

Our Ref: BCA BC CD2002

6 Nov 2002

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Dear Sirs

**REVISED PROCEDURE ON THE PLAN SUBMISSION AND COMMISSIONING INSPECTION OF HOUSEHOLD/STOREY SHELTERS**

As part of our continuous effort to improve customer service to building professionals, BCA has been holding regular feedback sessions with representatives of various building professional institutions. The current practice of shelter plan submission procedure is also reviewed and the following changes are made.

**SUBMISSION OF SHELTER ARCHITECTURAL PLANS**

2 Under the current practice, QPs shelter architectural works are required to submit two (2) sets of shelter architectural plans when applying for its acceptance. To be consistent with the practice adopted by the Building Plan & Management and BE Division, we have reviewed and decided that, **with effect from 1<sup>st</sup> Dec 2002, QPs are required to submit only one set of shelter architectural plans for our vetting and acceptance.** As shelter design information and data are captured in shelter database, the current practice of requiring QPs for shelter structural works to accompany a set of accepted shelter architectural plans when making shelter structural plan submissions shall be dispensed with. In view of this and also taking into account of request of waiver of relevant shelter technical requirements to be granted by SCDF, application forms for acceptance of shelter architectural and structural plans are also updated and attached as shown in Annex A.

- a) Form SF HS/PF2: Application for Acceptance of Shelter Architectural Plans.
- b) Form SF HS/PF3: Application for Acceptance of Shelter Structural Plans.

3 The accepted shelter architectural plans could be collected by QPs after 2 weeks from the date of issuance of "Notice of Acceptance for Shelter Architectural Plans".

## **APPLICATION FOR SHELTER COMMISSIONING INSPECTIONS**

4 Upon request by HDB, we have also reviewed the above application forms, especially on the QP's declaration that shelter works have been carried out in accordance with the accepted shelter plans and conditions under which the shelter plans were accepted. They are amended and attached as shown in Annex B. These amended forms should also be used when submitting application for first or project shelter commissioning inspections with effect from 1<sup>st</sup> Dec 2002.

- a) Form SF HS/CF1:  
Application for Acceptance of First Shelter Commissioning.
- b) Form SF HS/CF2:  
Application for Acceptance of Project Shelter Commissioning.

5 All the above application forms are also available in BCA's website  
<http://www.bca.gov.sg>.

## **GUIDELINES ON SAMPLING OF SHELTER FOR COMMISSIONING**

6 There are no existing guidelines in selecting shelter samples from each project for commissioning inspections by project QP. Hence, sampling size would vary among QPs, site supervisors and builders. To promote consistent practice in the building industry, general guidelines are worked out for the information of QPs. They may consider incorporating these guidelines (refer to Annex C) and form part of the technical specification in the tender document when calling future contract of residential projects.

7 I would appreciate it very much if you could disseminate the above information to your members. If you need any clarification on the above, you can contact me at 63258920.

Yours faithfully,

TAN SEE TING  
MANAGER  
CIVIL DEFENCE SHELTER ENGINEERING DEPARTMENT  
for CHIEF EXECUTIVE OFFICER  
BUILDING AND CONSTRUCTION AUTHORITY

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## **ANNEX A**

- a) Application for Acceptance of Shelter Architectural Plans
- b) Application for Acceptance of Shelter Structural Plans

