Masterlab Consortium For Engineering Consultations
Consultant Engineer
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Structural Engineering Department

اتحاد ماسترلاب للاستشارات الهندسية
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قسم الهندسة الانشائية

Report (1) on Pull-out of:

MECHANICAL STEEL ANCHORS FIXED IN MOCKUP MASONRY WALL.

Project:
بلوم فيلد

Main-Contractor: شركة انشاء
Owner: تطوير مصر

Consultant: مركز التصميمات والاستشارات الهندسية
الأستاذ الدكتور/ اشرف الزناتي

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نقابي ٦/٢٦١٤ استشاري ١/٢٢٦٠٤ سجل هندسي ٥١/٤٩٩٤

Submitted to: شركة دلتا بلوك

August 18, 2020

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Report 1 on Pull Out of:

STEEL ANCHOR BOLTS FIXED IN MOCKUP MASONRY WALL

Sample Specifications

Upon the request of "Delta Bock", Pull out tests were performed at site on 8 steel mechanical anchor bolts 8, 10 & 12 mm diameter, fixed in Autoclaved Aerated Concrete Blocks AAC mockup masonry wall at Blume Field Project project,–in site. Samples were fixed by client, according to the designated data and on its sole responsibility. Tests were made as Destructive/Proof test to provide assurance that tested anchors will support an identified load which specified by the contractor, and to determine the structural response under this definite loading.
The methods used – within – include the application of these standard test methods and codes: BS 5080-1:1974 Methods of test for structural fixings in concrete and masonry. Tensile loading. BS 8539:2012 Code of Practice for the selection and installation of post-installed anchors in concrete and masonry. : E 488 – 96 Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements.

Installation Details and Test Objectives

8 Mechanical anchor bolts 8, 10 & 12 mm diameter (Mungo MHA for brick wall), were fixed horizontally in masonry AAC blocks wall. Anchor bolts were installed by client in accordance with the manufacturer's installation instructions or method statement. Drilling diameter and embedment depth were applied as specified respectively.

Base Material and Test location:

Anchor samples were fixed horizontally in AAC mockup masonry wall at Blume Field project as described in test results - at random locations. Block units dimensions is 25x20x60 cm as informed.

Attendance:

Tests were performed in the presence of:

Eng. Mohamed Abdelrahim	Represents Consultant
Eng. Ayman Kamel	Represents Q.C. Manager Misr Development
Eng. Esam Samy, Islam Mabrouk	Represents Delta Block
Eng. Ahmed Mostafa	Represents Testing Agent

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نقابي ٦/٣٦١٤ استشاري ٢٢٦٠ / سجل هندسي ٤٤٩٤٥١

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Test Equipment:

Tensile tests (Pull-Out) were performed on site 18/8/2020 for the tested samples, using Model 2050 tester with quick release hydraulic coupler of 0-50 kN pull-out load range of ± 0.5 % Accuracy (Photo-1). Samples were loaded gradually until failure, or loading was stopped at a specified certain safe load (Proof test load). Then, the maximum reached load or failure mode was registered.

Testing system consists of: Load spreading bridge with three telescopic legs, Adjusting steel plates with different thicknesses, hollow rigid base plate, threaded stud adaptor M8, M10& M12 and detachable 50kN digital gauge (Photo-1).

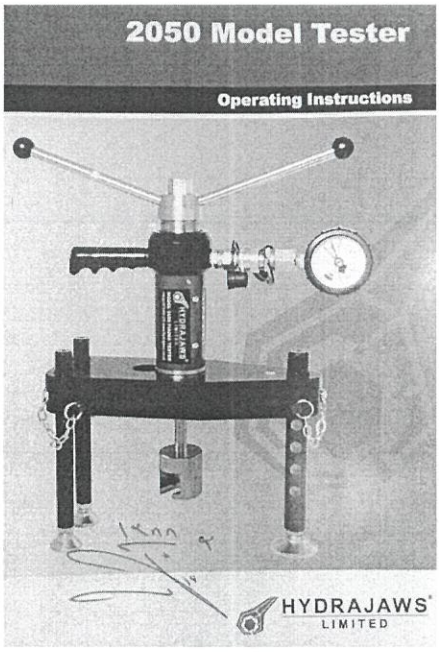

Photo 1. Testing device

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Test Results:

a) Pull-out tests

Test No.	Anchor Type	Diameter (mm)	Hole diameter (mm)	Embedded depth (mm)	Base Material	Maximum load kN (kg)	Failure Notes
1	Mungo MHA	6	6	30	AAC Blocks	0.5 (50)	Slipping
2		8	8	40		1.2 (120)	Slipping
3		10	10	50		1.0 (100)	Slipping
4		10	10	50		2.0 (200)	Block Fracture
5		12	12	60		1.9 (190)	Slipping
6	Mungo MHA	8	8	40	Cement plastering	1.7 (170)	Slipping
7		10	10	140		2.7 (270)	Slipping
8		12	12	60		2.7 (270)	Slipping

Tested by

Ahmed Hassan.

Revised by

Eng. Khaled Ahmed

Authorized By:
Consulting Engineer
DR./ AHMED FATHY ABDEL-AZIZ

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Report 1 on Pull-Out Tests on: 18/8/2020

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