



工程指示 / 要求簡箋(E.I.)

工程指示編號：EV/7308/17 修改版次：
 工程編號：J835 工程名稱：66D2
 工程項目：天晉平台-Grilles, Alum. Cladding, Curtain wall
 收件人：羅小姐 發件人：~~Eddie~~ Johnny 日期：2017-4-

要求提供 / 確認 事項：

- | | | |
|------------------------------------|-------------------------------------|-------------------------------|
| <input type="checkbox"/> 初步鋁料 B.M. | <input type="checkbox"/> 加工拆圖，然後生產 | <input type="checkbox"/> 尺寸表 |
| <input type="checkbox"/> 正式鋁料 B.M. | <input type="checkbox"/> 技術上資料 / 指示 | <input type="checkbox"/> 報價 |
| <input type="checkbox"/> 配件 B.M. | <input type="checkbox"/> 樣辦或貨品說明書 | <input type="checkbox"/> 分判合約 |
| <input type="checkbox"/> 其他：_____ | | |
- 內容：

1. Curtain Wall: Top Cladding- HSTR- M10 Sample Rate 1 % : 8 nos - Test Load : 4.5 KN - Test Period: 2mins
 Remedial Work - HST3R- M16 Sample Rate 1 % : 8nos - Test Load : 14.1 KN - Test Period: 1hr
 Remedial Work - HST3R- M12 Sample Rate 1 % :5 nos - Test Load : 10.05 KN - Test Period: 1hr
2. Grilles - Type 1: HSTR M12 - Sample Rate 1 % : 10nos - Test Load : 10.05 KN - Test Period: 2mins
 Type 1 (掛牆): HSTR M10 - Sample Rate 1 % : 10nos - Test Load : 4.5 KN - Test Period: 2mins
 Type 4C: HSTR M10 - Sample Rate 1 % : 10nos- Test Load : 4.5 KN - Test Period: 2mins
3. Cladding: - Lighting Feature (頂)- HSTR-M10 - Sample Rate 1 % : 20nos- Test Load : 4.5 KN - Test Period: 2mins
 - Lighting Feature Wall (電梯側)- HSTR-M10 - Sample Rate 1 % : 5nos- Test Load : 4.5 KN - Test Period: 2mins
 - Signboard HST3-R M12 - Sample Rate 1 % : 15nos- Test Load : 10.05 KN - Test Period: 2mins
 - Transfer Plate Void HST-R M12- Sample Rate 1 % : 20nos- Test Load : 10.05 KN - Test Period: 2mins
 - Circular Column Cladding HST-R M 10 - Sample Rate 1 % : 60nos- Test Load : 4.5 KN - Test Period: 2mins

請在 _____ 前完成上列要求。

附有關圖紙 / 文件：

見附件
 以上項目為：

- 原合約工程包 原合約工程加 / 減賬 新工程報價

原因：-

分發東莞各部門：

- () 生產技術總監口連附件 () 技術部 口連附件 () 生產部 口連附件 () 機械設計部口連附件
 () 採購部 口連附件 () 生產統籌部口連附件
 () 質檢部 口連附件 () 會計部 口連附件 () 報關組 口連附件 () 其他 _____ 口連附件

分發香港各部門：

- () 行政部口連附件 () 會計部口連附件 () 統籌部口連附件 () 工程部地盤科文口連附件
 () 採購部口連附件 () QS 部 口連附件 () 維修部口連附件 () 其他 _____ 口連附件

傳遞編號：

發件人簽署：

項目經理簽署：

J835 Anchor Bolt Pull Out Test

Curtain Wall

Anchor Type	Sample Rate	Nos	Test Load	Test period	remark
HSTR- M10	1%	8	4.5	2mins	Top Cladding
HST3R- M16	1%	8	14.1	1hr	Remedial work (頂, 中, 底)
HST3R- M12	1%	5	10.05	1hr	Remedial work 頂鉄架

Alum. Grilles

Anchor Type	Sample Rate	Nos	Test Load	Test period	remark
HSTR- M12	1%	10	10.05	2mins	Type 1 Grilles
HSTR- M10	1%	10	4.5	2mins	Type 1 Grilles (Wall Mounted)
HSTR- M10	1%	10	4.5	2mins	Type 4C Grilles

Alum. Cladding

Anchor Type	Sample Rate	Nos	Test Load	Test period	remark
HSTR-M10	1%	20	4.5	2mins	Lighting Feature (頂)
HSTR- M10	1%	10	4.5	2mins	Lighting Feature Wall (電梯側)
HST3 R- M12	1%	15	10.05	2mins	Signboard
HSTR- M12	1%	20	10.05	2mins	Transferplate Void
HSTR- M10	1%	60	4.5	2mins	Circular Column Cladding

1



06 APR 2017

YOUR REF 來函編號 :

OUR REF 本署編號 :

BD 3/9243/12 (Pt.V)

FAX 圖文傳真 :

2845 1559

TEL 電話 :

3579 2398

www.bd.gov.hk

Date rec'd	Action	Copy	Issue to Site
Kelvin Lam			
Stephen Chan			
K S Lau			
Kevin Lam			
C W Wu			
Ricky Leung			
Ernest Chan			
Kelvin Chan			
Teddy Siu			
Douglas Tsang			
Julian Yeung			
Larry Lam			
Chau Ka Ki			
Project Team			

27 March 2017

LAM Kwok Leung
22nd Floor,
Sun Hung Kai Centre,
30 Harbour Road,
Wanchai, Hong Kong.

489

① Kelvin Lam
Teddy Siu
1/4

Dear Sir,

Area 66 D2, Tseung Kwan O - T.K.O.T.L. 118

4.66

I refer to your application ⁴⁴⁰ received on 13 March 2017 ^{dated 10/3/17 + 24/3/17} for approval of proposals in respect of Superstructure Amendment (Curtain Wall and Glass Canopy - Podium) and the application for consent to the commencement and carrying out of the above building works.

