XStructE Consulting
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01/12/2023

RE: STRUCTURAL ENGINEERING CERTIFICATE

1. Structure

Ezzy Fit FRP composite sleeper for retaining wall. Class 10b structure under the Building Code of Australia.

1.6m and 2.0m long, respectively; 60mm wide and 165mm deep hole section; 2.7mm wall thickness.

2. Description of aspect/s certified

1.6m long sleeper: maximum working horizontal pressure resistance 1.5kPa; can be used for up to 5m high retaining wall with or without soil reinforcement.

2.0m long sleeper: maximum working horizontal pressure resistance 1.8kPa; can be used for up to 3m high retaining wall with or without soil reinforcement.

The sleepers can be used under 5kPa vertical design live load (subject to the site condition as below).

The site condition below must be taken into account when to design retaining wall with the sleepers:

- Soil property;
- Wind load;
- Earthquake load;
- Top surcharge load;
- Retained earth pressure;
- Ground water pressure;
- The distance of building to the retaining wall;
- The distance of construction zone to the retaining wall.

3. Basis of certification

AS1170.0-2002 (R2016) Structural Design Actions-General Principles;
AS1170.1-2002 (R2016) Permanent Imposed & Other Actions;
AS1170.2-2002 Wind loads;
AS1170.4-2007 Earthquake Actions;
AS4678-2002 Earth Retaining Structures.

4. Reference documentation

Ezzy Fit Sleep Drawings;

This certificate must work with the relevant Building Regulation form (e.g. Form 15 in QLD) for a given site location.

The certificate supersedes the one issued on 15/11/2023.

Bin Wang

MIEAust | CPEng | NER (2915503)

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26/02/2024

RE: STRUCTURAL ENGINEERING CERTIFICATE

1. Structure

Ezzy Fit FRP composite post for retaining wall. Class 10b structure under the Building Code of Australia.

Post dimension and shape:

- 100x100x6 H
- 100x100x6 U
- 100x100x10 H
- 100x100x10 U

2. Description of aspect/s certified

- 100x100x6 H and 100x100x6 U shaped posts:
  - ✓ 1m high above the ground. The maximum spacing of the posts is 2.0m subject up to 5kPa surcharge live load.
  - ✓ 1m high above the ground. The maximum spacing of the posts is 2.4m subject up to 3kPa surcharge live load.
- 100x100x10 H and 100x100x10 U shaped posts:
  - ✓ 2m high above the ground. The maximum spacing of the posts is 1.6m subject up to 5kPa surcharge live load.
  - ✓ 2m high above the ground. The maximum spacing of the posts is 2.0m subject up to 3kPa surcharge live load.
  - ✓ 1m high above the ground. The maximum spacing of the posts is 2.4m subject up to 5kPa surcharge live load.

The posts are recommended to have an angle which is a 1 in 10 slop.

The site condition below must be taken into account when to design the post of retaining wall:

- Soil property;
- Wind load;
- Earthquake load;
- Top surcharge load;
- Retained earth pressure;

- Ground water pressure;
- The post footing design with the embedment requirement;
- The distance of building to the retaining wall;
- The distance of construction zone to the retaining wall.

3. Basis of certification

AS1170.0-2002 (R2016) Structural Design Actions-General Principles;
AS1170.1-2002 (R2016) Permanent Imposed & Other Actions;
AS1170.2-2002 Wind loads;
AS1170.4-2007 Earthquake Actions;
AS4678-2002 Earth Retaining Structures;
AS2870-2011 Residential slabs and footings.

4. Reference documentation

Ezzy Fit Post Drawings;

This certificate must work with the relevant Building Regulation form (e.g. Form 15 in QLD) for a given site location.

