Composite Retaining Wall Sleepers, Fencing & Building Products

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Engineered Tough. Finished Beautifully

EZZY FIT FRP SYSTEM: PRODUCT TECHNICAL INFORMATION & ENGINEERING DATA

(For Integration into Site-Specific RPEQ Designs)

Issued by: Ezzy Fit Pty Ltd
Engineering Analysis Provided by: XStructE Consulting
Date: 26/11/2025
Reference: EZZYFIT-FRP-SYSTEM-2025

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1. Purpose and Status of Document

This document provides product information, engineering data, and structural performance parameters for the Ezzy Fit FRP Composite Sleeper and FRP Composite Post Retaining Wall System.

CRITICAL NOTE:
This document is not a certified design, Form 15, Form 12, or site-specific certification. It is intended solely as supporting information for a qualified engineer. The site-appointed Registered Professional Engineer of Queensland (RPEQ) must conduct all necessary site-specific assessments, confirm suitability of this system for the intended application, and is solely responsible for issuing a Form 15 or other required certification.

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2. Engineering Reference Information

Engineering assessments for the Ezzy Fit FRP composite sleepers and FRP posts have been carried out by a qualified RPEQ engineer with reference to the following Australian Standards:

- AS 1170.0 – Structural Design Actions: General Principles
- AS 1170.1 – Permanent, Imposed & Other Actions

- AS 1170.2 – Wind Actions
- AS 1170.4 – Earthquake Actions (where applicable)
- AS 4678 – Earth-Retaining Structures

Ezzy Fit provides this information as product technical data only.
All design decisions, compliance assessments, and certifications—including Form 15—must be completed by the site-appointed RPEQ engineer as part of their independent professional assessment.

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3. Product Components & Specifications

Composite Sleepers (Ezzy Fit):

- Lengths: 1.6 m, 2.0 m, 2.4 m
- Section: 60 mm thick × 200 mm high
- Installation requires 40 mm forward lean per 1 m of wall height
- Maximum vertical design live load: 5 kPa (subject to site-specific validation by the RPEQ)

Composite Posts (FRP):

- 100×100×6 H
- 100×100×6 U
- 100×100×10 H
- 100×100×10 U

- Recommended batter: 1 in 10 slope toward retained soil

CRITICAL: Walls Over 2.0 m Height

- Outside the scope of this FRP post system; steel posts required for walls >2.0 m
- For walls 2.0–3.0 m with steel posts, 2.0 m long sleepers may be used
- For walls >3.0 m with steel posts, 1.6 m long sleepers may be used

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4. Certified Structural Performance Parameters

Post Size	Max Wall Height	Max Post Spacing	Max Surcharge	Recommended Hole Diameter	Notes
100×100×6 H & U	⩽ 1.0 m	2.0 m	5 kPa	≈ 300 mm	Embedment depth = wall height or per RPEQ. Gravel backfill to min. 2nd sleeper.
100×100×6 H & U	⩽ 1.0 m	2.4 m	3 kPa	≈ 300 mm	Embedment depth = wall height or per RPEQ. Gravel backfill to min. 2nd sleeper.
100×100×10 H & U	1.0–2.0 m	1.6 m	5 kPa	350–450 mm	Embedment depth = wall height or per RPEQ. Gravel backfill to min. 2nd sleeper.
100×100×10 H & U	1.0–2.0 m	2.0 m	3 kPa	350–450 mm	Embedment depth = wall height or per RPEQ. Gravel backfill to min. 2nd sleeper.
100×100×10 H & U	⩽ 1.0 m	2.4 m	5 kPa	≈ 300 mm	Embedment depth = wall height or per RPEQ. Gravel backfill to min. 2nd sleeper.

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5. Mandatory Installation Requirements

- All walls must be backfilled with free-draining gravel (e.g., 20 mm drainage gravel) to a minimum height of the second-top sleeper
- Aggregate drainage pipe and geofabric wrap recommended behind gravel backfill
- Installation must strictly adhere to Ezzy Fit Installation Guide and specifications confirmed by the RPEQ

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6. Basis of Engineering Data & Site-Specific Considerations

- Engineering analysis and derived performance parameters were provided by XStructE Consulting
- Designed for NCC/BCA Class 10b applications (non-habitable fences and retaining walls)
- The site-appointed RPEQ engineer is solely responsible for independently assessing all site-specific conditions, including:
    - Soil classification, bearing capacity, and overall stability
    - Actual surcharge loads and lateral earth pressures
    - Site drainage and groundwater conditions
    - Wind, seismic, and environmental loads
    - Verification of post embedment depth and installation workmanship

Ezzy Fit has reproduced this data in good faith.

