



RE: Site Testing Policy (Update April 2023)

Dear Valued Customer,

Thank you for your business and usage of Hilti's on-site testing service of Hilti Mechanical and Hilti Chemical Anchors. Please note this policy supersedes all previous site testing policies.

Hilti's policy for site testing is as follows:

- Hilti only offers site testing for Hilti Mechanical and Hilti Chemical Anchors noted in **Table 4** of this policy. All other products are excluded.
- All requests for site testing must be booked via Hilti online booking platform located at <http://hilti.com.sg/pot>
- **The required load applied (i.e. proof load) to be tested must be provided by customer 2 business days prior to testing date.** Hilti recommends seeking guidance from the Qualified Person or Engineer of Record to determine the required load applied. Please refer to SS EN1992-4 for more details, specifically on the recommendation of proof load value to be taken as 1.5 x Characteristic Action. For more details regarding this topic, please refer to BCA circular from December 2022 (attached to this letter)
- On-site tests of fasteners do not: evaluate suitability or adequacy of the fastener design; verify proper installation or compliance with approval requirements; establish ultimate capacity of tested fasteners; or address performance of untested fasteners. Testing is performed as a service by Hilti in support of its products, and is intended solely to provide information on the general suitability of the base material and/or assist in identification of gross installation errors of tested fasteners – it does not imply any agreement in or endorsement of the suitability or propriety of the test or the application.
- Given destructive testing is dangerous, special considerations must be taken. As such, booking of destructive testing must be notified on the booking platform located at <http://hilti.com.sg/pot>
- Refer to the Hilti Fastening Technology Manual or the appropriate approval document for information on fastener design and performance. Proper installation of fasteners is critical – training is available on request – contact Hilti for information.
- The customer is required to install the anchors for all tests to verify the quality of installation. Site training concerning the installation of anchors can be provided if required before the tests are carried out. The customer must install chemical anchors for test at least t_{cure} before the testing is due to commence, see the packaging /Technical literature for the applicable t_{cure} at the appropriate temperature.
- Any calculation or assessment by Hilti is based solely on the test results and performed according to the indicated calculation standard. It is the Customer's sole responsibility to

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determine whether the test data, calculation, assessment, and design standard are suitable and adequate for their specific jurisdiction and project. If no evaluation of data is provided, it is the Customer's sole responsibility to determine if the results obtained meet their requirements.

- Hilti shall not be held liable for any loss or damage arising out of or in connection with the provision of the site testing services.
- All requests will be assigned a testing slot and booking ID via email. Testing slots are subject to availability during normal business hours. See **Table 1** for applicable slots.
- The normal operational hours are Monday to Friday, 9:30 a.m. to 5:30 p.m, excluding holidays. Any request for testing slot outside of the normal operational hours is considered overtime.
- All normal operational testing slots will result in a charge of SGD 300 per slot.
- All overtime requests will result in a charge of SGD 300 per hour and minimum 2 hours booking required. After 2 hours, any additional time will result in a charge of SGD 150 per half hour or any part thereof. See below **Table 2**.
- For any testing slot resulting in a charge, an approved Purchase Order must be submitted to Hilti 2 business days prior to testing being conducted, otherwise testing slot will be forfeited and must be rebooked.
- No refunds will be given under any circumstance unless written communication is provided to Hilti by 2 p.m. on the normal business day prior. Written communication must be via email addressed to teamengineering.sg@hilti.com and contain booking ID in the subject line. Rebooking is subject to availability.
- Any charges can be waived at Hilti's discretion.
- Charges exclude 8% GST.
- Due to various site conditions, anchor types, and embedment depths, the quantity of tests that can be performed in a given testing slot varies. However, refer to **Table 3** for the maximum number of tests that can be expected in a given testing slot.

In order for Hilti to provide a safe environment for our employees as well as be efficient in testing the maximum number of Hilti anchors during a testing slot, the following conditions must be met:

- Safe access to and from testing location shall be provided. This includes working platform, scaffolding, boom lift, cherry picker, and anything else deemed safe by Hilti.
- Please ensure all relevant parties/authorities are present at the booked time of testing.
- Please ensure that anchors/rebar to be tested are accessible and free from obstruction.
- Please ensure parking of Hilti vehicle is available on site or within 5 minute walk to testing location.

Failure to meet any of the above policies and conditions may result in limiting the number of testing points or cancellation of testing slot.

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If you require further information and details, including terms and conditions, please contact Customer Service at +65 6777 7887.