Bin Wang

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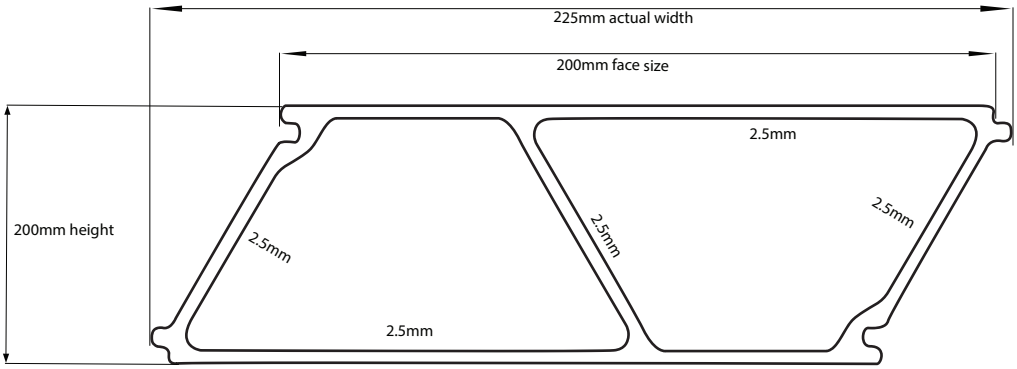
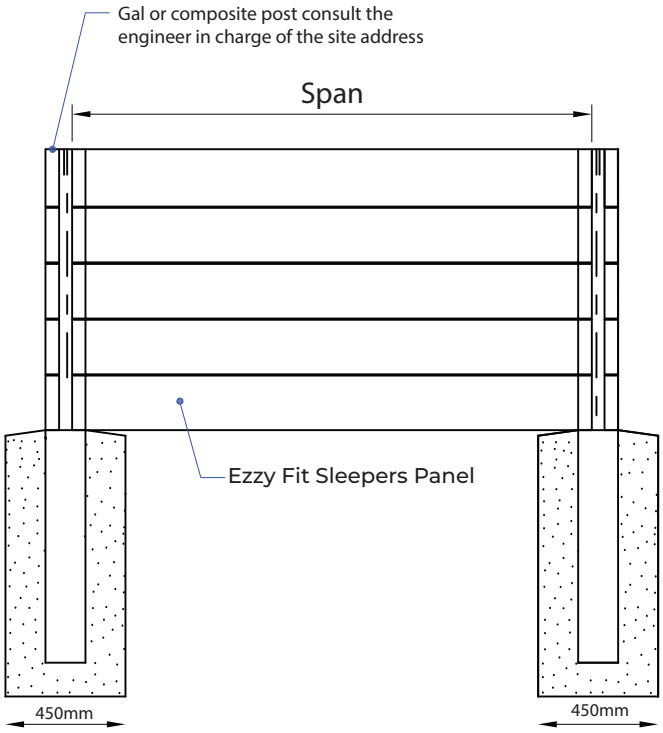
SLEEPER DIMENSIONS

Ezzy Fit Sleepers Dimensions (mm)			Max Retaining Wall Height (mm)
Length	Width	Thickness	
1600	225x200 face	60mm	5000
2000	225x200 face	60mm	3000
2400	225x200 face	60mm	1000

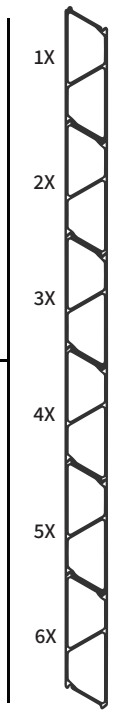
Consult with the engineer in charge of the job address.



