

ROBIN SALTER & ASSOCIATES

CHARTERED CONSULTING ENGINEERS & DESIGNERS
Unit 6/9 Playle Street, Myaree
Western Australia 6154

A.C.N. 008 962 516
Telephone: (08) 9317 3331
Facsimile: (08) 9317 3337
E-mail: rsaperth@inet.net.au

EVERBRIGHT ROOFING SYSTEMS Pty Ltd,
8 SANTA MONICA PARADE,
ILUKA, PERTH - WESTERN AUSTRALIA, 6028.

Our Ref: 2006-159-1

STRUCTURAL REPORT

PRODUCT: HEAVY DUTY 74mm DEEP PROFILE
POLYCARBONATE
EVERBRIGHT E610 ROOFING SYSTEM

REFERENCE REPORTS: CRIC CLIENT REPORT CRIC/97/EFL/1
“ TESTING OF POLYCARBONATE ROOF PANELS
AND COMPONENTS” for Everlite Freespan Ltd
A.D.Pullen, BSc(Eng), ACGI September, 1997.
CONCRETE RESEARCH AND INNOVATION
CENTRE - CRIC IMPERIAL COLLEGE LONDON

EVERLITE REPORT DETAILS FOR LOADING
SPECIFICATION 01 September, 2006
By Mike Meegan/Folmer Petersen
PLASTMO PROFILES LTD

**STRUCTURAL DESIGN
PARAMETERS:** STRUCTURAL DESIGN ACTIONS
(AS/NZS 1170.0:2002)
DEAD & LIVE LOADING (AS/NZS 1170.1:2002)
WIND LOADING (AS/NZS 1170.2:2002)
REGIONS A to D

Attention: Mr Steve Trower

Dear Mr Trower,

1.0 COMPLIANCE WITH AUSTRALIAN STANDARDS AND THE BCA

We hereby advise that we have reviewed the above referenced reports, test data and load tables which have been performed/ developed in the United Kingdom as referenced above.

Robin Salter B.E. (HONS.), M.I.E. (AUST.). C.P. Eng.
John Duffy
Tim Salter

Frank Maroni B.E., M.I.E. (AUST.) C.P.Eng.
Giuseppi (Joe) Commisso
John Vidovich

We confirm that the Australian Everbright 610 Roofing System (UK based Everlite 610 Roofing System) is structurally sound and complies in general with:

- (i) Building Code of Australia (BCA) “*Deemed - to - Satisfy Provisions Performance Requirement*”:
- P2.1 Performance Requirement (for Building classes 1 and 10) or
 - BP1.1 Performance Requirement (for Building classes 2 and 9)
 - A2.1 & A2.2 Acceptance of Design and Construction (for Building classes 2 to 9)
 - Part 1.2.1 & 1.2.2 Acceptance of Design and Construction (for Building classes 1 and 10)

Note: BCA A2.1 & A2.2 Part 1.2.1 & 1.2.2 Fire Resistance, Fire Hazard Properties/Indices are not included in this report. Please refer to the relevant fire report provided by the Fire Consultant.

- (ii) All relevant Australian Standards in the BCA-refer to (i) above noting the specific requirements for Dead, Live and Wind Loads to AS/NZS 1170.0-2002, AS/NZS 1170.1-2002 and AS/NZS 1170.2-2002.

2.0 EVERLITE REPORT DETAILS FOR LOADING SPECIFICATION **(See reference reports above)**

This report has been developed by Plastmo Profiles Ltd based on the test data from CRIC Imperial College London which provides the following data:

2.1 E610 DESIGN LOADS MAXIMUM SPAN TABLES

This table gives the safe working loads, and spanning capabilities of various configurations of flat and curved panels using different locking systems.

2.1.1 FLAT APPLICATIONS FREE SPANS

Aluminium Locking Systems

Locking system 1 Max free span with LS1 is 2.6 metres (see design loads)

Locking system 2.1 Max free span with LS2.1 is 3.18 metres (see design loads)

Locking system 2.2 Max free span with LS2.2 is 3.62 metres (see design loads)

Locking system 2.5 Max free span with LS2.5 is 4.38 metres (see design loads)

Recommended minimum roof pitch is 5 degrees

2.1.2 CURVED APPLICATIONS FREE SPANS

Aluminium Locking Systems

Locking system 1 Max free span with LS1 is 6.93 metres (see design loads)

Locking system 2.1 Max free span with LS2.1 is 9.16 metres (see design loads)

Locking system 2.2 Max free span with LS2.2 is 10.86 metres (see design loads)

Locking system 2.5 Max free span with LS2.5 is 12 metres (see design loads)

2.2 FOUR DIFFERENT LOCKING SYSTEMS (available for E610)

Lock system 1	all plastics locking bars
Lock system 2.1	aluminium locking bars in 1 of 6 joints
Lock system 2.2	aluminium locking bars in 2 of 6 joints
Lock system 2.5	aluminium locking bars in 5 of 6 joints

3.0 EVERLITE REPORT DETAILS FOR LOADING (USING THE EVERLITE REPORT DETAILS FOR LOADING SPECIFICATION - see reference reports above)

The Everbright E610 roofing system complies to Australian Wind loading standards and the BCA for regions A-B (Non-cyclonic) and C-D (cyclone regions - more severe conditions where extra suitable fixings and accessories must be specified by the Engineer).

Installation is carried out strictly in accordance with the Everbright's design load tables, the Everbright's specification and the Engineer certified drawings.

Design loadings must be determined for each application, taking account of the dead load of the panels, distributed and concentrated imposed loads and wind loads to the Australian Standards listed above (In the UK, these are described in BS6399 'Loading for Building').

The load-carrying capacity of these polycarbonate light panels is greater with aluminium locking bars than with plastic locking bars. Curved panels, thermo-formed in the factory, have much greater load-carrying capacity than flat panels (see the above referenced reports).

The safe loads in the tables (see the above referenced report) have been assessed using the following assumptions:

- Load at failure is more than twice maximum working design load.
- Loads are limited by panel deflection: in short spans up to 2.4 metres. The limit is span/50; in longer spans the limit is 50mm at mid-span;
- Downward acting loads are measured in the horizontal plane.
- Upward acting loads (wind) are measured in the plane of the panel.

Once total loadings have been assessed, the safe load table can be used to determine the spacing of supports – purlins, sheeting rails or roof light kerbs – for different panel configurations and locking systems.

The Everbright E610 Roofing System must not exceed the spans (whether simple, double, triple or multi-spans) as tabulated in the data provided. Where there is any doubt or further structural assessment is required a Chartered Professional Engineer must be engaged for further advise.

In addition to certification of the Everbright E610 Roofing System itself, all end supports (walls, beams or purlins), intermediate supports (purlins or beams) and all associated structural framing (and effects on the overall structure) must also be assessed, designed and certified by a Chartered Professional Engineer.

If you have any queries, please contact us on (08) 9317 3331.

Yours sincerely,

Frank Maroni

ROBIN SALTER, B.E., M.I.E. Aust, C.P.Eng.

Date: 19th Jan, 2007.