

# FORMDECK

**constructions**



**FD300**  
**Composite Structural  
Steel Formwork System  
User & Installation Guide**

# Introduction

**Formdeck300 (FD300)** is a very efficient and durable permanent metal tray formwork, reinforcement and ceiling system used for suspended concrete slab construction.

FD300 is an easy to use 300mm cover interlocking deck with deep swage pan stiffeners providing a strong fast and cost effective formwork solution. It is ideal for exposed ceiling applications and can be made available in finish to the soffit.

## FD300 Features and Benefits

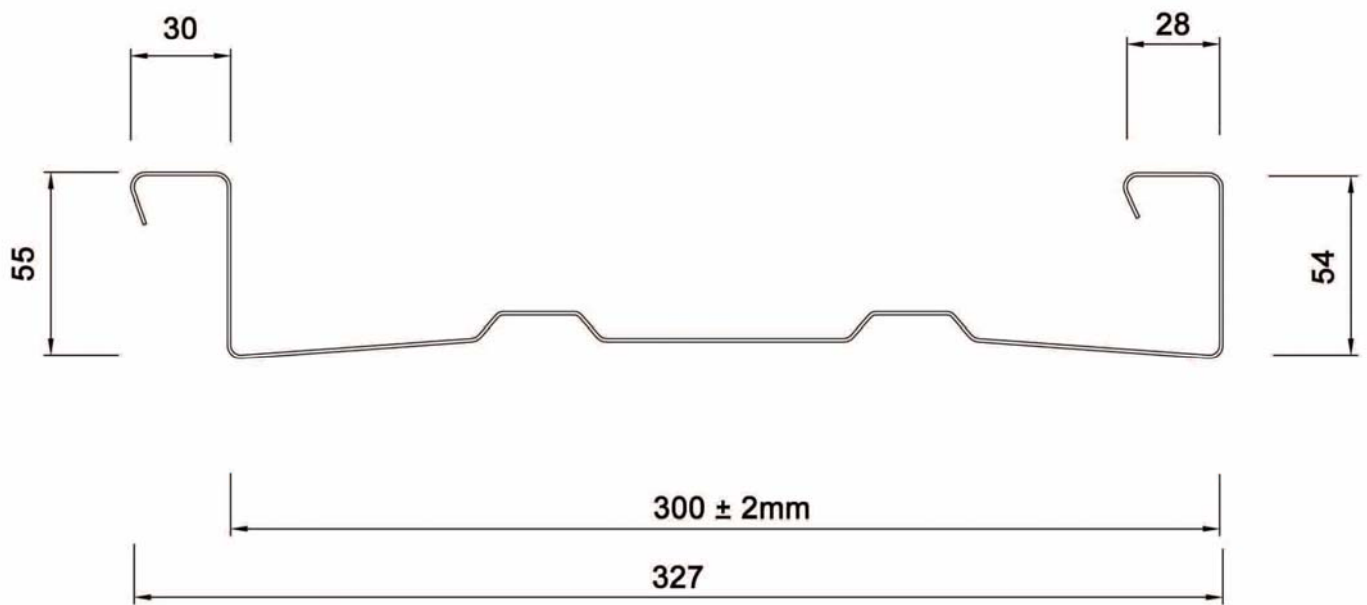
<b>Feature</b>	<b>Benefit</b>
300mm Cover	<ul style="list-style-type: none"><li>- easy to walk on</li><li>- easy to cut and trim</li></ul>
Hinge Side Laps	<ul style="list-style-type: none"><li>- no fasteners required</li></ul>
Quick Installation	<ul style="list-style-type: none"><li>- economical</li></ul>
Flat Soffit (no gaps)	<ul style="list-style-type: none"><li>- clean aesthetically pleasing with streamline finish</li><li>- easy to finish paint or spray</li><li>- no filler strips required</li><li>- minimal seepage</li></ul>
Permanent Formwork	<ul style="list-style-type: none"><li>- becomes part of slab</li><li>- reduces propping, formwork stripping and bottom reinforcement</li></ul>
Fire Rating Benefits	<ul style="list-style-type: none"><li>- FD300 unique closed rib profile reduces FER (fire emergency reinforcement) when encased in concrete</li></ul>
High Tensile Steel	<ul style="list-style-type: none"><li>- light weight with high strength</li><li>- reduces propping</li><li>- simple to install</li></ul>
Locally Made	<ul style="list-style-type: none"><li>- quick turnaround</li><li>- design assistance and conversion</li><li>- measure and scheduling service available</li></ul>

