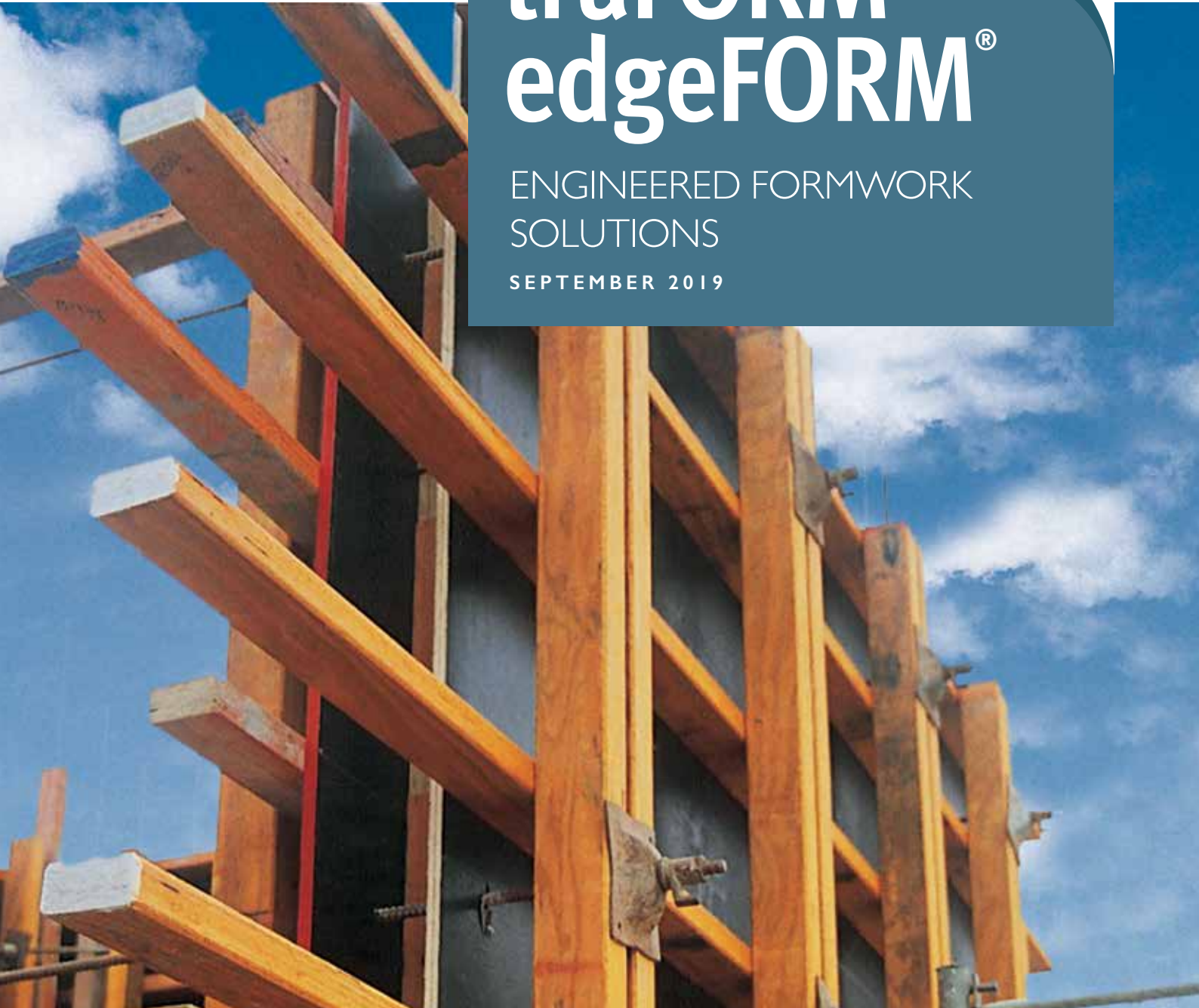


LVL FORMWORK BEAMS & EDGE BOARDS

truFORM[®] edgeFORM[®]

ENGINEERED FORMWORK
SOLUTIONS

SEPTEMBER 2019



LVL FORMWORK BEAMS & EDGE BOARDS

truFORM[®] edgeFORM[®]

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1.0 truFORM® DESCRIPTION & PURPOSE

truFORM® is structural Laminated Veneer Lumber (LVL) intended for use as concrete formwork beams – bearers, joists, walers, soldiers, etc.

Available in three sizes, branded truFORM, painted bright orange for moisture protection and ready identification, truFORM represents a substantial improvement over conventional timber and is an easier to use, more convenient alternative to other materials.

1.1 BENEFITS

Strong, light, straight and more uniform, truFORM sections will enhance productivity and reduce forming costs. The consistency and predictable structural performance of truFORM will result in improved concrete finish quality.

Section sizes are targeted to suit common modular support systems and its rectangular shape is robust. All veneer used in truFORM is sourced from renewable plantation pine.

