on remedial action recommended by the Architect to ensure rectification works are carried out by the Contractor.

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Example: Inspection Checklist for Timber Flooring Works

PROJECT TITLE:		
PROJECT NO.:		
BLOCK NO.:		
UNIT NO.:		
LOCATION:		
	ITEM	**OBSERVATION**
1. Records and Documentation by Consultant	a) Date of last check by SS	
	b) No. of non- compliance detected by SS for the past working days	
	c) No. of non-compliance detected by SS to-date	
	d) Accumulative checks to date	
	e) Approval of method statement by Consultant	
	f) Approval of work demonstration by Consultant	
2. Laying of Floor Screed	a) Alignment of RC elements and walls	
	b) Surface preparation	
	c) Control screed level, evenness and thickness ,within 3mm in 2 m	
3. Laying of Timber Strips	a) Screed cured for min. 14 days, no hollowness and even, within 3mm in 2 m	
	b) Screed moisture content not more than 6-10%	
	c) Prior to laying strips, adjacent flooring completed no wet trades and windows installed	
	d) Sorting of strips - Width : □0.75mm - Thickness : □0.40mm remove those with knots and saps	
	e) Check moisture content of strips not more than 15% Moisture reading: _____	
	f) Application of adhesive	
	g) Laid in butt joints	
	h) Minimum 14 days curing before sanding.(floor should not covered)	
4. Sanding	a) Correct and proper usage of sand paper	
	b) Correct rounds of sanding carried out proper sequence and directions	
	c) Sanding to corners and edges of wall	
	d) No gaps or unevenness	
	e) Matching colour putty	
5. Varnishing	a) Surface vacuum clean	
	b) Brush used	
	c) Coats of varnish	
	d) Protection to timber flooring after varnishing	
6. Timber Skirting	a) Alignment of RC elements and wall	
	b) Sorting of skirting	
	c) Apply adhesive fully	
	d) Joints neat and even	
	e) Patch up all gaps and nail heads on skirting and floor	
	f) Coats of varnish	
7. Workmanship	a) No surface blemishes and unevenness. Not more than 3mm per 2 m	
	b) No misalignment and flush with adjacent tiles	
	c) Joints ≤ 0.5mm,No gap between timber strips	
	d) No gap between wall/ skirting & floor/skirting	
	e) Varnish neat and even	
	f) Acceptable tonal difference	
	g) Exposed end of skirting sanded smooth and varnished	
	h) No hollowness	
8. Material control	a) Material approved by Consultants	
	b) Condition of storage area acceptable, ventilation, dry condition	

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Example: Inspection Checklist for MS and Timber Door Frame Works

PROJECT TITLE:				
PROJECT NO.:				
BLOCK NO.:				
UNIT NO. / COMMON AREA *(*Delete where necessary):*				
LOCATION:				
ITEM			**Verification**	
			Complied	**Remarks**
1. Records and Documentation by Consultant	a)	Proper supervision records by Consultant Site Supervisor	Yes / No	
	b)	Testing of material according to specification (e.g. pre-packed waterproofing screed)	Yes / No	
	c)	Approval of method statement by Consultant	Yes / No	
2. Material	a)	Approval of work demonstration by Consultant	Yes / No	
3. Storage and Transportation	a)	Door supplier under HDB's material list	Yes / No	
	b)	Proper protection with wrapping etc, at delivery	Yes / No	
	c)	Proper storage of door leaves (not exposed to dampness and not directly on floor)	Yes / No	
	d)	Doors brought up to upper floors using lift	Yes / No	
4. Installation Of MS Door Frame (Main & internal doors in DU)	a)	Frame installed after completion of blockworks (preferred method)	Yes / No	
	b)	Frame secured properly & braced	Yes / No	
	c)	Fixing :- *RC / blockwork / LWP I) Galvanised steel bracket with masonry drive pins	Yes / No	
		II) MS bracket w/CED primer	Yes / No	
		III) Galvanised holdfast	Yes / No	
		IV) MS holdfast w/CED primer	Yes / No	
		V) 3 nos galvanised holdfast	Yes / No	
		VI) 3 nos MS holdfast w/CED primer	Yes / No	
	d)	Correct nos of holdfast / brackets as in drawings	Yes / No	
	e)	CED primer in good condition	Yes / No	
5. Infill To Mild Steel Door Frame	a)	Grouting with approved material	Yes / No	
	b)	Grout compacted & frame not hollow	Yes / No	
	c)	Verticality within tolerance ≤ 3mm	Yes / No	
6. Installation of Solid Timber Main Entrance Door (DU)	a)	Proper protection with wrapping etc, at delivery	Yes / No	
	b)	Proper storage of door leaves	Yes / No	
	c)	Moisture content (≥10% & ≤15% & difference not exceed 3% per unit)	Yes / No	
	d)	Both leaves aligned when close, offset ≤ 3mm	Yes / No	
	e)	Align with frame when close, no warp, offset ≤ 3mm	Yes / No	
	f)	When close, gap between frame & door consistent, 3 to 5mm	Yes / No	
	g)	When close, gap between door & finished floor 10mm max	Yes / No	
	h)	When close, eye viewer at 1.5m ht (ext) & not blocked by MS gate	Yes / No	
	i)	PSB label intact (for FR door)	Yes / No	
7. Ironmongery	a)	4 nos brass hinges with matching screws (102x76x3mm)	Yes / No	
	b)	Flush bolts	Yes / No	
	c)	Antique brass finish door viewer	Yes / No	
	d)	Bronze colour door closer	Yes / No	
8. Workmanship of Timber Door	a)	Surface blemishes	Yes / No	
	b)	Tonal variation	Yes / No	
	c)	Lockset / flush bolt functioning	Yes / No	