- Your submission of plans has been checked under the curtailed check system announced in Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers ADM-19. On this basis, I am satisfied that your submission is fundamentally acceptable and may be approved.
- You are reminded that the curtailed check system covers only the fundamental issues of a building proposal. Although non-fundamental issues will not be raised as reasons for disapproving a submission, I expect that all contraventions of the Buildings Ordinance and its subsidiary legislation are rectified as and when they are discovered and in any event, before completion of the works is certified. In this connection, I ask you to note that the Building Authority attaches great importance to the proper assumption of duties and responsibilities by authorized persons and registered structural engineers.
- In accordance with the provisions of regulation 30(1) of the Building (Administration) Regulations, this is to notify that the above - mentioned plans submitted with your application received on 13 March 2017 are hereby approved. One set of the said plans, on which I have signified my approval, is enclosed. Your client has been sent a copy of this letter but I would request that you ensure that the contents are understood by him.
- This approval should not be deemed to confer any title to land or to act as a waiver of any term in any lease or licence. Section 14(2) of the Buildings Ordinance refers.
- This approval is subject to the conditions and requirements given in Appendix I attached.
- Consent to the commencement and carrying out of the above Superstructure Amendment (Curtain Wall and Glass Canopy - Podium) is given in the Form BD103 enclosed. You are reminded to ensure that the plans now approved are compatible with all previously approved plans, any conditions imposed are fulfilled and no works are carried out before all required plans have been approved and consent given. Your attention is drawn to paragraph 10 of Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers APP-97.

/8.

S.L.9A (11/2009)

Ref : BD 3/9243/12 (Pt.V)

Address : Area 66 D2, Tseung Kwan O - T.K.O.T.L. 118

Appendix I to approval dated 27 March 2017

**Drilled-in Anchors used for
Curtain Wall Remedial Works**

In giving this approval of plans, I hereby impose the following conditions under item 6 in section 17(1) of the Buildings Ordinance:

- (a) Strength tests on a representative number of the drilled-in anchors, as directed by the Registered Structural Engineer, are required to be carried out in accordance with the test criteria specified under item (b) below and should be carried out by a recognized laboratory independent of the contractor.
- (b) Strength tests of the drilled-in anchors should satisfy the following criteria:
 - (i) Sampling rate should be at least 5% or 5 numbers, whichever is more, of each type and size of the anchors installed.
 - (ii) Each representative anchor should be tested for tensile load by pull-out test and/or shear load by shear load test as appropriate.
 - (iii) Test load should not be less than 1.5 times the recommended load of the anchor as specified by the anchor manufacturer.
 - (iv) Upon the maximum test load is reached, the load should be maintained for at least one hour, and the readings of load and deformation should be taken at the beginning and end of this period to establish whether the tested anchor is subject to creep and relaxation of load under this maximum test load.
 - (v) Recovery of the deformation after removal of all loads should be at least 80% of the total deformation at the maximum test load, and the tested anchor should not show any signs of separation, plastic deformation or deleterious effect.
- (c) A report containing all results of the above-mentioned tests and a discussion on any problems encountered during the installation of the anchor bolts and how they were overcome should be submitted within 21 days after testing and appended with a statement signed by the Registered Structural Engineer to confirm that all drilled-in anchors have been installed in accordance with the anchor manufacturer's recommendations.
- (d) A method statement on the anchor tests mentioned under item (a) above is required to be submitted to this Department prior to the application for consent to the commencement of the curtain wall remedial works.



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M110

METHOD STATEMENT

Tensile Proof Load Test on Structural Fixings in Concrete and Masonry (BS 5080 : Part 1 : 1993)

Client : Yee Fai Construction Company Ltd / Midi Aluminium Fabricator Ltd

Project : Proposed Residential Development at Tseung Kwan O Area 66D2, T.K.O.T.L. 118

Subject : Curtain Wall and Glass Canopy - Podium

1. Introduction

- 1.1 This method statement described the procedure for conducting test under axial tensile force on structural fixings installed in concrete or masonry used in building and civil engineering.
- 1.2 The method statement in accordance with BS 5080 : Part 1 : 1993.

2. Acceptance criteria & Sampling

- 2.1 The specimen shall be accepted if the test load can be maintained for the specified time without show any signs of separation, plastic deformation or deleterious effect.
- 2.2 The specimen shall be randomly selected at least 1% or 5 nos., whichever is more, for each type and size by the client.

3. Specimen information

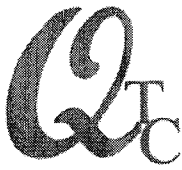
(Refer to manufacturer's specification)

1) Type of Specimen : Hilti HST-R M10		
Recommended Load : 3.0 kN	Test Load (Recommended Load x 1.5) : 4.5 kN	Maintain period : 2minutes

4. Equipment

- 4.1 For measuring the tensile loading of structural fixings, the following equipment shall be used:
 - a. Hydraulic hand pump with loading device
 - b. Hydraulic cylinder
 - c. Load cell
 - d. Loading frame
 - e. Wedges grip for fixing the specimen to the loading device





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5. Test Requirement

5.1 Test load

The test load shall be minimum equal to 1.5 times of the recommended tensile load as specified by the manufacturer or specified by the client.

5.2 Maintain period

Normally, the maximum test load will be maintained constant for at least 2 minutes, or to whatever time period as specified by client.

6. Procedure

6.1 Check & record the type / diameter of specimen, location, test load, maintain period, number of test etc.

6.2 Visual check the specimen and the base material to ensure no damages were found.

6.3 Select equipment

Select suitable loading device according to the test load provided by clients, the type / diameter of the specimen and the environmental condition.

6.4 Set up the apparatus according to the diagram.

The reaction of the loading frame shall be applied to the base material.

6.5 Ensure that the alignment of the whole test set up is such that the tensile force is applied along the axis of the test specimen.

6.6 Initially a force sufficient to take up any slack in the apparatus and the attachments shall be applied.

6.7 The specimen will be loaded to test load provided by clients in one increment at a constant rate or at other intervals as specified by client. The maximum load will be maintained constant for 2 minutes.