<b>APPLICATION FOR ACCEPTANCE OF HOUSEHOLD/STOREY SHELTER ARCHITECTURAL PLANS</b>														
Commissioner of Building Control Building and Construction Authority 5 Maxwell Road #02-01 Tower Block, MND Complex Singapore 069110 Fax No: 63257150	<b>INSTRUCTIONS</b> 1. Tick (✓) the appropriate boxes. <input type="checkbox"/> 2. * Delete where not applicable. 3. This form is to be filled in BLACK INK only.													
1 Project Reference No.: _____ Plan Type: CD _____ Shelter Category: *HS/SS  Project Title: _____ _____ _____  *Lot / Plot: _____ *TS / MK: _____  House No.: _____ Road: _____  Building Name (if any): _____														
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; border: none;"><u>Usage Type</u></td> <td style="width: 33%; border: none;"><u>Project Type</u></td> <td style="width: 33%; border: none;"><u>Application Type</u></td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Residential</td> <td style="border: none;"><input type="checkbox"/> HDB</td> <td style="border: none;"><input type="checkbox"/> First-time application</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Mixed Development</td> <td style="border: none;"><input type="checkbox"/> Condominium / Apartment</td> <td style="border: none;"><input type="checkbox"/> Re-application (only applicable after expiry of Written Direction or Issuance of Notice of Non-Acceptance)</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"><input type="checkbox"/> Private Landed</td> <td style="border: none;"><input type="checkbox"/> Amendments to accepted plans</td> </tr> </table> No. of storeys (including basement, if applicable) : _____ No. of Household/Storey Shelters in the Development : _____			<u>Usage Type</u>	<u>Project Type</u>	<u>Application Type</u>	<input type="checkbox"/> Residential	<input type="checkbox"/> HDB	<input type="checkbox"/> First-time application	<input type="checkbox"/> Mixed Development	<input type="checkbox"/> Condominium / Apartment	<input type="checkbox"/> Re-application (only applicable after expiry of Written Direction or Issuance of Notice of Non-Acceptance)		<input type="checkbox"/> Private Landed	<input type="checkbox"/> Amendments to accepted plans
<u>Usage Type</u>	<u>Project Type</u>	<u>Application Type</u>												
<input type="checkbox"/> Residential	<input type="checkbox"/> HDB	<input type="checkbox"/> First-time application												
<input type="checkbox"/> Mixed Development	<input type="checkbox"/> Condominium / Apartment	<input type="checkbox"/> Re-application (only applicable after expiry of Written Direction or Issuance of Notice of Non-Acceptance)												
	<input type="checkbox"/> Private Landed	<input type="checkbox"/> Amendments to accepted plans												
Name of Applicant	Address of Applicant													
3 a) I certify that the building works as shown in the plans have been designed in accordance with the shelter technical requirements, subject to such waiver granted by SCDF under the Civil Defence Shelter Act.  b) I confirm that: <input type="checkbox"/> Approval on waiver of relevant shelter technical requirements has been obtained from SCDF. Refer to letter dated _____.  <input type="checkbox"/> Waiver of shelter technical requirements is not applicable.														
4. A set of the following plans are attached: a) Site and Location Plans (1:1000). b) Architectural Layout Plans (1:100) with sections and elevations. c) Shelter Detailed Plans (1:50) showing routing and penetration of services, location of ventilation sleeve and blast door openings.														
Name & Signature of Qualified Person	Address of Qualified Person													
Tel No. :	Fax No. :	Date :												

## EXPLANATORY NOTES TO FORM SF\_HS/PF2

### Detailed Household/Storey Shelter Architectural Plans

To facilitate early acceptance of shelter architectural plans, registered architects are advised to submit the following relevant plans and details:

(A) Location and Site Plans (1:1000)

- i) The location plan shall show the location of the development
- ii) In addition to the location of development site, the below shelter data are to be furnished. The sample is as shown below.

Data of Household / Storey Shelter					
Dwelling Unit Type	GFA of Unit (m <sup>2</sup> )	No of HS / SS	Size of HS / SS (m <sup>2</sup> )	Volume of HS/ SS (m <sup>3</sup> )	Aboveground Shelter(AS) or Basement Shelter (BS)
A1					
B1					

(B) Architectural Layout Plans (1:100)

- i) Floor plan of HS, SS or/and Non-Shelter (NS).
- ii) Section and elevation of HS, SS or/and NS.
- iii) Storey height, internal clear height of shelter, thickness of shelter wall, thickness of shelter floor slab, ceiling slab and \*intermediate floor slab, \*RC down-hang beams, are to be clearly indicated.

\* if applicable

(C) Shelter Detailed Plans (1:50)

- i) Size and volume of each shelter type.
- ii) Location of the 2 ventilation openings and the position of the services (e.g. power points, radio/TV points) in the shelter.
- iii) Routing and penetration of services are to be clearly indicated.