1.2 STANDARDS & QUALITY

truFORM is manufactured in a fully quality controlled process to meet the requirements of AS/NZS 4357 for structural LVL. Quality control is independently audited and product quality certified by the Engineered Wood Products Association of Australasia (EWPAA). The EWPAA is accredited for Product Certification by the government established Joint Accreditation System of Australia and New Zealand (JAS-ANZ). A high level assurance of quality is an important consideration where safety and reliable performance must be guaranteed.



1.3 USE OF PUBLICATION

The tables and other technical data provided in this publication apply only for truFORM. No basis whatsoever exists for claims that the data provided for truFORM applies equally to lookalike substitution products. Use of the truFORM data for substitution products may be unsafe or result in unsatisfactory performance.

The information contained in this document is current as of September 2019 and is based on data available to Carter Holt Harvey (CHH) LVL Ltd trading as Futurebuild® LVL at the time of going to print. Futurebuild LVL reserves the right to change the information contained in this literature without prior notice.

It is important that you call 0800 808 131 to confirm that you have the most up to date information available or refer to www.futurebuild.co.nz.

Futurebuild LVL has used all reasonable endeavours to ensure the accuracy and reliability of the information contained in this document. This information does not replace professional advice and we recommend that professional advice should be obtained specific to your circumstances. To the extent permitted by law, Futurebuild LVL will not be liable for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information.

1.4 TRUFORM® SPECIFICATION

truFORM® is structural LVL manufactured in accordance with AS/NZS 4357, Structural Laminated Veneer Lumber, and characterised to the requirements of AS/NZS 4063.2:2010, Characterisation of structural timber, Part 2: Determination of characteristic values, Section 4.

The tabulated data and standard designs in this publication have been prepared in accordance with the following Australian Design Standards:

- AS 3610:1995 Formwork for Concrete*.
- AS 1720.1-2010 – Timber Structures.

*AS 3610:1995 has been superseded by AS 3610.1, however no guidance for the prescriptive application of loading is provided after 1995.

Table 1: Description

| Profile | | |
|-------------------|--|--------------|
| Veneer | Species | Radiata Pine |
| | Thickness | 3 – 4mm |
| | Joints Face | Scarf |
| | Joints Other | Butt/Scarf |
| Adhesive | Phenolic | |
| Bond | Type A (Marine) (AS/NZS 2098 & AS 2754) | |
| Density | 580kg/m ³ approximately | |
| Finish | Arrises removed – (approx. 3mm chamfer) painted orange | |
| Branding | truFORM, EWPA and JAS-ANZ logos | |
| Tolerances | Depth | -0mm, + 2mm |
| | Thickness | -2mm, + 2mm |
| | Spring | <(L/1000) |

1.5 STRUCTURAL DESIGN

Structural Design for Horizontal Forms

The tabulated data has been prepared in accordance with the following international design standards:

AS 3610:1995 Formwork for Concrete

AS 3610: 1995 was used as a basis for the loading criteria applied within the horizontal form span tables. The following loading allowances have been applied:

- Self weight of joists and bearers members and formface of 50kg/m².
- Density of concrete (including reinforcing) of 2500kg/m³.
- Man and materials involved in spreading, levelling and compacting of concrete of 1.0kPa.
- Design deflection limits: span/270.
- A 4.0kPa allowance for stacked materials in stages 1 and 3.

The design methodology for the determination of imposed load combinations for design was sourced from AS 3610. These combinations include allowance for the three stages of concrete construction; Stage 1, prior to the placement of concrete, Stage 2, during concrete placement and, Stage 3, after concrete placement until the concrete is able to support the applied loads.

AS 1720.1-2010 – Timber Structures, Part 1: Design Methods.

The relevant limit states design capacities were determined in accordance with AS 1720.1:2010 and assumed lateral restraint offered by the in-situ placement of joists and bearers.

Limitations

These following limitations apply to the span tables published within this brochure:

- Members are assumed to be torsionally restrained at supports.
- No allowance has been made for the effect of wind actions on the structural members.
- Design assumes the supporting structure is suitable to support the imposed loads.
- Finish quality is also dependant upon combinations of sheeting, joists and bearer support deformations and upon the accuracy of alignment in set-up.