6.8 The load is then gradually released until the loading device can be safely removed from the test specimen.

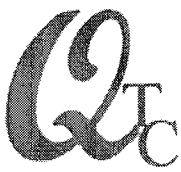
6.9 The tested anchor should not show any signs of separation, plastic deformation or deleterious effect.

6.10 Use the standard worksheet to record down all information and result for the test.

7. Record

7.1 The test results shall be recorded in a standard form for the record of the client.





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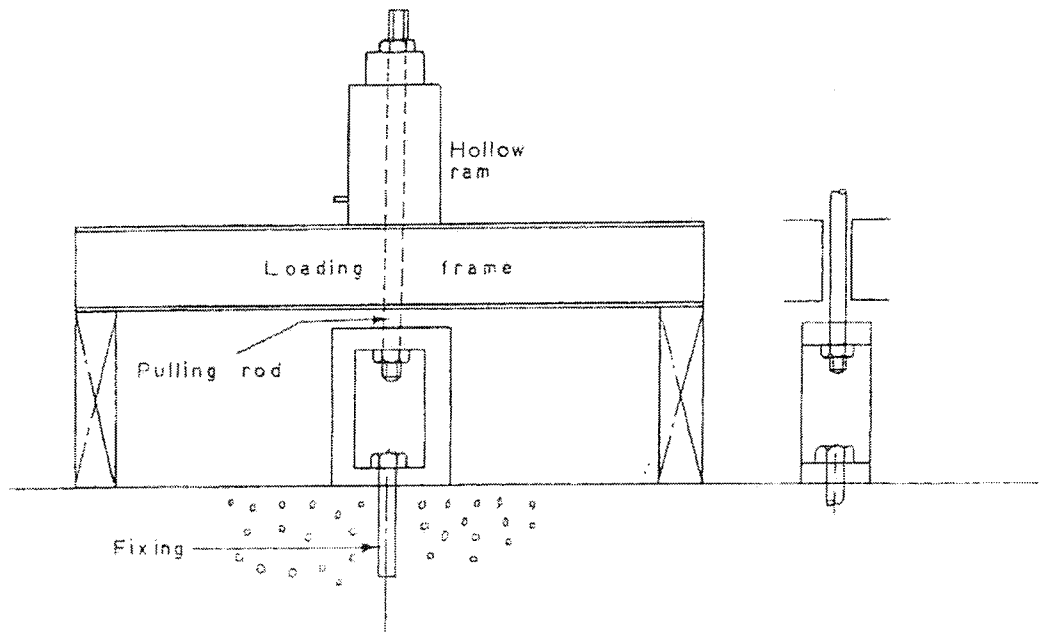
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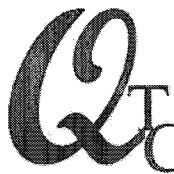
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Loading Apparatus



Typical set-up of the tensile proof load test on structural fixing (anchor bolt)





Remedial Work

METHOD STATEMENT

Tensile Proof Load Test on Structural Fixings in Concrete and Masonry
(BS 5080 : Part 1 : 1993)

Client : Yee Fai Construction Company Ltd/Midi Aluminium Fabricator Ltd
Project : Proposed Residential Development at Tseung Kwan O Area 66D2, T.K.O.T.L.118
Subject : Curtain wall and Glass Canopy - Podium

1. Introduction

- 1.1 This method statement described the procedure for conducting test under axial tensile force on structural fixings installed in concrete or masonry used in building and civil engineering.
- 1.2 The method statement in accordance with BS 5080 : Part 1 : 1993.

2. Acceptance criteria & Sampling

- 2.1 The specimen shall be accepted if the test load can be maintained for the specified time without show any signs of separation, plastic deformation or deleterious effect.
- 2.2 Other compliance criteria such as relative movement and recovery of deformation shall also be checked as specified (Recovery should be at least 80%).
- 2.3 The specimen shall be randomly selected at least 5% or 5 nos., whichever is more, for each type and size by the client.

3. Specimen information

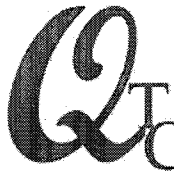
(Refer to manufacturer's specification)

1) Type of Specimen : Hilti HST3-R M12		
Recommended Load : 6.7 kN	Test Load (Recommended Load x 1.5) : 10.05 kN	Maintain period : 60 minutes
2) Type of Specimen : Hilti HST3-R M16		
Recommended Load : 9.4 kN	Test Load (Recommended Load x 1.5) : 14.1 kN	Maintain period : 60 minutes

4. Equipment

- 4.1 For measuring the tensile loading of structural fixings, the following equipment shall be used:
 - a. Hydraulic hand pump with loading device
 - b. Hydraulic cylinder
 - c. Load cell
 - d. Loading frame
 - e. Wedges grip for fixing the specimen to the loading device
 - f. Dial gauge for measuring relative movement





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Tel : (852) 2185-0900 Fax : (852) 2687-6752 Website : www.qtc-hk.com E-mail : qtc@qtc-hk.com

5. Test Requirement

5.1 Test load

The test load shall be minimum equal to 1.5 times of the recommended tensile load as specified by the manufacturer or specified by the client.

5.2 Maintain period

Normally, the maximum test load will be maintained constant for at least 1 hour, or to whatever time period as specified by client.

6. Procedure

6.1 Check & record the type / diameter of specimen, location, test load, maintain period, number of test etc.

6.2 Visual check the specimen and the base material to ensure no damages were found.

6.3 Select equipment

Select suitable loading device according to the test load provided by clients, the type / diameter of the specimen and the environmental condition.

6.4 Set up the apparatus according to the diagram.

a. The reaction of the loading frame shall be applied to the base material.

b. The dial gauge shall be supported on one or more reference points, independent of the loading frame.

6.5 Ensure that the alignment of the whole test set up is such that the tensile force is applied along the axis of the test specimen.