Note: Site Supervisor shall inform Architect of defects or non-compliance found during routine inspections. Site Supervisor shall follow up on remedial action recommended by the Architect to ensure rectification works are carried out by the Contractor.

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Example: Inspection Checklist for Window

PROJECT TITLE:			
PROJECT NO.:			
BLOCK NO.:			
UNIT NO.:			
LOCATION:			
ITEM		**Verification**	
		Complied	**Remarks**
1. Records and Documentation by Consultant	a) Proper supervision records by Consultant Site Supervisor	Yes / No / NA	
	b) Testing of material according to specification (e.g. laminated safety glass for fixed panel below cill height)	Yes / No / NA	
	c) Approval of method statement by Consultant	Yes / No / NA	
	d) Approval of work demonstration by Consultant	Yes / No / NA	
2. Installation of Outer Frame	a) Control of wall opening < 15mm	Yes / No / NA	
	b) Surface preparation	Yes / No / NA	
	c) Used approved pre-packed mortar	Yes / No / NA	
	d) Levelled mortar base	Yes / No / NA	
3. Fixing of Fasteners	a) Correct number of fasteners	Yes / No / NA	
	b) Type of fastener used: I) anchor bolts	Yes / No / NA	
	II) galvanized steel brackets	Yes / No / NA	
	c) Damage existing wall surface	Yes / No / NA	
	d) Alignment of outer frame	Yes / No / NA	
4. Mortar Infill between Frame & Abutting Wall	a) Appropriate tool used	Yes / No / NA	
	b) Joint free of debris/dust – wall/frame	Yes / No / NA	
	c) Used backing piece for infill	Yes / No / NA	
	d) Used approved pre-packed mortar – mechanically mixed	Yes / No / NA	
	e) Compaction of infill mortar	Yes / No / NA	
	f) Consistent groove joint formed – min 6mm	Yes / No / NA	
5. Sealant /Mastic Pointing	a) Used approved type of sealant	Yes / No / NA	
	b) Sufficient curing of cement mortar	Yes / No / NA	
	c) Sealant of sufficient thickness	Yes / No / NA	
	d) Neat flush joint with frame	Yes / No / NA	
6. Functionality	a) Water seepage through joints between window frame & wall	Yes / No / NA	
	b) Difficulty in open/close of casement glass panels	Yes / No / NA	
	c) Difficulty in sliding of window panels	Yes / No / NA	
7. Joints	a) Untidy joint between window frame & wall	Yes / No / NA	
	b) Poor frame finish	Yes / No / NA	
	c) Physical damages/scratches on frame / glazing	Yes / No / NA	
	d) Stained glazing	Yes / No / NA	
	e) Mortar dropping / paint drip on frame	Yes / No / NA	
8. Accessories Defects	a) Loose or improperly installed gaskets	Yes / No / NA	
	b) Missing screws / safety device	Yes / No / NA	
	c) Defective handle / locking device	Yes / No / NA	
	d) Damaged window stays	Yes / No / NA	

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Example: Inspection Checklist for Brick and Block Works