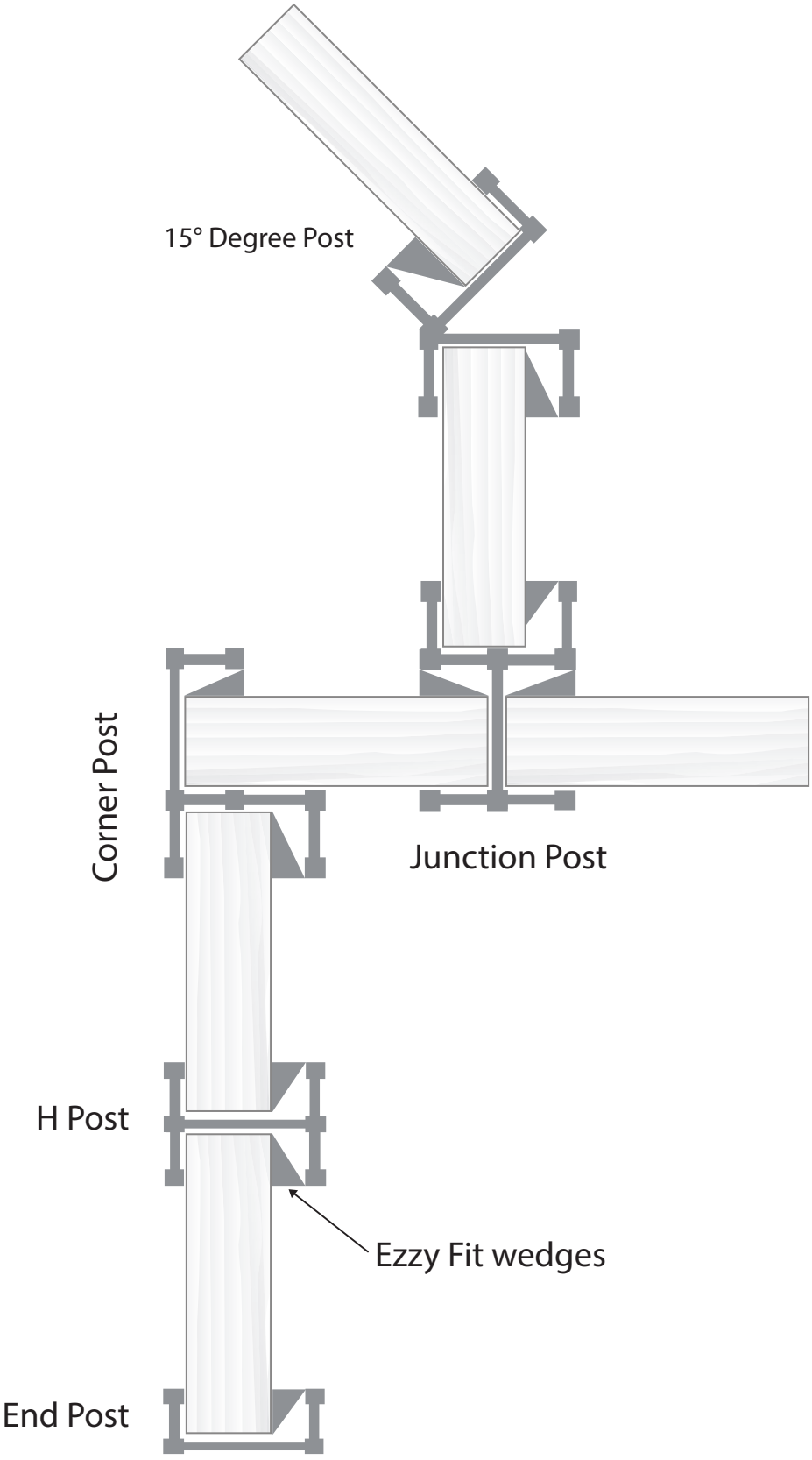
SLEEPER PANEL CROSS-SECTION



With Ezzy Fit you only need 5 sleepers to reach 1 Mtr in height. Thanks to our exceptional strength. Ezzy Fit retaining walls can be built up to 5 mtrs high.