6.6 Initially a force sufficient to take up any slack in the apparatus and the attachments shall be applied.

6.7 The specimen will be loaded to test load provided by clients in one increment at a constant rate or at other intervals as specified by client. The maximum load will be maintained constant for 1 hour.

6.8 The load is then gradually released until the loading device can be safely removed from the test specimen.

6.9 When the relative movement / deformation recovery is required, the record at the beginning, during and at the end of the loading period shall be recorded.

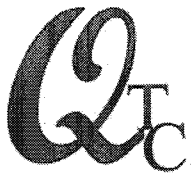
6.10 Check and record any damages, signs of separation to the test specimen.

6.11 Use the standard worksheet to record down all information and result for the test.

7. Record

7.1 The test results shall be recorded in a standard form for the record of the client.





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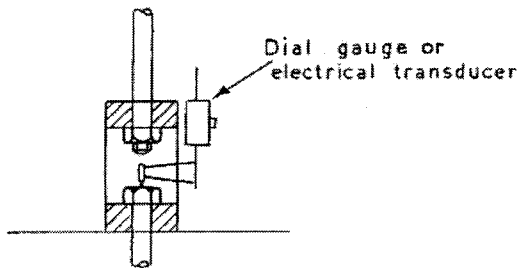
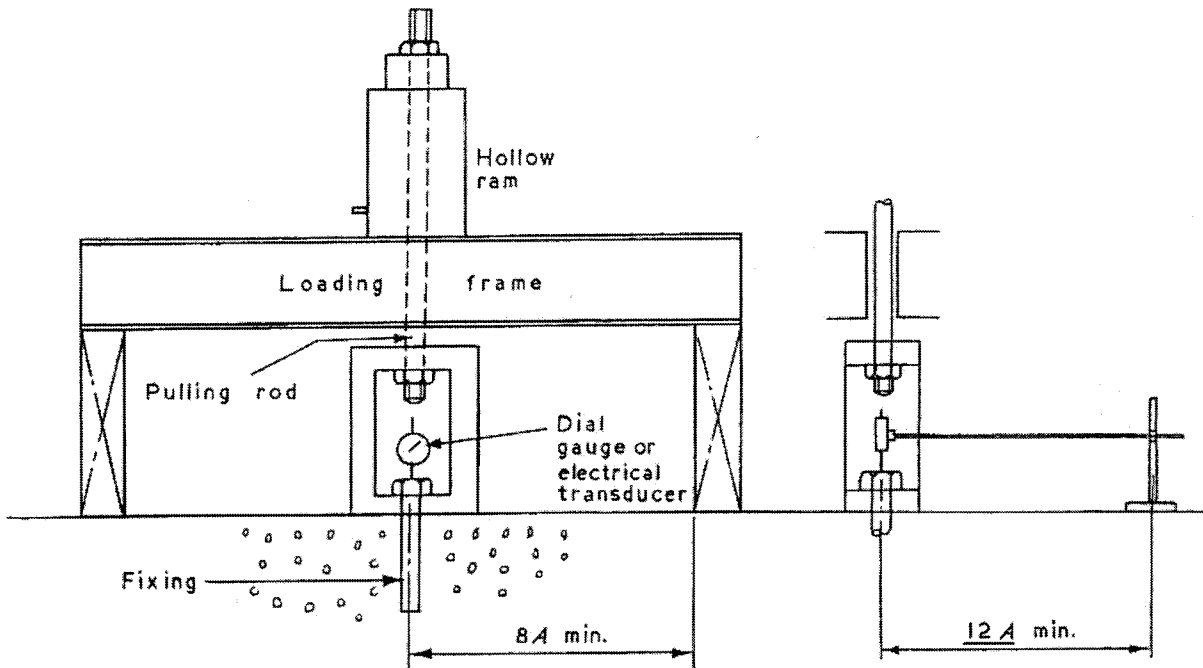
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Loading Apparatus



Typical set-up of the tensile proof load test on structural fixing (anchor bolt)



Ref : BD 3/9243/12 (Pt.V)

Address : Area 66 D2, Tseung Kwan O - T.K.O.T.L. 118

Appendix IV to approval dated 15 March 2017

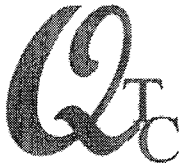
**Drilled-in Anchors used for Works other than
Cantilevered Structure/Hanger/Curtain Wall Remedial Works**

In giving this approval of plans, I hereby impose the following conditions under item 6 in section 17(1) of the Buildings Ordinance:

- (a) Strength tests on a representative number of the drilled-in anchors should be carried out as directed by the Registered Structural Engineer to verify the performance and workmanship of the as-built anchors. Sampling rate should be at least 1% or 5 numbers, whichever is more, of each type and size of the anchors installed. The strength tests should be carried out by a recognized laboratory independent of the contractor.
- (b) Each representative anchor should be tested for tensile load by pull out test and/or shear load by shear load test as appropriate to demonstrate that its load carrying capacity is not less than 1.5 times the recommended load as specified by the anchor manufacturer. The tested anchor should not show any signs of separation, plastic deformation or deleterious effect. The reports of the above-mentioned tests shall be endorsed by Registered Structural Engineer and kept on site for inspection by representatives of the Buildings Department.
- (c) A method statement on the anchor tests mentioned above is required to be submitted at least one week prior to the actual commencement of the drilled-in anchor works.

2. The following condition in respect of qualified supervision of works is imposed under item 6 in section 17(1) of the Buildings Ordinances:

- (a) Qualified site supervision of the drilled-in anchor works, by experienced and competent persons as defined in (b) and (c), should be provided to ensure that the works are carried out in accordance with the plans approved and that the required standards are complied with.
- (b) The Registered Structural Engineer should assign a quality control supervisor to supervise the works, determine the necessary frequency of inspection by the quality control supervisor which should not be less than once a week, and devise inspection check lists. The minimum qualifications and experience of the quality control supervisor is to be the same as the Technically Competent Person of grade T3, as stipulated in the Code of Practice for Site Supervision 2009.