# FD300 Material Specifications

FD300 is a cold rolled formed section manufactured from high-tensile (G550) steel. It is available in 0.75, 0.90 or 1.00 mm Base Metal Thickness (BMT). The galvanized coating thickness is a Z350 (350g/m<sup>2</sup>) in full conformance with AS1397.

In special circumstances FD300 may be obtained in:

- Other BMT (Different gauges)
- Pre-painted finishes to the underside
- Non-standard zinc coating mass
- GALFAN material for extreme or high corrosive environments

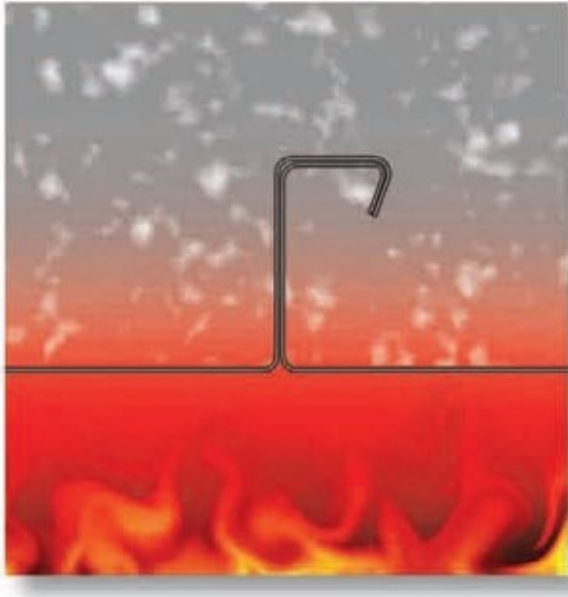


**TYPICAL CROSS SECTION OF FORMDECK 300**

FD300 PROFILE PROPERTIES					
THICKNESS (mm)	CROSS SECTIONAL AREA SHEET (mm <sup>2</sup> )	CROSS SECTIONAL AREA (mm <sup>2</sup> /M)	MOMENT OF INERTIA (10 <sup>5</sup> mm <sup>4</sup> )	ZINC COATING (G/M <sup>2</sup> )	YIELD STRENGTH MPa
0.75	350.65	1192.1	4.35	Z350	550
0.90	419.48	1426.23	5.2	Z350	550
1.00	465.14	1581.47	5.75	Z350	550

## Fire Rating

It has been tested and shown that the inter-locking ribs of the Formdeck300 when fully embedded in a concrete slab, will retain a majority of its strength through its ribs in exposed fire conditions for up to two hours. Further to this the rib strength can be used to reduce the quantity of bottom (FER) Fire Emergency Reinforcement mesh in slabs



Fire Resistance Period (MIN)	Base Material Thickness		
	0.75	0.90	1.00
30	260	300	340
60	248	280	330
90	280	320	380
120	260	300	360
Reinforcement Contribution mm <sup>2</sup> /m			

### Notes:

1. Table applies to Formdeck 300 profile only
2. Base material G550
3. Yield Strength reinforcement 500MPa
4. Based on WFR Report No 46023

## Anti-Glare

Formdeck300 comes available with a grey anti-glare coating. This coating is a water-based material that is applied on line during the production stage and dries within minutes.

The anti-glare coating is applied to the pans only of the FD300, this ensures that the chemical bond between the deck and the concrete is fully effective, and hence does not compromise the composite slab performance.