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7. Limitations of Liability

- Provides product data only, not a substitute for professional engineering design
- Suitability and safety of any structure depends on correct site assessment by a qualified engineer and strict adherence to specifications
- Ezzy Fit Pty Ltd disclaims liability for any loss, damage, or failure arising from:
    - Site assessment, design, or certification by others
    - Installation errors or non-compliance
    - Use outside of stated scope
- Sole remedy: replacement of products proven defective, up to the product's supplied value

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8. RPEQ Acknowledgement & Acceptance of Responsibility

By signing, the undersigned RPEQ confirms:

1. Receipt and review of this Ezzy Fit Product Technical Information & Engineering Data document (Ref: EZZYFIT-FRP-SYSTEM-2025)
2. Understanding that it provides product data only and is not a certified design or Form 15
3. Acceptance of full professional responsibility for:
    - Conducting all site-specific assessments

- Verifying system suitability for project-specific conditions
- Issuing the final certified design, including Form 15

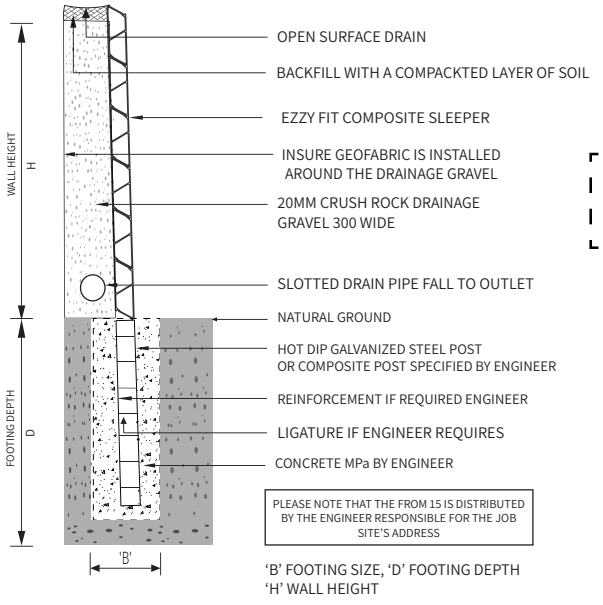
RPEQ Engineer Name: _____

RPEQ Number: _____

Signature: _____

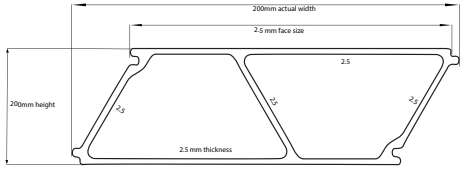
Date: _____

RPEQ Stamp/Seal: _____

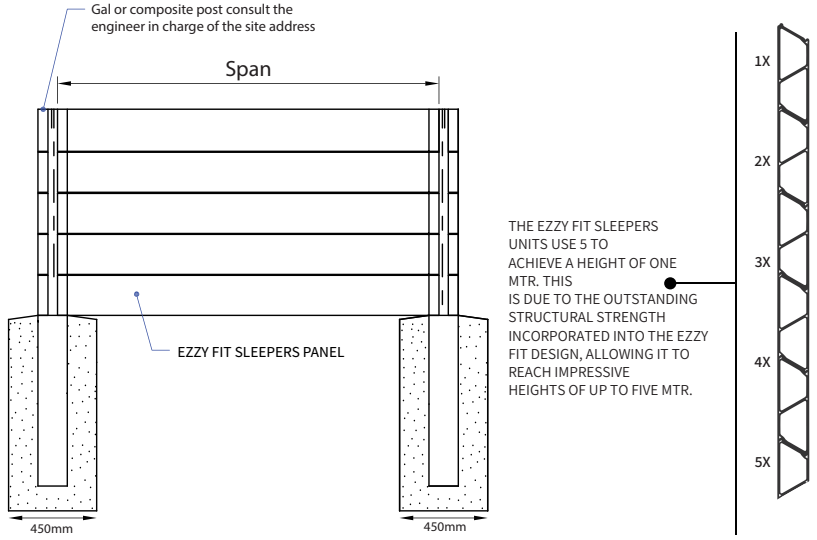


'B' FOOTING SIZE, 'D' FOOTING DEPTH
'H' WALL HEIGHT

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.



SLEEPER PANEL CROSS-SECTION



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

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.

EZZY FIT
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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: Backfill to the second top sleeper with the drainage gravel

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 composite material property is recommended to be confirmed for real jobs.
The certificate supersedes the ones issued on 15/11/2023, 1/12/2023 and 22/1/2024.

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.

Structure

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

1.6m, 2.0m and 2.4m long, respectively; 60mm wide and 200mm deep hole section; 2.5mm wall thickness.

Description of aspect/s certified

1.6m long sleeper: maximum working horizontal pressure resistance 1.5kPa; can be use 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.

2.4m long sleeper: maximum working horizontal pressure resistance 2.3kPa; can be used for up to 1.0m high retaining wall with or without soil reinforcement.

The sleepers can be used under 5kPa vertical design live load.

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.