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METHOD STATEMENT

Tensile Proof Load Test on Structural Fixings in Concrete and Masonry

(BS 5080 : Part 1 : 1993)

Client : Yee Fai Construction Company Ltd/Midi Aluminium Fabricator Ltd

Project : Proposed Residential Development at Tseung Kwan O Area 66D2, T.K.O.T.L.118

Subject : Alum. Grilles

1. Introduction

- 1.1 This method statement described the procedure for conducting test under axial tensile force on structural fixings installed in concrete or masonry used in building and civil engineering.
- 1.2 The method statement in accordance with BS 5080 : Part 1 : 1993.

2. Acceptance criteria & Sampling

- 2.1 The specimen shall be accepted if the test load can be maintained for the specified time without show any signs of separation, plastic deformation or deleterious effect.
- 2.2 The specimen shall be randomly selected at least 1% or 5 nos., whichever is more, for each type and size by the client.

3. Specimen information

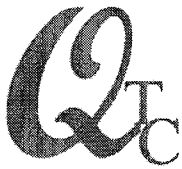
(Refer to manufacturer's specification)

1) Type of Specimen : Hilti HST-R M10		
Recommended Load : 3.0 kN	Test Load (Recommended Load x 1.5) : 4.5 kN	Maintain period : 2minutes
2) Type of Specimen : Hilti HST-R M12		
Recommended Load : 6.7 kN	Test Load (Recommended Load x 1.5) : 10.05 kN	Maintain period : 2minutes
3) Type of Specimen : Hilti HST3-R M16		
Recommended Load : 9.4 kN	Test Load (Recommended Load x 1.5) : 14.1 kN	Maintain period : 2minutes

4. Equipment

- 4.1 For measuring the tensile loading of structural fixings, the following equipment shall be used:
 - a. Hydraulic hand pump with loading device
 - b. Hydraulic cylinder
 - c. Load cell
 - d. Loading frame
 - e. Wedges grip for fixing the specimen to the loading device





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5. Test Requirement

5.1 Test load

The test load shall be minimum equal to 1.5 times of the recommended tensile load as specified by the manufacturer or specified by the client.

5.2 Maintain period

Normally, the maximum test load will be maintained constant for at least 2 minutes, or to whatever time period as specified by client.

6. Procedure

6.1 Check & record the type / diameter of specimen, location, test load, maintain period, number of test etc.

6.2 Visual check the specimen and the base material to ensure no damages were found.

6.3 Select equipment

Select suitable loading device according to the test load provided by clients, the type / diameter of the specimen and the environmental condition.

6.4 Set up the apparatus according to the diagram.

The reaction of the loading frame shall be applied to the base material.

6.5 Ensure that the alignment of the whole test set up is such that the tensile force is applied along the axis of the test specimen.

6.6 Initially a force sufficient to take up any slack in the apparatus and the attachments shall be applied.

6.7 The specimen will be loaded to test load provided by clients in one increment at a constant rate or at other intervals as specified by client. The maximum load will be maintained constant for 2 minutes.

6.8 The load is then gradually released until the loading device can be safely removed from the test specimen.

6.9 The tested anchor should not show any signs of separation, Plastic deformation or deleterious effect.

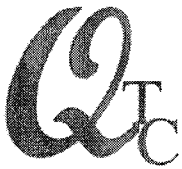
6.10 Check and record any damages, signs of separation to the test specimen.

6.11 Use the standard worksheet to record down all information and result for the test.

7. Record

7.1 The test results shall be recorded in a standard form for the record of the client.





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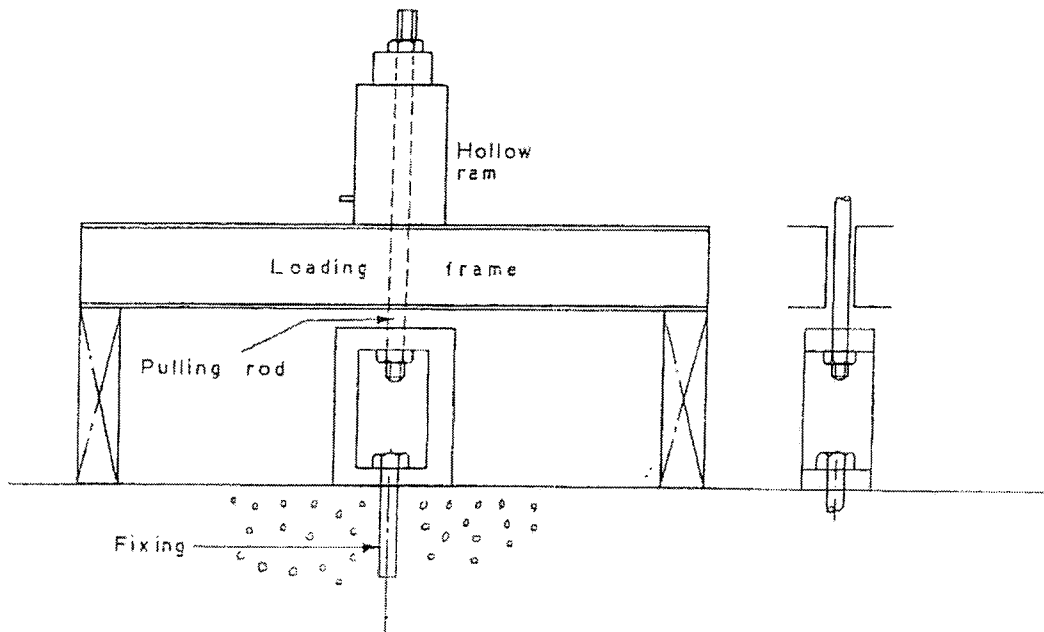
匯駿檢測及顧問有限公司

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Loading Apparatus



Typical set-up of the tensile proof load test on structural fixing (anchor bolt)



Ref : BD 3/9243/12 (Pt.V)