Sincerely,
Hilti Far East Private Limited

Phillip Pierce
Head of Engineering

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Table 1: Normal operational testing slots			
Testing slot name	Time of day	Duration	Charge SGD
Slot 1	9:30 a.m. - 11:30 a.m.	120 minutes	\$300
Slot 2	1:00 p.m. - 3:00 p.m.	120 minutes	
Slot 3	3:30 p.m.- 5:30 p.m.	120 minutes	

Table 2: Overtime operational testing slots	
Testing slot name	Charge SGD
2 hour slot (mandatory)	\$600
Additional 30 minutes	\$150

Table 3: Estimation of maximum tests in a <u>2 hour</u> slot	
Mechanical anchor diameter	Recommended maximum tests
M8	10
M10	
M12	
M16	8
M20	
M24	
M27	4
M30	
Rebar diameter	Recommended maximum tests
T10	8
T13	
T16	
T20	6
T25	5
T32	3
T40	

Table 4: Testable anchors	
Anchor name	
HVU-TZ	HKD
HVU2	HLC
HDA	HAC
HSL3-G-R	RE 100
HSC-IR	RE 500 V3
HSC-A	RE 500 V4
HST 3	HY 170
HSA	HY 200
HUS 3	HY 270
HUS 4	HSL4-G
HSB	

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An MND Statutory Board

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1 Dec 2022

For enquiries, please contact:
Building Engineering Group (#12-01)
Tel: 1800 342 5222 (1800-DIAL-BCA)
or use our Online Feedback Form at:
<https://www.bca.gov.sg/feedbackform/>

See **Distribution**

Dear Sir/Madam

NEW SINGAPORE STANDARD SS EN 1992-4:2021 – DESIGN OF FASTENINGS FOR USE IN CONCRETE

Objective

This circular is to inform the industry that the Singapore Standard SS EN 1992-4:2021 and its corresponding National Annex (NA) have been published and will be adopted as the prescribed standard on the design of fastenings for use in concrete.

Background

2 In our Circular dated 1 Oct 2014, we informed the industry that the standard for the use of post-installed anchors is BS 8539 ‘Code of practice for the selection and installation of post-installed anchors in concrete and masonry’. The standard gives recommendations for the safe selection and installation of anchors for use in concrete and masonry. Notwithstanding the publication of SS EN 1992-4, BS 8539 will remain relevant and complementary to SS EN 1992-4.

New Singapore Standard SS EN 1992-4:2021

3 This new standard SS EN 1992-4 provides a design method for fastenings which are used to transmit actions to the concrete and will be included in the list of acceptable design standards in the Approved Document. It can be used with immediate effect. However, the requirements of SS EN 1992-4 are to be read in conjunction with the corresponding Singapore National Annex, NA to SS EN 1992-4 which contains information on the Singapore Nationally Determined Parameters.

4 There are a few pertinent points that we wish to highlight in relation to the use of this new standard. These are described in the following paragraphs:

Proof load test and site testing regime

5 The quality of installation is critical to the performance of anchors. In the absence of a qualified installer certification scheme, proof load testing should be carried out for post-installed anchors. Reference can be made to BS 8539 for guidance on the test regimes. Recommendation on proof load test frequency is also given in the National Foreword of the

NA to SS EN 1992-4. Such tests are usually carried out to check the quality of installation to ensure they have been installed correctly. These tests are not generally appropriate for determining the suitability of an anchor in a particular base material or for determining its allowable resistance, for which other test regimes given in BS 8539 should be used.

Post-installed reinforcement bar connection

6 SS EN 1992-4 does not cover the design of post-installed reinforcement bars used to connect concrete members. Such connections shall be designed following the method provided in the relevant European Technical Product Specification¹.

For Clarification

7 We would appreciate if you could bring to the attention of your members the content of this circular. Should you need clarification on this matter, you may call our hotline at 1800 3425222, or use our Online Feedback Form at: <https://www.bca.gov.sg/feedbackform/>.

Yours faithfully



LUNG HIAN HAO
DIRECTOR, BUILDING ENGINEERING GROUP
BUILDING AND CONSTRUCTION AUTHORITY
for COMMISSIONER OF BUILDING CONTROL

¹ European Technical Product Specification refers to European Standard (EN), European Technical Assessment (ETA) for fastener or anchor channel based on a European Assessment Document (EAD) or a transparent and reproducible assessment that complies with all requirements of the relevant EAD.

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