<b>APPLICATION FOR ACCEPTANCE OF HOUSEHOLD/STOREY SHELTER STRUCTURAL PLANS</b>		
Commissioner of Building Control Building and Construction Authority 5 Maxwell Road #02-01 Tower Block, MND Complex Singapore 069110 Fax No: 63257150	<b>INSTRUCTIONS</b> 4. Tick (✓) the appropriate boxes. <input type="checkbox"/> 5. * Delete where not applicable. 6. This form is to be filled in BLACK INK only.	
1 Project Reference No.: _____ Plan Type: CS _____ Shelter Category: *HS/SS  Project Title: _____ _____ _____  *Lot / Plot: _____ *TS / MK: _____  House No.: _____ Road: _____  Building Name (if any): _____		
2 <u>Usage Type</u>  <input type="checkbox"/> Residential <input type="checkbox"/> Mixed Development	<u>Project Type</u>  <input type="checkbox"/> HDB <input type="checkbox"/> Condominium / Apartment <input type="checkbox"/> Private Landed	<u>Application Type</u>  <input type="checkbox"/> First-time application <input type="checkbox"/> Re-application (only applicable after expiry of Written Direction or Issuance of Notice of Non-Acceptance) <input type="checkbox"/> Amendments to accepted plans
Name of Applicant	Address of Applicant	
3 a) I certify that the building works as shown in the plans have been designed in accordance with the shelter technical requirements, subject to such waiver granted by SCDF under the Civil Defence Shelter Act. b) I confirm that only approved blast doors, fragmentation plates and ventilation sleeves will be installed. c) I confirm that: <input type="checkbox"/> Approval on waiver of relevant shelter technical requirements has been obtained from SCDF. Refer to letter dated _____. <input type="checkbox"/> Waiver of shelter technical requirements is not applicable.		
4 A set of the following plans is attached: a) Structural Plans (1:25). b) Design Calculations (only applicable to HS/SS tower of 6 storeys or more).		
Name & Signature of Qualified Person	Address of Qualified Person	
Tel No. :	Fax No. :	Date :

## **ANNEX B**

- b) Application for Acceptance of First Shelter Commissioning
- b) Application for Acceptance of Project Shelter Commissioning



**APPLICATION FOR ACCEPTANCE OF COMMISSIONING OF THE FIRST HOUSEHOLD/STOREY SHELTER**

( only applicable for projects with more than 3 household/storey shelters )

Commissioner of Building Control Building and Construction Authority 5 Maxwell Road #02-01 Tower Block, MND Complex Singapore 069110 Fax No: 63257150	<b>INSTRUCTIONS</b> 7. Tick (✓) the appropriate boxes. <input type="checkbox"/> 8. * Delete where not applicable. 9. This form is to be filled in BLACK INK only.
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1 Project Reference No.: \_\_\_\_\_ Plan Type: CN \_\_\_\_\_ Shelter Category: \*HS/SS

Project Title: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\*Lot / Plot: \_\_\_\_\_ \*TS / MK: \_\_\_\_\_

House No.: \_\_\_\_\_ Road: \_\_\_\_\_

Building Name (if any): \_\_\_\_\_

2 I hereby apply for the Acceptance of Commissioning of the First Shelter in the above mentioned project.

Unit No. of First Shelter : \_\_\_\_\_

Proposed date of commissioning : \_\_\_\_\_

a. I have inspected the completed shelter works and I am satisfied that these works have been carried out in accordance with the accepted shelter plans and the conditions under which the plans were accepted.

b.  This is my 1<sup>st</sup> commissioning request for the First Shelter.

This is my \*2<sup>nd</sup>/ 3<sup>rd</sup> commissioning request for the First Shelter. I declare that the rectification works of this shelter had been completed.

c. I would like to be informed of the appointment by:

Fax

Post

e-mail (Please indicate e-mail address) \_\_\_\_\_

Name & Signature of Qualified Person	Address of Qualified Person
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Tel No. :	Fax No. :	Date :
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<b>APPLICATION FOR ACCEPTANCE OF COMMISSIONING OF PROJECT HOUSEHOLD/STOREY SHELTERS</b>		
Commissioner of Building Control Building and Construction Authority 5 Maxwell Road #02-01 Tower Block, MND Complex Singapore 069110 Fax No: 63257150	<b>INSTRUCTIONS</b> 10. Tick (✓) the appropriate boxes. <input type="checkbox"/> 11. * Delete where not applicable. 12. This form is to be filled in BLACK INK only.	
1 Project Reference No.: _____ Plan Type: CN _____ Shelter Category: *HS/SS  Project Description: _____ _____ _____  *Lot / Plot: _____ *TS / MK: _____  House No.: _____ Road: _____  Building Name (if any): _____		
2 I hereby apply for Acceptance of Commissioning of Project Shelters in the above mentioned project.  House nos. / Blocks nos. to be commissioned : _____  Total number of shelters to be commissioned : _____  Proposed date of commissioning : _____  a. I have inspected the completed shelter works and I am satisfied that these works have been carried out in accordance with the accepted shelter plans and the conditions under which the plans were accepted.  <input type="checkbox"/> This is my 1 <sup>st</sup> commissioning request for the Project Shelters.  <input type="checkbox"/> This is my *2 <sup>nd</sup> / 3 <sup>rd</sup> commissioning request for the Project Shelters. I declare that the rectification works of the Project Shelters had been completed.  b. I would like to be informed of the appointment by: <input type="checkbox"/> Fax <input type="checkbox"/> Post <input type="checkbox"/> e-mail (Please indicate e-mail address) _____		
Name & Signature of Qualified Person          	Address of Qualified Person          	
Tel No. : _____	Fax No. : _____	Date : _____