Address : Area 66 D2, Tseung Kwan O - T.K.O.T.L. 118

Appendix IV to approval dated 15 March 2017

**Drilled-in Anchors used for Works other than
Cantilevered Structure/Hanger/Curtain Wall Remedial Works**

In giving this approval of plans, I hereby impose the following conditions under item 6 in section 17(1) of the Buildings Ordinance:

- (a) Strength tests on a representative number of the drilled-in anchors should be carried out as directed by the Registered Structural Engineer to verify the performance and workmanship of the as-built anchors. Sampling rate should be at least 1% or 5 numbers, whichever is more, of each type and size of the anchors installed. The strength tests should be carried out by a recognized laboratory independent of the contractor.
- (b) Each representative anchor should be tested for tensile load by pull out test and/or shear load by shear load test as appropriate to demonstrate that its load carrying capacity is not less than 1.5 times the recommended load as specified by the anchor manufacturer. The tested anchor should not show any signs of separation, plastic deformation or deleterious effect. The reports of the above-mentioned tests shall be endorsed by Registered Structural Engineer and kept on site for inspection by representatives of the Buildings Department.
- (c) A method statement on the anchor tests mentioned above is required to be submitted at least one week prior to the actual commencement of the drilled-in anchor works.

2. The following condition in respect of qualified supervision of works is imposed under item 6 in section 17(1) of the Buildings Ordinances:

- (a) Qualified site supervision of the drilled-in anchor works, by experienced and competent persons as defined in (b) and (c), should be provided to ensure that the works are carried out in accordance with the plans approved and that the required standards are complied with.
- (b) The Registered Structural Engineer should assign a quality control supervisor to supervise the works, determine the necessary frequency of inspection by the quality control supervisor which should not be less than once a week, and devise inspection check lists. The minimum qualifications and experience of the quality control supervisor is to be the same as the Technically Competent Person of grade T3, as stipulated in the Code of Practice for Site Supervision 2009.

3/24/2013

GENERAL NOTES FOR ALUMINIUM CLADDING

(A) DESIGN CODE AND STANDARDS:
 1. CODE OF PRACTICE FOR ALUMINIUM CLADDING 2011
 2. CODE OF PRACTICE FOR BRASS AND BRASS ALLOYS 2004
 3. CODE OF PRACTICE FOR THE STRUCTURAL USE OF CONCRETE - (REVISIONS EDITION)
 4. BS 8118 - 1:1991 - STRUCTURAL USE OF ALUMINIUM PART 1 - (GENERAL) (PARTIAL LOAD) (PROB OF 1 IN PER 1000)
 5. BS 8118 - 2:1991 - STRUCTURAL USE OF ALUMINIUM PART 2 - (GENERAL) (FULL LOAD) (PROB OF 1 IN PER 1000)
 6. BS 8118 - 3:1991 - STRUCTURAL USE OF ALUMINIUM PART 3 - (GENERAL) (FULL LOAD) (PROB OF 1 IN PER 1000)

(B) GENERAL LOAD:
 1. DESIGN WIND LOAD SHALL COMPLY WITH THE "CODE OF PRACTICE ON WIND EFFECTS IN BRASS AND BRASS ALLOYS", INCLUDING APPROPRIATE POINT LOAD.
 2. FOR HEAVY ABOVE GROUND LEVEL = 15kN
 3. BASIC WIND PRESSURE = 217.4N/m²
 4. MAX WIND PRESSURE FOR ALUM CLADDING = 141.0N/m² (SUCK) / 141.0N/m² (PRESS)
 5. MAX DESIGN WIND PRESSURE FOR ALUM FEATURE = 141.0N/m² (SUCK) / 141.0N/m² (PRESS)

(C) MATERIALS WEIGHT:
 1. WEIGHT OF ALUMINIUM ALLOY = 27.2kN/m³
 2. WEIGHT OF ALUMINIUM ALLOY = 27.2kN/m³

(D) MATERIALS SPECIFICATION:
 1. STRUCTURAL STEEL TO BE GRADE S275R30H (COMPLY WITH BS EN 10029 PART 1:2008)
 2. OTHER STEEL TO BE GRADE S275R30H (COMPLY WITH BS EN 10029 PART 1:2008)
 3. DESIGN STRENGTH (TENSILE) = 275 N/mm² (FOR MEMBER THICKNESS ≤ 16mm)
 4. DESIGN STRENGTH (TENSILE) = 255 N/mm² (FOR MEMBER THICKNESS > 16mm)
 5. ALL STRUCTURAL STEEL TO BE HOT DIP GALVANIZED COMPLY WITH BS EN 10481:2005

(E) ALUMINIUM:
 1. ALUMINIUM SECTION FOR ALLOY GRADE 6063-T6 (MECHANICAL PROPERTIES TO BS EN 573-2:2008)
 2. CHEMICAL COMPOSITION TO BE EN573-2:2008
 3. FOR LOCAL TENSION OR COMPRESSION (σ₁) = 150 MPa
 4. FOR LOCAL TENSION OR COMPRESSION (σ₂) = 135 MPa
 5. FOR LOCAL TENSION OR COMPRESSION (σ₃) = 120 MPa
 6. 0.2% TENSILE PROOF STRESS = 150 MPa
 7. 0.2% TENSILE PROOF STRESS = 135 MPa
 8. 0.2% TENSILE PROOF STRESS = 120 MPa
 9. MODULUS OF ELASTICITY OF ALUMINIUM = 70000N/mm²

(F) ANCHOR BOLT:
 1. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)
 2. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)
 3. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)

(G) WELDING:
 1. ALL WELDING TO BE CARRIED OUT IN ACCORDANCE WITH BS EN 1011-1:2005 & BS EN 1011-2:2005
 2. DESIGN STRENGTH OF WELDS TO BE DETERMINED ON WELDED SURFACE TO BS 4562:2003
 3. WELDS TO BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION

(H) CORROSION PROTECTION:
 1. CORROSION PROTECTION TO BE APPLIED BETWEEN TWO DISSIMILAR METALS TO PREVENT BI-METALLIC CORROSION