PROJECT TITLE:				
PROJECT NO.:				
BLOCK NO.:				
UNIT NO. / COMMON AREA *(*Delete where necessary)*:				
LOCATION:				
ITEM			**Verification**	
			Complied	**Remarks**
1. Surface &Brick Preparation	a)	Patched tie bolt & wall plug holes in RC members	Yes / No / NA	
	b)	Bricks & receiving surface clean	Yes / No / NA	
	c)	Wetted bricks before laying	Yes / No / NA	
2. Brick wall flush with RC member	a)	Applied polyurethane sealant (min 13mm) with backer rod	Yes / No / NA	
	b)	Formed 15mm groove	Yes / No / NA	
	c)	Provided expansion joint (for wall > 4.5m length)	Yes / No / NA	
3. Laying of Brick	a)	Used approved pre-packed mortar mix	Yes / No / NA	
	b)	Used mechanical mixer	Yes / No / NA	
	c)	Used water measuring gauge	Yes / No / NA	
	d)	Use of 'Exmet' – started from 2nd course & laid at every 3rd course, min lap length of 100mm	Yes / No / NA	
	e)	Sufficient mortar at joints, no void	Yes / No / NA	
	f)	Joint width 10 ± 2mm	Yes / No / NA	
4. Workmanship	a)	Surface & edges plane & vertical (Plumb < 10mm per storey height)	Yes / No / NA	
	b)	No crack & chip	Yes / No / NA	

Note: Site Supervisor shall inform Architect of defects or non-compliance found during routine inspections. Site Supervisor shall follow up on remedial action recommended by the Architect to ensure rectification works are carried out by the Contractor.

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Example: Inspection Checklist for Sanitary and Plumbing Installation

PROJECT TITLE:				
PROJECT NO.:				
BLOCK NO.:				
UNIT NO. / COMMON AREA *(*Delete where necessary):*				
LOCATION:				
ITEM			**Verification**	
			Complied	**Remarks**
1. Records and Documentation by Consultant	a)	Proper supervision records by Consultant Site Supervisor	Yes / No / NA	
	b)	Testing of material according to specification	Yes / No / NA	
	c)	Approval of mock up by Consultant	Yes / No / NA	
	d)	Approval of method statement by Consultant	Yes / No / NA	
	e)	Approval of work demonstration by Consultant	Yes / No / NA	
2. Material	a)	Use of correct type of pipes, fittings and accessories under HDB's materials list	Yes / No / NA	
	b)	Solvent cement in compliance with BS 4346:Part 3	Yes / No / NA	
3. Floor Trap	a)	UPVC grating having 30mm collar protrusion	Yes / No / NA	
	b)	Gratings for floor trap fixed at 5mm below graded floor level	Yes / No / NA	
	c)	Provision of cast in floor trap	Yes / No / NA	
	d)	No debris in floor trap	Yes / No / NA	
	e)	Floor trap not damaged / not misalignment	Yes / No / NA	
	f)	Mosquitoes device not missing	Yes / No / NA	
4. Casting of Sanitary Openings	a)	Surface of UPVC pipes roughened at openings	Yes / No / NA	
	b)	Provision of trimming bar at openings	Yes / No / NA	
	c)	Alignment of sanitary pipes after connection	Yes / No / NA	
	d)	Proper formworks and propping provided	Yes / No / NA	
	e)	Approved grout used for casting (G40)	Yes / No / NA	
5. Supports For Sanitary Pipes	a)	Provision of horizontal support at max. 1.4m span	Yes / No / NA	
	b)	Provision of vertical support at max. 1.8m span	Yes / No / NA	
6. Leakage Test for Concealed Stack Pipes	a)	A minimum depth of 10mm water flooding test for 2 hours within 1 week after connection of stack pipes for every storey	Yes / No / NA	
7. Concealed Copper Pipes	a)	Correct pipes routing	Yes / No / NA	
	b)	Correct pipe sizes used	Yes / No / NA	
	c)	Adequate provision of pipe supports	Yes / No / NA	
8. Leakage Test for Concealed Copper Pipes	a)	Pump in water into copper pipe at 24 bar and maintain for 15 mins	Yes / No / NA	
	b)	No water leakage at the joints and bends	Yes / No / NA	
	c)	Copper pipes concealed with non shrink grout after test	Yes / No / NA	

Note: Site Supervisor shall inform Architect of defects or non-compliance found during routine inspections. Site Supervisor shall follow up on remedial action recommended by the Architect to ensure rectification works are carried out by the Contractor.