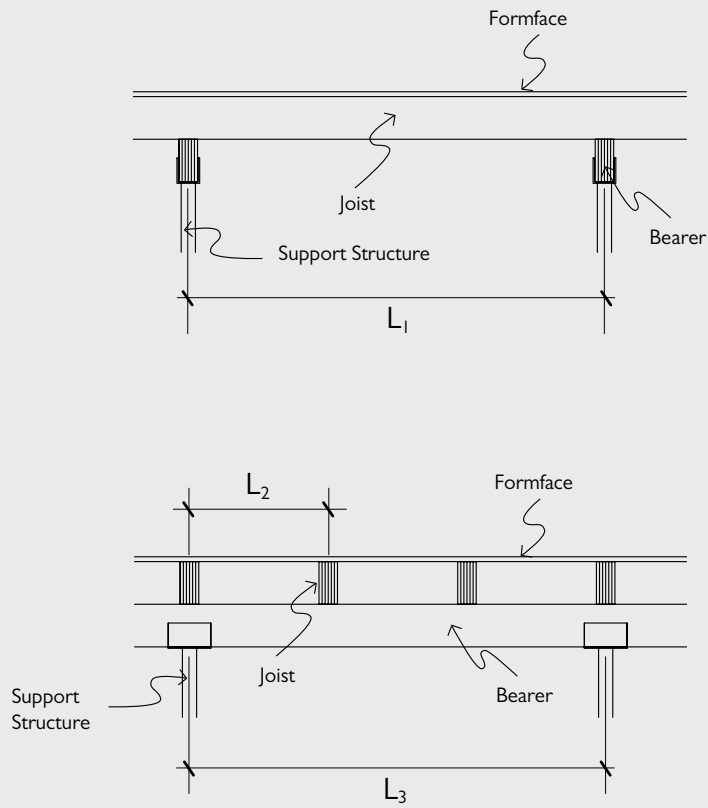
Table 2: Standard truFORM® Sections and Mass

| truFORM® Section d x b (mm) | Mass (kg/m) | Pieces Per Pack | Stocked Lengths (m)* |
|--------------------------------|----------------|--------------------|-------------------------|
| 95 x 47 | 2.6 | 88 | 6.0 |
| 95 x 65 | 3.6 | 66 | 4.8, 6.0 |
| 150 x 77 | 6.7 | 35 | 5.4, 6.0 |

*Available in other lengths, subject to lead times.



Figure 1: Terminology used in Slab Soffit Tables



- L_1 = Bearer spacing/Joist span
- L_2 = Joist spacing
- L_3 = Bearer span

2.0 BEARER & JOIST TABLES FOR FORMING SLAB SOFFITS

Table 3: Joists

| Concrete Slab Thickness (mm) | truFORM® Section (mm) | Joist Spacings, L ₂ (mm) | | | | | | | | | | | |
|------------------------------|-----------------------|---|-----|-----|-----|-----|-----|---|-----|-----|-----|-----|-----|
| | | 225 | 300 | 400 | 450 | 480 | 600 | 225 | 300 | 400 | 450 | 480 | 600 |
| | | Maximum Single Span, L ₁ (m) | | | | | | Maximum Multiple Span, L ₁ (m) | | | | | |
| 100 | 95 x 47 | 1.8 | 1.7 | 1.5 | 1.5 | 1.4 | 1.3 | 2.3 | 2.1 | 1.9 | 1.8 | 1.8 | 1.6 |
| | 95 x 65 | 2.1 | 1.9 | 1.7 | 1.6 | 1.6 | 1.5 | 2.5 | 2.3 | 2.1 | 2.0 | 2.0 | 1.8 |
| | 150 x 77 | 3.4 | 3.1 | 2.8 | 2.7 | 2.7 | 2.5 | 4.3 | 3.9 | 3.5 | 3.4 | 3.3 | 3.1 |
| 150 | 95 x 47 | 1.7 | 1.6 | 1.4 | 1.4 | 1.4 | 1.3 | 2.2 | 2.0 | 1.8 | 1.7 | 1.7 | 1.5 |
| | 95 x 65 | 2.0 | 1.8 | 1.6 | 1.6 | 1.5 | 1.4 | 2.4 | 2.2 | 2.0 | 1.9 | 1.9 | 1.7 |
| | 150 x 77 | 3.3 | 3.0 | 2.7 | 2.6 | 2.6 | 2.4 | 4.0 | 3.7 | 3.3 | 3.2 | 3.1 | 2.9 |
| 200 | 95 x 47 | 1.7 | 1.5 | 1.4 | 1.3 | 1.3 | 1.2 | 2.1 | 1.9 | 1.7 | 1.6 | 1.6 | 1.4 |
| | 95 x 65 | 1.9 | 1.7 | 1.5 | 1.5 | 1.4 | 1.3 | 2.3 | 2.1 | 1.9 | 1.8 | 1.8 | 1.7 |
| | 150 x 77 | 3.1 | 2.8 | 2.6 | 2.5 | 2.4 | 2.2 | 3.8 | 3.5 | 3.2 | 3.1 | 3.0 | 2.8 |
| 300 | 95 x 47 | 1.5 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.5 | 1.3 |
| | 95 x 65 | 1.7 | 1.6 | 1.4 | 1.4 | 1.3 | 1.2 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.5 |
| | 150 x 77 | 2.9 | 2.6 | 2.4 | 2.3 | 2.2 | 2.1 | 3.6 | 3.2 | 2.9 | 2.8 | 2.8 | 2.6 |
| 400 | 95 x 47 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 1.0 | 1.8 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |
| | 95 x 65 | 1.6 | 1.5 | 1.3 | 1.3 | 1.3 | 1.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.6 | 1.4 |
| | 150 x 77 | 2.7 | 2.5 | 2.2 | 2.1 | 2.1 | 2.0 | 3.3 | 3.0 | 2.8 | 2.7 | 2.6 | 2.4 |
| 600 | 95 x 47 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 1.6 | 1.5 | 1.3 | 1.2 | 1.2 | 1.0 |
| | 95 x 65 | 1.5 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.8 | 1.6 | 1.5 | 1.4 | 1.4 | 1.2 |
| | 150 x 77 | 2.5 | 2.2 | 2.0 | 1.9 | 1.9 | 1.8 | 3.0 | 2.8 | 2.5 | 2.4 | 2.3 | 2.1 |
| 1000 | 95 x 47 | 1.1 | 1.0 | 0.9 | 0.9 | 0.9 | 0.8 | 1.4 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 |
| | 95 x 65 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 1.6 | 1.4 | 1.3 | 1.2 | 1.2 | 1.0 |
| | 150 x 77 | 2.1 | 1.9 | 1.8 | 1.7 | 1.7 | 1.5 | 2.6 | 2.4 | 2.1 | 2.0 | 1.9 | 1.7 |