(I) DEFLECTION CRITERIA:
 1. DEFLECTION LIMIT FOR FACADE WALLING TO BE ACCORDING TO BS EN 1991-1-1:2004
 2. DEFLECTION LIMIT FOR STRUCTURAL STEEL MEMBER = SPAN/180
 3. DEFLECTION LIMIT FOR ALUMINIUM MEMBER = SPAN/180
 4. DEFLECTION LIMIT FOR CLADDING = SPAN/120

(J) ANCHOR BOLT:
 1. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)
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 3. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)

(K) WELDING:
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(M) DEFLECTION CRITERIA:
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 2. DEFLECTION LIMIT FOR STRUCTURAL STEEL MEMBER = SPAN/180
 3. DEFLECTION LIMIT FOR ALUMINIUM MEMBER = SPAN/180
 4. DEFLECTION LIMIT FOR CLADDING = SPAN/120

(N) ANCHOR BOLT:
 1. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)
 2. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)
 3. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)

(O) WELDING:
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(P) CORROSION PROTECTION:
 1. CORROSION PROTECTION TO BE APPLIED BETWEEN TWO DISSIMILAR METALS TO PREVENT BI-METALLIC CORROSION

(Q) DEFLECTION CRITERIA:
 1. DEFLECTION LIMIT FOR FACADE WALLING TO BE ACCORDING TO BS EN 1991-1-1:2004
 2. DEFLECTION LIMIT FOR STRUCTURAL STEEL MEMBER = SPAN/180
 3. DEFLECTION LIMIT FOR ALUMINIUM MEMBER = SPAN/180
 4. DEFLECTION LIMIT FOR CLADDING = SPAN/120

(R) ANCHOR BOLT:
 1. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)
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 3. ANCHOR BOLT TO BE TYPE 304L (COMPLY WITH BS EN 10222-2:2005)

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 3. WELDS TO BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION

(T) CORROSION PROTECTION:
 1. CORROSION PROTECTION TO BE APPLIED BETWEEN TWO DISSIMILAR METALS TO PREVENT BI-METALLIC CORROSION

(K) THE REBAR ARE REQUIRED ACCORDING TO GAP APPROVAL TO BS 8118 PART 1:1991 & SUBSEQUENT REVISIONS APPROVED ON 27.04.2011.

(L) DEFLECTION CRITERIA:
 1. DEFLECTION LIMIT FOR FACADE WALLING TO BE ACCORDING TO BS EN 1991-1-1:2004
 2. DEFLECTION LIMIT FOR STRUCTURAL STEEL MEMBER = SPAN/180
 3. DEFLECTION LIMIT FOR ALUMINIUM MEMBER = SPAN/180
 4. DEFLECTION LIMIT FOR CLADDING = SPAN/120

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 4. DEFLECTION LIMIT FOR CLADDING = SPAN/120

(U) ANCHOR BOLT:
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(V) WELDING:
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 3. WELDS TO BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION

(W) CORROSION PROTECTION:
 1. CORROSION PROTECTION TO BE APPLIED BETWEEN TWO DISSIMILAR METALS TO PREVENT BI-METALLIC CORROSION

(X) DEFLECTION CRITERIA:
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 4. DEFLECTION LIMIT FOR CLADDING = SPAN/120

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(Z) WELDING:
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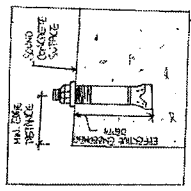
(AA) CORROSION PROTECTION:
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(AD) WELDING:
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 3. WELDS TO BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION

(AE) CORROSION PROTECTION:
 1. CORROSION PROTECTION TO BE APPLIED BETWEEN TWO DISSIMILAR METALS TO PREVENT BI-METALLIC CORROSION



TYPE OF WIND BRIDGE	CONCRETE	STEEL	ALUMINIUM	RECOMMENDED WIND BRIDGE	RECOMMENDED WIND BRIDGE	RECOMMENDED WIND BRIDGE	TEST LOAD (kN)	TEST LOAD (kN)	TEST LOAD (kN)
1. CONCRETE	70	55	70	67	67	67	10.0	10.0	10.0
2. STEEL	70	55	70	67	67	67	10.0	10.0	10.0
3. ALUMINIUM	70	55	70	67	67	67	10.0	10.0	10.0

GRADE	ALUMINIUM	STEEL
MIN. URBAN TENSILE	RA = 220N/mm ²	RA = 220N/mm ²
MIN. RURAL TENSILE	RA = 180N/mm ²	RA = 180N/mm ²

Plan Approved
 Chief Structural Engineer
 15 MAR 2011

Lee Kwok Leung
 Chief Structural Engineer
 15 MAR 2011

TOP B.D. APPROVAL

FILE NAME
 DRAWN BY
 CHECKED BY
 PRINTED DATE
 SCALE: 1:15
 JOB NO.
 DRAWING NO.
 SHEET NO.

PROJECT:
 PROPOSED RESIDENTIAL DEVELOPMENT AT
 TSEUNG KWAN O
 AREA 8/22, H.K.O. LL 1/3

CLIENT:
 SUN HUNG KAI
 ADVISORS AND ENGINEERS LTD.

DATE: 15 MAR 2011
 TIME: 10:00 AM
 TEL: 25327111
 FAX: 25327177

PROJECT:
 PROPOSED RESIDENTIAL DEVELOPMENT AT
 TSEUNG KWAN O
 AREA 8/22, H.K.O. LL 1/3

CLIENT:
 SUN HUNG KAI
 ADVISORS AND ENGINEERS LTD.