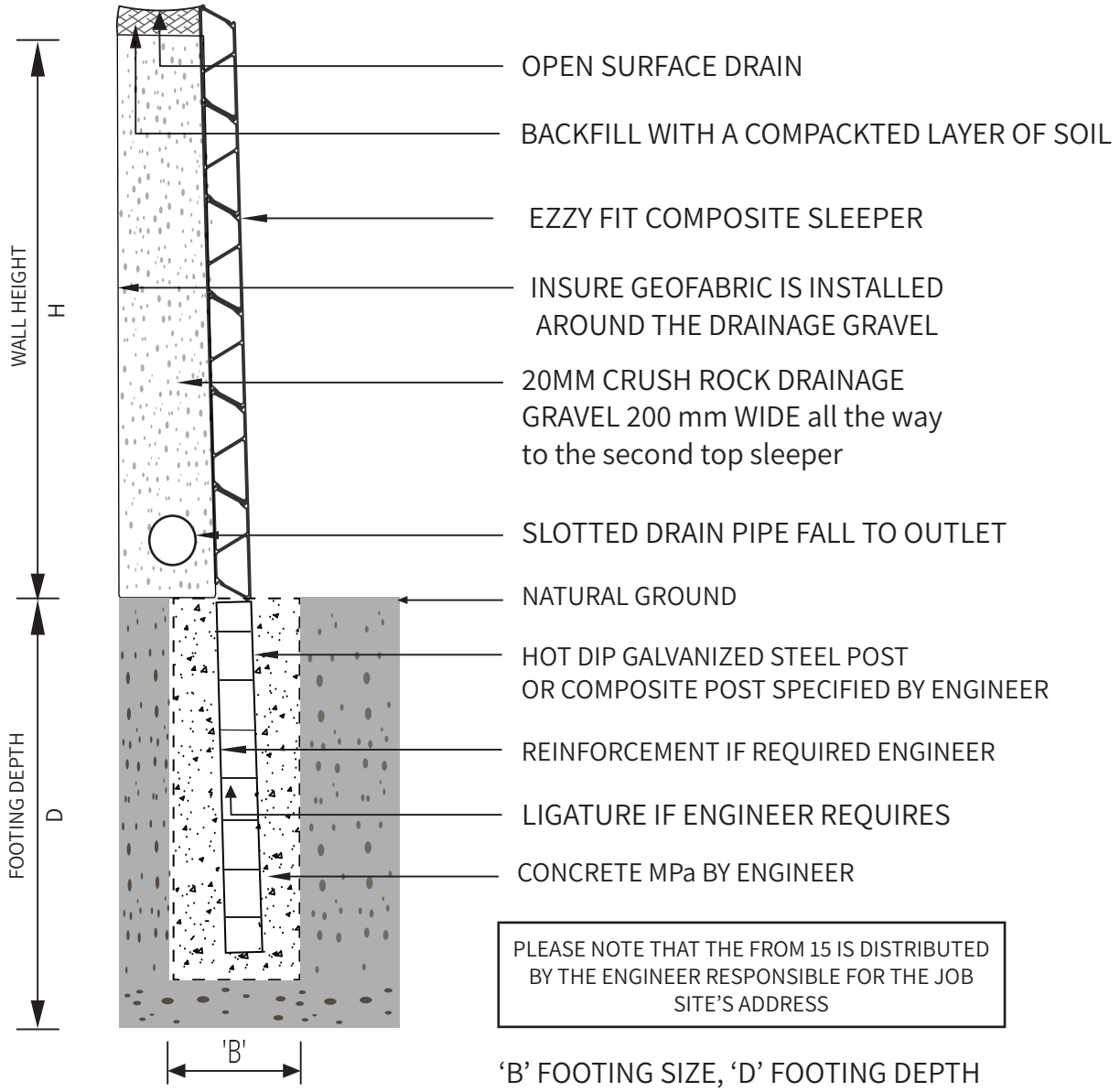


DIFFERENT POST POSITIONS EXAMPLES



EZZY FIT SLEEPER WALL

Wall heights exceeding 1 mtr must be designed by the responsible engineer overseeing the project. The diagram provided below is intended for reference purposes only.



PLEASE NOTE THAT THE FROM 15 IS DISTRIBUTED BY THE ENGINEER RESPONSIBLE FOR THE JOB SITE'S ADDRESS

'B' FOOTING SIZE, 'D' FOOTING DEPTH
'H' WALL HEIGHT

EZZY FiT

Composite Retaining Wall Sleepers, Fencing & Building Products

Head Office: 1 Banks Street, Capalaba 4157
Phone: 1300 3999348

- **Corrosion Resistant** – Withstands salt water, moisture, and harsh marine conditions 80 years plus.
- **Chemical Resistant** – Resistant to acids, alkalis, and a wide range of industrial chemicals.
- **Lightweight but Strong** – High strength-to-weight ratio, easy to handle and install.
- **Low Maintenance** – No painting, sealing, or rust-proofing required.
- **Durability** – Long service life with minimal degradation over time.
- **Non-Conductive** – Electrically and thermally non-conductive, safe for sensitive environments.
- **UV Resistant** – Formulated to resist sunlight exposure without major deterioration.
- **Impact Resistant** – Withstands knocks, vibrations, and sporting activity wear and tear.
- **Environmentally Friendly** – Long lifespan reduces waste, recyclable options available.
- **Versatile Applications** – Suitable for:

  - Sporting complexes & stadiums
  - Marine infrastructure (jetties, pontoons, walkways)
  - Water treatment plants
  - Chemical plants and industrial sites
  - Public infrastructure (bridges, walkways, fencing)
  - Landscaping and retaining walls
  - Schools and community facilities