Table 4: Bearers

| Concrete Slab Thickness (mm) | truFORM® Section (mm) | Bearer Spacings, L ₁ (mm) | | | | | | | | | | | |
|------------------------------|-----------------------|---|------|------|------|------|------|---|------|------|------|------|------|
| | | 900 | 1200 | 1500 | 1800 | 2100 | 2400 | 900 | 1200 | 1500 | 1800 | 2100 | 2400 |
| | | Maximum Single Span, L ₃ (m) | | | | | | Maximum Multiple Span, L ₃ (m) | | | | | |
| 100 | 95 x 65 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 1.6 | 1.3 | 1.2 | 1.1 | 1.0 | 1.0 |
| | 150 x 77 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.6 | 2.6 | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 |
| 150 | 95 x 65 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 0.9 | 1.5 | 1.3 | 1.1 | 1.0 | 1.0 | 0.9 |
| | 150 x 77 | 2.1 | 1.9 | 1.7 | 1.6 | 1.6 | 1.5 | 2.4 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 |
| 200 | 150 x 77 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 2.3 | 2.0 | 1.8 | 1.6 | 1.5 | 1.4 |
| 300 | 150 x 77 | 1.8 | 1.7 | 1.5 | 1.4 | 1.4 | 1.3 | 2.1 | 1.8 | 1.6 | 1.5 | 1.4 | 1.3 |
| 400 | 150 x 77 | 1.7 | 1.6 | 1.4 | 1.4 | 1.3 | 1.2 | 1.9 | 1.7 | 1.5 | 1.4 | 1.3 | 1.2 |
| 600 | 150 x 77 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 1.7 | 1.5 | 1.3 | 1.2 | 1.1 | 1.0 |
| 1000 | 150 x 77 | 1.3 | 1.2 | 1.1 | 1.0 | 0.9 | 0.9 | 1.4 | 1.2 | 1.1 | 1.0 | 0.9 | 0.8 |

Notes for joist and bearer span tables:

- Design for the bearer and joist tables presented above includes a 4kPa allowance for stacked materials in accordance with AS 3610. Where the stacked material load is reduced in accordance with AS 3610, then spans used may be larger than those given above – refer formwork designer.
- In the preparation of the above tables, deflections were limited to span/270. Finish quality is however also dependent upon combinations of sheeting, joist, bearer and support deformations and upon the accuracy of alignment in set-up. The use of the tables should not therefore be interpreted to necessarily guarantee the achievement of a Class 3 finish (refer AS 3610).
- For multiple spans, the design has assumed, (a) the most conservative of two or three span use, (b) all spans equally loaded, and (c) all spans equal.
- truFORM® used in accordance with the above tables need not be provided with intermediate lateral restraint.
- Span values may be interpolated for intermediate slab thicknesses.