## GUIDELINES FOR SELECTION OF HOUSEHOLD SHELTER (HS) SAMPLES FOR PROJECT COMMISSIONING INSPECTION

Table 1 enumerates required sample size of HS to be selected in each project or each block-basis request for commissioning inspection and over-pressure air-tightness tests.

**Table 1**

<b>Number of HS in each Project or in each Block-Basis request of commissioning inspections</b>	<b><u>Number of HS samples Selected (#) for Project HS Commissioning</u></b>
1-5	Actual no of shelters or up to a maximum of 2, whichever is smaller
6-20	3
21-100	5
> 100	5% of total units to be commissioned

#: Exclude first HS selected for commissioning inspection (first HS commissioning inspection is optional and only applicable for project with more than 3 HS).

The following shall also be adhered to during HS commissioning inspection:

- (i) **1<sup>st</sup> Commissioning Inspection:**
- (a) **More than ½ of HS samples failed the commissioning inspection:**

It is deemed that HS in the entire project or in each block-basis have failed the commissioning inspection and 2<sup>nd</sup> commissioning inspection is required after completion of remedial works. At the 2<sup>nd</sup> commissioning inspection, number of shelters to be selected shall be in accordance with Table 1. Once all the shelter samples have passed the commissioning inspection, Notice of Acceptance for Commissioning of Project Household Shelter would be issued.

- (b) **Less than or up to ½ of shelter samples failed commissioning inspection:**

It is deemed that shelters in the entire project or in each block-basis have partially passed the commissioning inspection. Hence, 2<sup>nd</sup> commissioning inspection is also required. At the 2<sup>nd</sup> commissioning inspection, only those shelters which failed the commissioning inspection during the 1<sup>st</sup> inspection plus an additional same number of shelters which failed the 1<sup>st</sup> inspection would be selected from outside the original sample group are to be commissioned.

**(ii) 2<sup>nd</sup> Commissioning Inspection:**

All the selected shelters should pass the commissioning inspection before Notice of Acceptance for Commissioning of Project Household Shelter is issued for the project or block-basis request. Otherwise, a 3<sup>rd</sup> commissioning inspection is still required. The criteria for selection of shelter samples shall follow item (i) (b) above. This will continue until all selected shelter samples have passed the commissioning inspection.

The number of HS to be re-checked on each HS commissioning inspection can be obtained from the table below:

**For Projects with 1-100 HS units**

No. of Shelters selected for commissioning	No. of HS failed	5	4	3	2	1	0
5		Retest 5	Retest 5	Retest 5	Retest 2+2	Retest 1+1	NOA
4			Retest 4	Retest 4	Retest 2+2	Retest 1+1	NOA
3				Retest 3	Retest 3	Retest 1+1	NOA
2					Retest 2	Retest 1	NOA
1						Retest 1	NOA

- Legend: (i) "Retest 5" means five shelters to be re-commissioned and those originally tested on previous inspections can be included.  
(ii) "Retest 2+2" means to re-commission the original 2 shelters that failed plus another 2 shelters from outside the original group tested on the previous inspection.

**For Projects with >100 units**

No. of Shelters selected for commissioning	No. of HS failed (x)	$x \geq 2\%$	$1\% \leq x < 2\%$	$x < 1\%$	0
5%		Retest 5%	Retest 2% + 2%	Retest 1% + 1%	NOA

- Legend: (i) "Retest 5%" means five percent of the project shelters to be re-commissioned and those originally tested on previous inspections can be included.  
(ii) "Retest 2% + 2%" means to re-commission the original 2% shelters that failed plus another 2% shelters from outside the original group tested on the previous inspection.