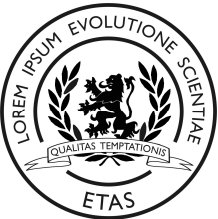
	Prepared by	Checked by	Approved by	
	Mr. B. Cowan	Mr. Ryan Murphy	Mr. Ryan Murphy	
	Snr. Lab. Technician	Associate Director	Associate Director	

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	Snr. Lab. Technician	Associate Director	Associate Director	

1.0 – Customer and Laboratory Details

Customer: Linian Supply Company Ltd.
34 Payne Street
Port Dundas Trading Estate
Glasgow
G4 0LF

Contact: Mr. Wes Arbuckle
(Director)

Laboratory: Evolution Technical and Analytical Services
Units 2A & 2B Clyde Gateway Trade Park
Dalmarnock Road
Rutherglen
Glasgow
G73 1AN

Contact: Mr. Barry Cowan (Senior Laboratory Technician)

2.0 – Job Details, Specifications and Scope

Order Number: 24

Report number: R000217

Description: Withdrawal force (pull out resistance) testing.


Test standard(s): BS 5080-1: 1993
"Structural fixings in concrete and masonry. Method of test for tensile loading."

3.0 – Sample Details and Sampling Plan

Sample Details: Client provided samples in finished form.

Sample Inspection: Not performed.

Sampling Plan: Not applicable.

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	Snr. Lab. Technician	Associate Director	Associate Director	

4.0 – Test Procedure

Test Standard: BS 5080-1: 1993

Procedure:

1. Insert sample into pre-drilled hole of specified diameter in substrate
2. Insert substrate block into Shimadzu AGS-X 10kN universal testing machine
3. Attach sample to grips
4. Start up TrapeziumX software and choose program
5. Calibrate software
6. Begin testing and record results at test end.

4.1 - Test Conditions

Test speed: 1mm/min

Temperature: 19.4°C

5.0 – Test Results

Table 1: Results (single clip into concrete)						
Product code	Test number	Substrate	Embedment depth (mm)	Hole diameter (mm)	Result recorded (N)	Average load (N)
ILCR608	01	C30/35 grade concrete	30.0	5.5	240.232	<u>244.860</u>
	02				258.072	
	03				250.610	
	04				263.804	
	05				220.666	
	06			6.0	235.778	<u>113.808</u>
	07				104.851	
	08				108.565	
	09				153.472	
	10				106.063	
	11				106.916	
	12				102.978	


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Table 2: Results (double clip into concrete)

Product code	Test number	Substrate	Embedment depth (mm)	Hole diameter (mm)	Result recorded (N)	Average load (N)
ILCR682	13	C30/35 grade concrete	40.0	5.5	157.542	<u>147.201</u>
	14				149.020	
	15				162.422	
	16				148.712	
	17				145.158	
	18				120.354	
	19			6.0	121.323	<u>104.070</u>
	20				107.599	
	21				96.121	
	22				98.241	
	23				101.465	
	24				99.668	

Table 3: Results (single clip into precon concrete block)

Product code	Test number	Substrate	Embedment depth (mm)	Hole diameter (mm)	Result recorded (N)	Average load (N)
ILCR608	25	Precon concrete block (density 11N/mm ²)	30.0	5.5	185.868	<u>160.517</u>
	26				145.588	
	27				160.972	
	28				152.629	
	29				165.379	
	30				152.664	
	31			6.0	154.314	<u>129.762</u>
	32				132.283	
	33				127.508	
	34				120.678	
	35				123.946	
	36				119.840	


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Table 4: Results (double clip into precon concrete block)

Product code	Test number	Substrate	Embedment depth (mm)	Hole diameter (mm)	Result recorded (N)	Average load (N)
ILCR682	37	Precon concrete block (density 11N/mm ²)	40.0	5.5	143.632	<u>151.771</u>
	38				154.237	
	39				153.712	
	40				134.218	
	41				156.798	
	42				168.031	
	43		40.0	6.0	121.438	<u>114.297</u>
	44				109.709	
	45				115.837	
	46				112.303	
	47				106.452	
	48				120.040	

6.0 – Revision History

Revision history (R.000217)		
Revision number	Changes made by	Details of change
01	BC	Original issue

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