



ST0557

P21 Exploratory Testing and Face Load Testing on Quik 'n Tuff Wall Cladding with Metal Battens

Author: Graeme J Beattie
Principal Engineer

Reviewer: Roger H Shelton
Senior Structural Engineer

Contact: BRANZ Limited
Moonshine Road
Judgeford
Private Bag 50908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz



Project Number ST0557	Date of Issue: 28 August 2003	Page 1 of 11 Pages
	Review Date: Indefinite	Copy 2 of 2 Copies

P21 EXPLORATORY TESTING AND FACE LOAD TESTING ON QUIK 'N TUFF WALL CLADDING WITH METAL BATTENS

1. CLIENT

EIFS International Trust
P O Box 2106
Wellington
New Zealand

2. OBJECTIVE

To determine the performance of Quik 'n Tuff walls incorporating a 20 mm metal spacer batten when subjected:

- to a P21 racking test; and
- to uniform face loading tests.

3. DESCRIPTION OF PRODUCT TESTED

3.1 Product Description

Quik 'n Tuff wall panels are 900 mm deep by 2350 mm long and nominally 51 mm thick. The exact composition of the panel is unknown but it appears to have polystyrene beads and a polymer/cement binder and is referred to as a compolcrete panel by the client.

3.2 Construction of Test Specimens

3.2.1 Exploratory P21 Racking Test


A specimen 2.445 mm wide by 2420 mm high was constructed for this test. The studs and plates were 90 x 45 dry framing and the studs were spaced at nominal 600 mm centres. Beta-Fix brackets were fixed to the studs with two Type 17 12g screws by 25 mm long at 150 mm above the bottom of the specimen and below the top of the specimen and at 530 mm centres between. Rondo channels were fitted into the Beta-Fix brackets and these extended over the full height of the specimen.

Compolcrete panels were fixed to the Rondo channels with Type 17 14g countersunk head wood fix screws with 32 mm diameter "QT" plastic washers. The panels were laid horizontally with vertical joints spaced randomly but approximately mid-way between studs (one joint per horizontal course. Full depth panels were installed starting at the bottom of the framing and a third 600 mm deep panel was installed at the top of the framing. The vertical joints were filled with expanding polyurethane foam. The fixing screws were positioned at 75 mm from the outer edge of each Compolcrete panel and at 225 mm centres between on the 600 mm wide panel and 250 mm centres between on the 900 mm wide panels.

An approximately 5 mm thick coating of a polymer-modified cement render was applied over the exterior face of the constructed specimen in a base coat and a decorative finish coat was applied.

The test specimen details are presented in Figure 1.


GJB


RHS

**Derivation of ULS wind speeds from test data
(For Australian Non-cyclonic regions)**

Product description:

Quik 'n Tuff

Job number: ST0557

1. Test data

Enter test values (Pa)

(Data taken from test report ST0557)

1	4000	3.60 (log)	Enter self weight (Pa)	0
2	4000	3.60	Self weight correction:	0
3	3800	3.58	(Enter "0", "-1", "1", according to test orientation)	
4				
5				
6				
7				
8				
9				
10				

Note:

Enter null values as blank, n not zero or space.

Note that test v values 2 and 3 are assumed

Mean: 3933 3.59
Standard deviation: 115.47 0.01
Coeff of variation: 0.03

Number of tests: 3
k value: 3.37

2. Calculation of dependable strength from test data

Is distribution of test data likely to be normal or log-normal? (Enter n or l) 1
Characteristic strength: 3558.71
Material safety coefficient: 1.15
Dependable material strength: 3089.23

3. Back calculation of wind speeds, equating dependable strength with ULS pressures from AS4055

Enter internal pressure coefficient 0 Refer to table B1 of AS4055
(For cladding on a lined wall, or roofing over a ceiling space; Cpi = 0)
Enter porosity factor 1 Refer to table 5.6.6 of NZS 4203
(Conservatively, can be entered as 1.0)

4. Summary of Ultimate Limit State wind speeds for the tested cladding

If cladding is used in a roof:
76 m/s For body of roof
53 m/s For area within 1200 mm of edges

If cladding is used in a wall:
All walls 86 m/s For body of wall
63 m/s For area within 1200 mm of edges
(For windward wall, Cpi will be a negative value)

5. Correlation with AS4055:

Calculated wind speeds below 40 m/s	Suitable for use only in Region N1
40 m/s and above	Suitable for use only in Region N2
50 m/s and above	Suitable for use only in Region N3
61 m/s and above	Suitable for use only in Region N4
74 m/s and above	Suitable for use only in Region N5
86 m/s and above	Suitable for use only in Region N6

Calculation by: Graeme Beattie

Date: 24-Jun-03

Figure 4 Indicative derivation of the ultimate limit state wind speed for Australia

GJB

RHS