3.0 STANDARD VERTICAL FORMS

Figure 2: Up to 1.8 Metres High – Soldiers Supporting Formface

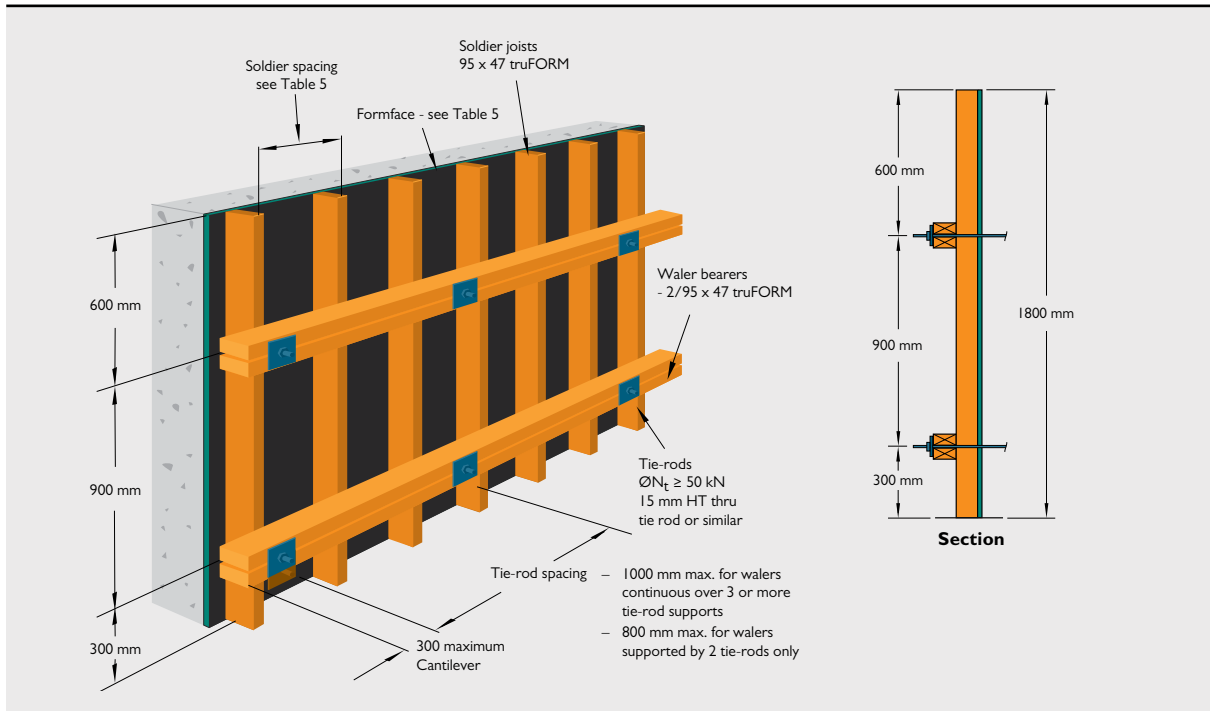


Table 5: Plywood Formface Specification - Vertical Forms Up to 1.8m High

| Construction | Face Grain Orientation | Soldier Spacings (mm) | | |
|--------------|------------------------|-----------------------|-----|-----|
| | | 300 | 400 | 450 |
| 17-10-7 | Horizontal or vertical | F11 | F22 | F27 |
| 17-16-7 | Horizontal only | F14 | - | - |

Maximum unfactored concrete pressure 43kPa (for permissible stress design).