The non reflective coating reduces light reflection by more than 80% improving safety and on site working conditions



# Installing FD300

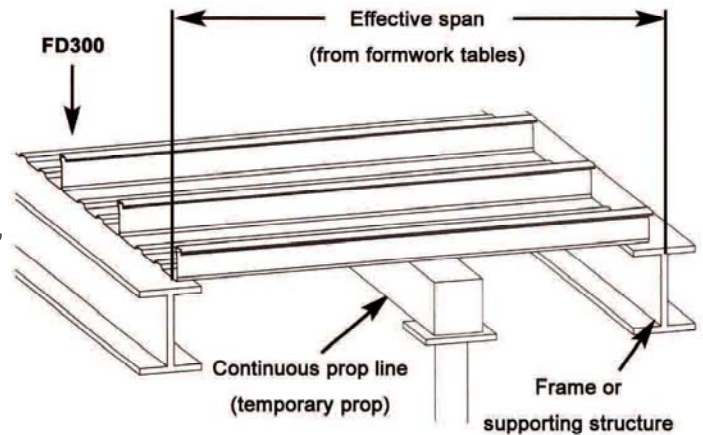
## Temporary Propping

If temporary propping is required (refer to FD300 Formwork Tables) Temporary propping, where required, must provide continuous transverse (across the sheet) support at the prescribed spacings. The prop bearer width must be no less than 100mm, unless established by calculation.

Continuous support is generally provided by substantial timber or steel beams supported by vertical props. If the deck soffit is to be left exposed, it is recommended that a piece of caneite or similar be placed between the bearer and the deck.

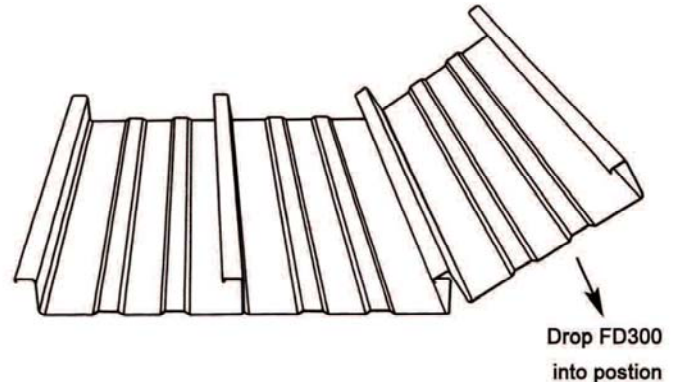
All propping should meet the requirements of AS3610. Prop bearers should not be placed higher than the permanent end support.

Temporary propping must not be removed until the slab has cured sufficiently. Prop removal procedure should be in accordance with AS3610 and engineers recommendations.



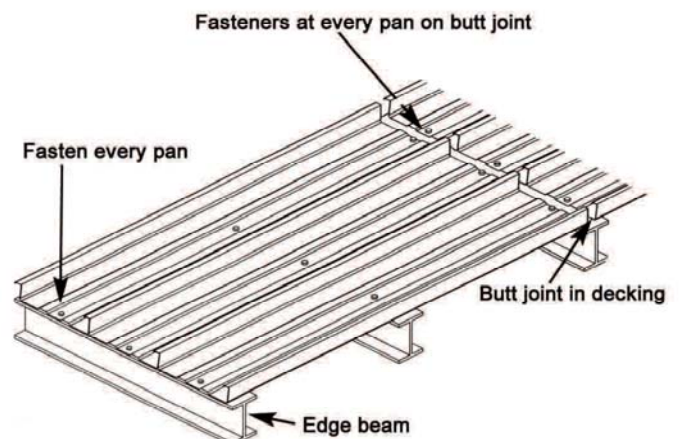
## Decking placement

Formdeck 300 Decking is easily placed by hinging the overlap edge of one sheet over the underlap edge of the previous sheet. If the decking is used as a platform for laying subsequent sheets, designated propping must be positioned first.