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Example: Inspection Record for In-Process Supervision for Waterproofing Membrane

WATERPROOFING MEMBRANE

PROJECT NO.:

BLOCK NO.:

Name & Signature of RTO:

Storey No.	Unit No. 450		451		452		453		454		455		Remarks (Architect / Project Manager to endorsed for units checked)
20													
19													
18													
17													
16													
15													
14													
13													
12													
11													
10													
9													
8													
7													
6													
5													
4													
3													
2													
1													

RTO to record findings as follow:

Example		Reference	
LD	A,B	Location	Item Checked
10/8/05 (15/08/05)	×	Date Checked (Date Rectified)	√ / ×

√ - Complied
× - Non-compliance

Critical Items Reference:
A - Surface flat / adequate fall to outlets
B - Wall rendered, 45 degree mortar fillet
C - Mechanical mixer (if 2 part component)
D - Applied upturn (50mm onto pipes, 100mm onto kerb & walls)
E - Kitchen / balcony outlets – 400mm radius from centre
F - Thickness per coat / adequate curing between 1st & 2nd coat application / protection

Frequency:
All units

Location Reference:

LD	-Living / Dining room
MB	-Master bedroom
BR1	-Bedroom 1
BR2	-Bedroom 2
K	-Kitchen
MT	-MB toilet
CT	-Common toilet
HS	-Household shelter
SY	-Service Yard
OT	-Others

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Example: Inspection Record for In-Process Supervision for Concealed Water Pipe/ Pressure Test

QUALITY INSPECTION RECORD FOR IN-PROCESS SUPERVISION

CONCEALED WATER PIPE INSTALLATION / PRESSURE TEST

PROJECT NO.:

BLOCK NO.:

Name & Signature of RTO:

Storey No.	Unit No. 450	451	452	453	454	455	Remarks (Architect / Project Manager to endorsed for units checked)
20							
19							
18							
17							
16							
15							
14							
13							
12							
11							
10							
9							
8							
7							
6							
5							
4							
3							
2							
1							

RTO to record findings as follow:

Example

LD	A,B
10/8/05 (15/08/05)	×

Reference

Location	Item Checked
Date Checked (Date Rectified)	√ / ×

√ - Complied
× - Non-compliance

Critical Items Reference:

A - Copper pipe Type "Y" with 22mm (28mm top most 2 storey) and 1.2mm wall thickness, 15mm dia and 1.0mm wall thickness at tap fitting
B - Copper brackets not more than 1m c/c
C - Compression fitting capping 50mm wall
D - Pipes seal with approved non-shrink mortar
E - Hydrostatic test conducted : 7 bars for 24 hours before sealing up
F - Check for position of conceal piping

Frequency:
All units

Location Reference:

LD -Living / Dining room
MB -Master bedroom
BR1 -Bedroom 1
BR2 -Bedroom 2
K -Kitchen
MT -MB toilet
CT -Common toilet
HS -Household shelter
SY -Service Yard
OT -Others

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Example: Inspection Record for Water Test

PROJECT TITLE:	
PROJECT NO.:	
BLOCK NO.:	

Water Test for
(* to delete where not applicable):

- Roof
- Internal
- External (*Facing Br/PC façade)
- Water tank
- Precast Joint (*Staircase/Parapet/Refuse Chute/Plank)
- Others _____

Block Layout Plan:

Location Legend:
LR – Living Room
MBR – Master Bedroom
BR1 – Bedroom 1
K - Kitchen
CT – Common Toilet
MT – Master Bedroom Toilet
SR – Study Room
SB – Service Balcony
AB – Access Balcony
LL – Lift Lobby Area
S - Staircase
SL – Staircase Half Landing

Unit No.	Location / Reference Grid	1st Test						Re-Test						Remarks
		Date	Time		P/F	Name & Signature		Date	Time		P/F	Name & Signature		
			Start	End		RTO	Contractor		Start	End		RTO	Contractor	

Notes:
1) Leakage position is to be indicated in Red.
2) A minimum depth of _____ water flooding test for _____ within _____ after application of waterproofing membrane and protective screed.
3) A minimum depth of _____ water flooding test for _____ within _____ before handing over inspection.

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Together, we provide excellent project management to deliver quality homes in a sustainable environment.

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