Figure 3: Up to 3.0 Metres High – Soldiers Supporting Formface

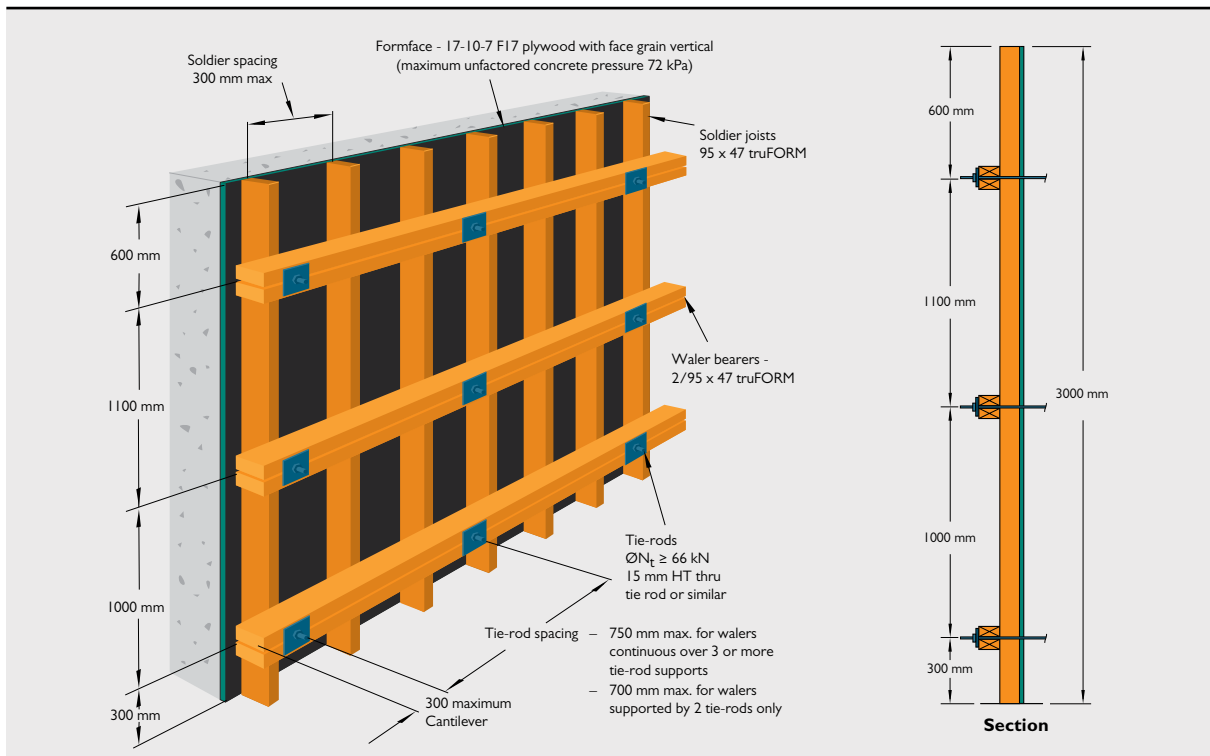


Figure 4: 2.8 to 3.9 Metres High – Walers Supporting Formface

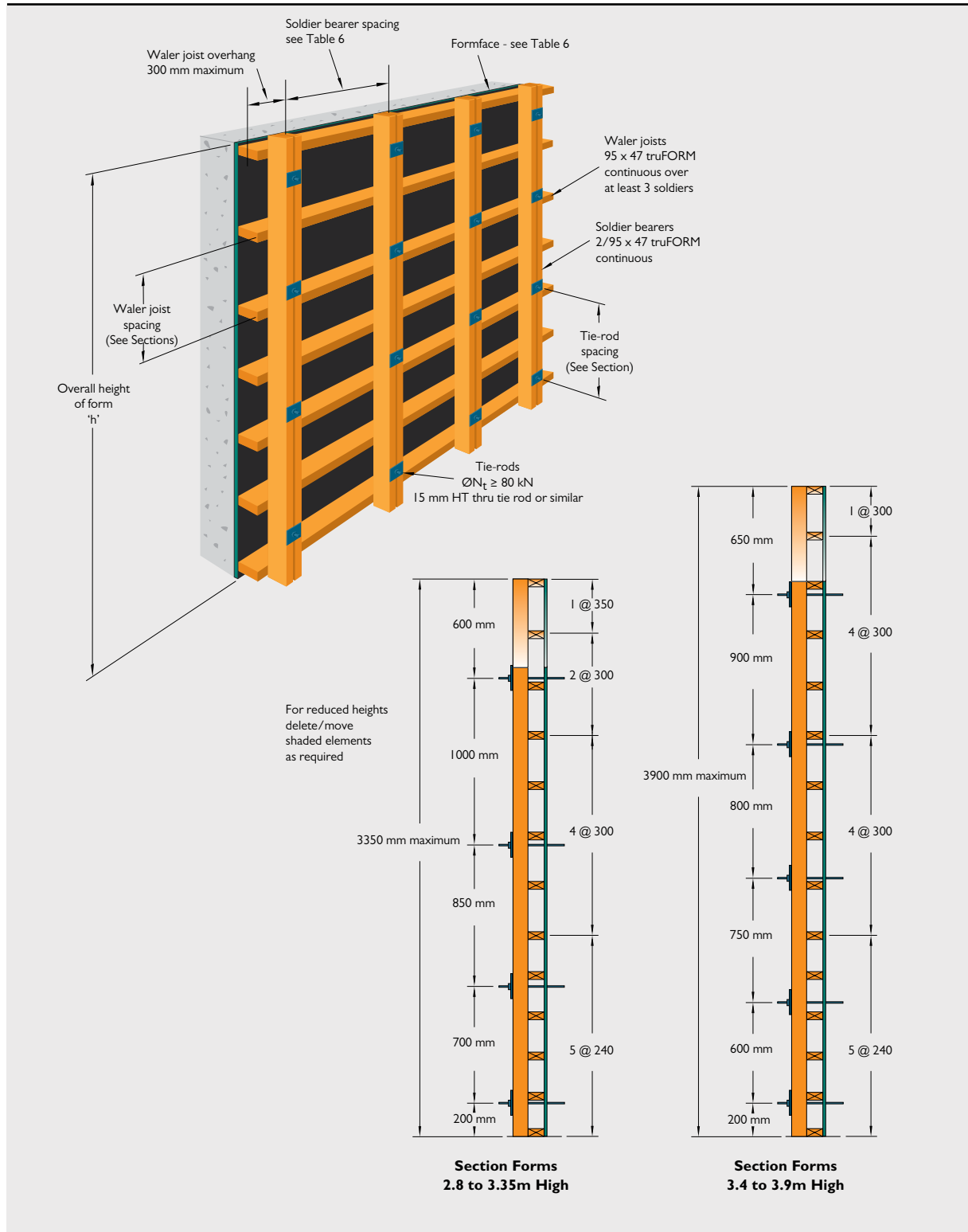


Table 6: 2.8 to 3.9 Metres High – Walers Supporting Formface

| Overall Form Height 'h' | Soldier Bearer Spacing | Plywood Construction Code, Stress Grade & Orientation |
|-------------------------|------------------------|--|
| 3.35m < h ≤ 3.9m | 850mm max. | 17-10-7, F14, Face grain horizontal only 17-10-7, F17, Face grain vertical/horizontal |
| h ≤ 3.35m | 900mm max. | 17-10-7, F11, Face grain horizontal only 17-10-7, F14, Face grain vertical/horizontal |