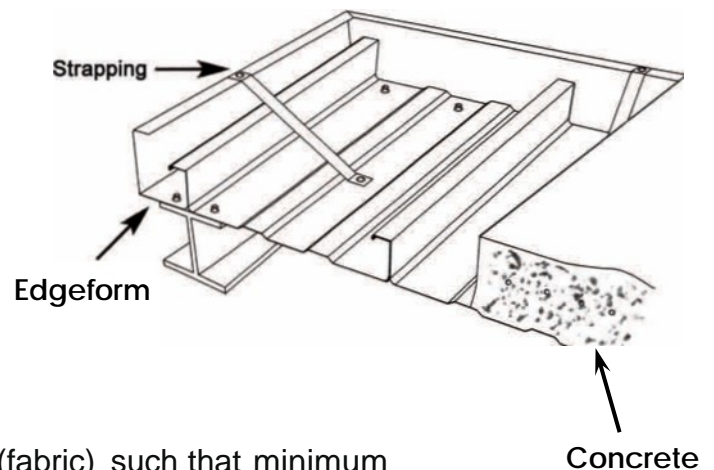
## Fixing

Once decking panels are laid they should immediately be secured against possible wind uplift. Typically use one fixing per pan at end supports, and one fixing every third pan at permanent Internal supports. Self-drilling and tapping screws or powder actuated drive pins are commonly used. These fixings should be adjacent to the decking ribs. In the exposed conditions additional fixing may be required. Shear studs, if used, attached immediately after decking placement, or puddle welds, will provide wind uplift resistance.



## Slab Edgeforma

Is a lightweight, easy to use, galvanised steel edge trim. It is made to the size of your slab height. The top flange of the edgeforma is then tied back to the FD300 ribs at every 600mm usually with galvanised strapping.



## Reinforcement

Place the shrinking and temperature reinforcement (fabric) such that minimum cover requirements as per AS3600 is achieved.

The fabric shall be properly lapped and tied to ensure continuity in both directions.

If the slab has been designed as continuous, then additional steel reinforcement as specified by the Engineer shall be provided over supports.

## Concrete Pouring

Finally, the concrete must be poured evenly to the panel ends on prepared clean deck, in the direction of span of decking. Heaping of wet concrete must be avoided.

The concrete should be placed in accordance with the requirements of AS3600 and have a minimum 28 day compressive strength  $f'c=25\text{MPa}$  and slump satisfying the Engineers requirements. As a guide the slump should be 60mm-80mm for vibrator compaction. Hand compaction is not recommended.

## Admixtures

Chemical admixtures can be used provided they are in accordance with AS3600 (CI.19.1.1)



# FD300 Formwork Tables

## 0.75 Steel Thickness

Slab Thickness	Single Span	Double Span	Continuous Spans
100	2100	2500	2500
120	2100	2300	2300
150	2000	2300	2300
170	1800	2200	2250
180	1800	2200	2250
200	1700	2000	2050
225	1650	1900	1950
250	1600	1750	1850

$I = 4.35 \times 10^5 \text{ mm}^4$   
 W-construction load = 1.5 kPa  
 W- SDL = 2550kg/m<sup>3</sup>  
 Deflection Limit= **L/240**

## 0.90 Steel Thickness

Slab Thickness	Single Span	Double Span	Continuous Spans
100	2150	2900	2750
120	2150	2850	2700
150	2100	2550	2450
170	2000	2400	2300
180	2000	2400	2300
200	1900	2200	2200
225	1850	2150	2150
250	1800	2050	2100

$I = 5.2 \times 10^5 \text{ mm}^4$   
 W-construction load = 1.5 kPa  
 W- SDL = 2550kg/m<sup>3</sup>  
 Deflection Limit= **L/240**

## 1.00 Steel Thickness

Slab Thickness	Single Span	Double Span	Continuous Spans
100	2300	3100	2800
120	2300	2950	2750
150	2200	2750	2600
170	2100	2650	2500
180	2100	2650	2500
200	2000	2450	2350
225	1950	2300	2300
250	1850	2200	2200

$I = 5.75 \times 10^5 \text{ mm}^4$   
 W-construction load = 1.5 kPa  
 W- SDL = 2550kg/m<sup>3</sup>  
 Deflection Limit= **L/240**

### Important Notes:

1. Deflection criteria used in the above computations is span/240 to prevent slabs from sagging. The results is an even and aesthetically underside for exposed soffits.
2. Loads used in computations are 1.5kN/m<sup>2</sup> Live Load and 2550 kg/m<sup>3</sup> DL( Wet concrete and self weight of sheeting and reinforcement)
3. Tables are given showing the maximum allowable span between temporary supports (formwork).
4. Tables are for formwork only.
5. Design of composite slab, slab capacity and long term deflection calculation needs to be carried out by qualified structural engineer.