DATE: 15 MAR 2011
 TIME: 10:00 AM
 TEL: 25327111
 FAX: 25327177

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CLIENT:
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DATE: 15 MAR 2011
 TIME: 10:00 AM
 TEL: 25327111
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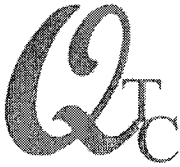
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METHOD STATEMENT

Tensile Proof Load Test on Structural Fixings in Concrete and Masonry

(BS 5080 : Part 1 : 1993)

Client : Yee Fai Construction Company Ltd/Midi Aluminium Fabricator Ltd

Project : Proposed Residential Development at Tseung Kwan O Area 66D2, T.K.O.T.L.118

Subject : Alum. Cladding

1. Introduction

- 1.1 This method statement described the procedure for conducting test under axial tensile force on structural fixings installed in concrete or masonry used in building and civil engineering.
- 1.2 The method statement in accordance with BS 5080 : Part 1 : 1993.

2. Acceptance criteria & Sampling

- 2.1 The specimen shall be accepted if the test load can be maintained for the specified time without show any signs of separation, plastic deformation or deleterious effect.
- 2.2 The specimen shall be randomly selected at least 1% or 5 nos., whichever is more, for each type and size by the client.

3. Specimen information

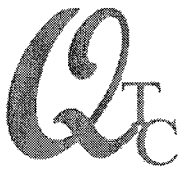
(Refer to manufacturer's specification)

1) Type of Specimen : Hilti HST-R M10		
Recommended Load : 3.0 kN	Test Load (Recommended Load x 1.5) : 4.5 kN	Maintain period : 2minutes
2) Type of Specimen : Hilti HST-R M12		
Recommended Load : 6.7 kN	Test Load (Recommended Load x 1.5) : 10.05 kN	Maintain period : 2minutes
3) Type of Specimen : Hilti HST3-R M12		
Recommended Load : 6.7 kN	Test Load (Recommended Load x 1.5) : 10.05 kN	Maintain period : 2minutes

4. Equipment

- 4.1 For measuring the tensile loading of structural fixings, the following equipment shall be used:
 - a. Hydraulic hand pump with loading device
 - b. Hydraulic cylinder
 - c. Load cell
 - d. Loading frame
 - e. Wedges grip for fixing the specimen to the loading device





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Tel : (852) 2185-0900 Fax : (852) 2687-6752 Website : www.qtc-hk.com E-mail : qtc@qtc-hk.com

5. Test Requirement

5.1 Test load

The test load shall be minimum equal to 1.5 times of the recommended tensile load as specified by the manufacturer or specified by the client.

5.2 Maintain period

Normally, the maximum test load will be maintained constant for at least 2 minutes, or to whatever time period as specified by client.

6. Procedure

6.1 Check & record the type / diameter of specimen, location, test load, maintain period, number of test etc.

6.2 Visual check the specimen and the base material to ensure no damages were found.

6.3 Select equipment

Select suitable loading device according to the test load provided by clients, the type / diameter of the specimen and the environmental condition.

6.4 Set up the apparatus according to the diagram.

The reaction of the loading frame shall be applied to the base material.

6.5 Ensure that the alignment of the whole test set up is such that the tensile force is applied along the axis of the test specimen.

6.6 Initially a force sufficient to take up any slack in the apparatus and the attachments shall be applied.

6.7 The specimen will be loaded to test load provided by clients in one increment at a constant rate or at other intervals as specified by client. The maximum load will be maintained constant for 2 minutes.

6.8 The load is then gradually released until the loading device can be safely removed from the test specimen.

6.9 The tested anchor should not show any signs of separation, Plastic deformation or deleterious effect.

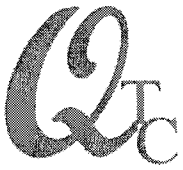
6.10 Check and record any damages, signs of separation to the test specimen.

6.11 Use the standard worksheet to record down all information and result for the test.

7. Record

7.1 The test results shall be recorded in a standard form for the record of the client.





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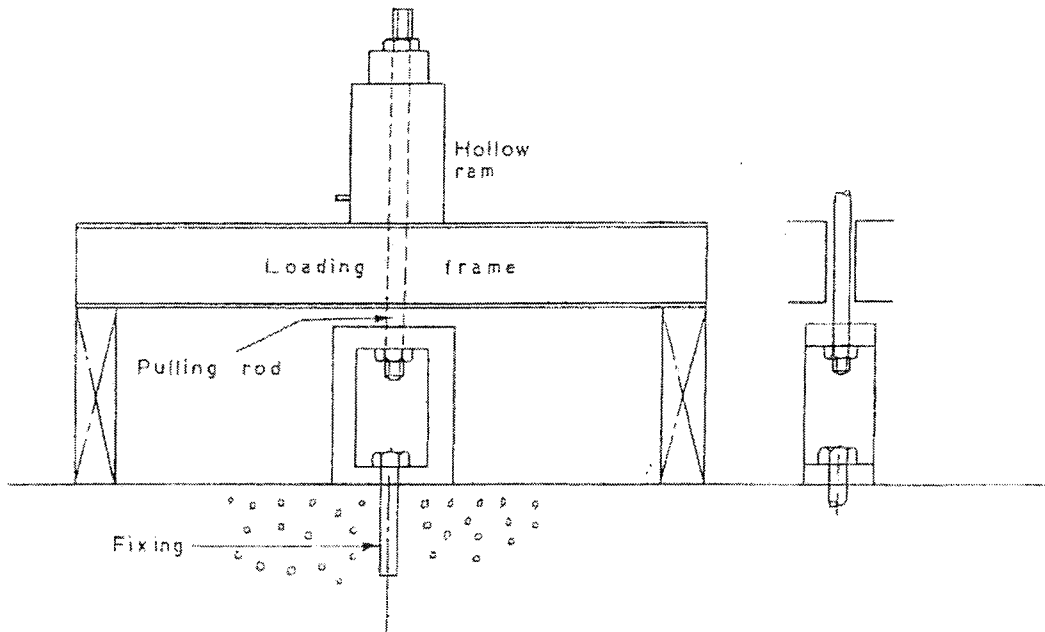
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Loading Apparatus



Typical set-up of the tensile proof load test on structural fixing (anchor bolt)