Plywood at top of form may be single span, supported by top 2 walers or 2 span continuous supported by top 3 walers – elsewhere ply must be continuous over 3 or more spans.

General Notes for Standard Vertical Forms

1. In the preparation of the forms, deflections were limited to the span/270. Finish quality is however also dependent upon combinations of sheeting, waler, soldier and support deformations and upon the accuracy of alignment in set-up. The use of the tables should not therefore be interpreted to necessarily guarantee the achievement of a Class 3 finish (refer AS 3610).
2. Designs based upon hydrostatic pressure distribution.
3. Formface specifications assume plywood continuous over 3 or more spans except where noted otherwise.
4. Holes for tie bolts must not be bored through soldier or waler joists. Where double sections are used, space to accommodate tie bolts.

4.0 edgeFORM® DESCRIPTION & PURPOSE

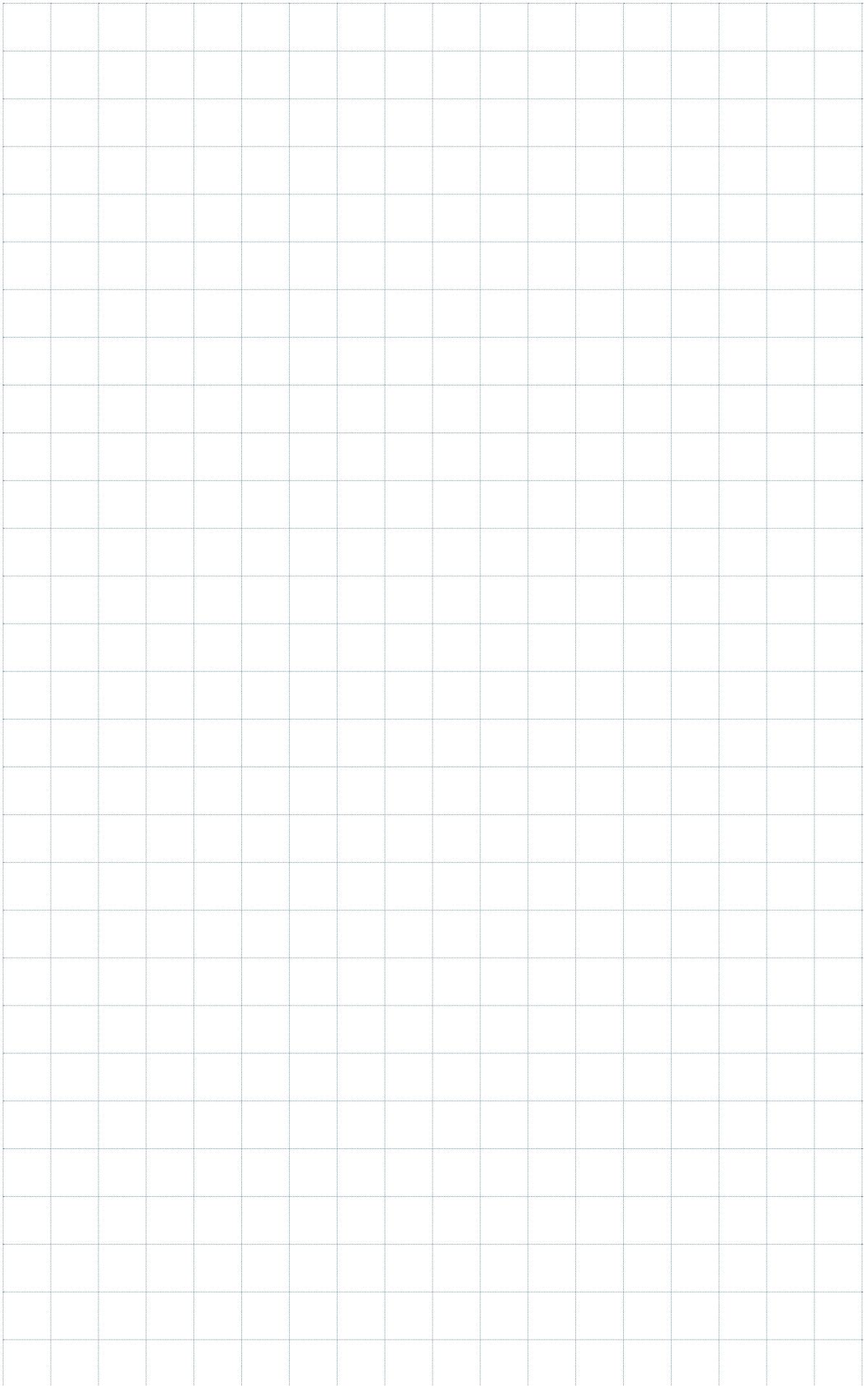
edgeFORM® by Futurebuild® LVL is Laminated Veneer Lumber (LVL) specially prepared for use in concrete formwork applications as edgeboards. edgeFORM is arised and painted red for moisture protection and ready identification. edgeFORM is light, straight and more uniform than traditional alternatives.

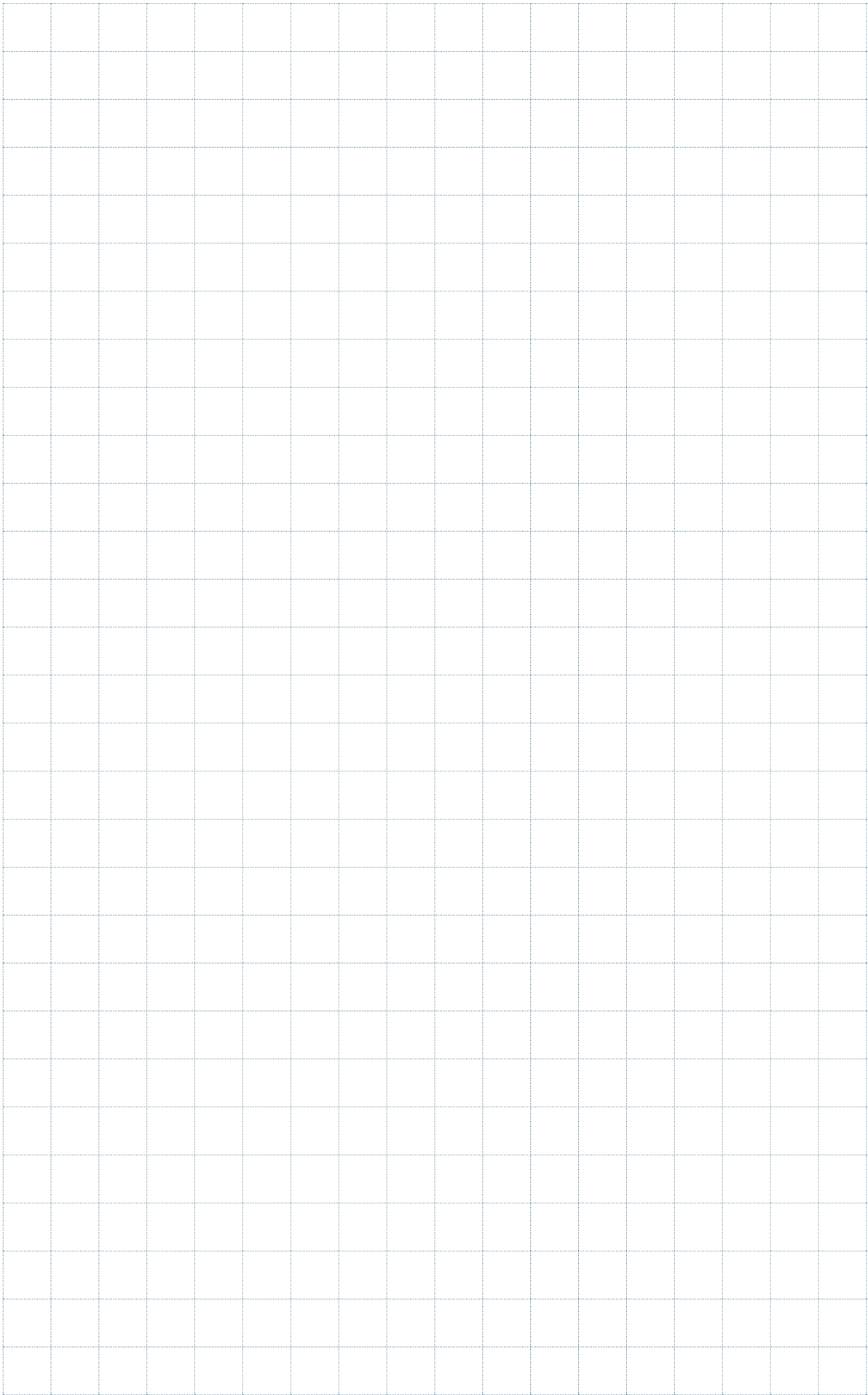


Table 7: edgeFORM® Sizes

| edgeFORM® Sizes (mm) |
|----------------------|
| 150 x 36 |
| 200 x 36 |
| 240 x 36 |

Stocked length 6.0m, other lengths available by request.





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