SPEEDFLOOR

Engineered Transportable Concrete Floor System

TRANSPORTABLE CONCRETE FLOOR

FASTER *LIGHTER* EASIER

SPEEDFLOOR

Building on a great idea . . .

The Speedfoor Transportable Concrete Floor involves the unique combination of cold rolled steel sectons and concrete to form a transportable concrete floor.

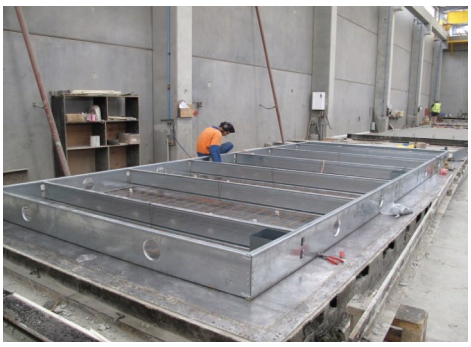
TRANSPORTABLE CONCRETE FLOOR

The galvanized steel sections are manufactured using the rollforming process for dimensional accuracy where they are punched, pressed and cut to length. The sections are simply assembled and placed upside-down on a flat surface over selected reinforcement mesh. The concrete is poured into the base and leveled to form a consistent thickness. After the initial cure the floor is lifted from the flat bed, flipped and is ready for the building frame to be attached.

The transportable floor has many features including:

- All service holes and connecting bolt holes are pre-punched into the boundary channels.
- Lifting eyes, pier positions and any frame hold down connections are factory fitted.
- Concrete slab thickness of 65mm to 95mm.
- The floor requires no mould or formwork meaning any size floor with-in the limits of the rollformed sections can be accommodated and produced on any flat surface.
- Any recesses are easily pre-formed into the finished slab.

This method of construction ensures accurate repeatability in size and quality of a transportable concrete floor



Transportable Concrete Floors FASTER LIGHTER EASIER

SPEEDFLOOR

Telephone: +64 9 303 4825
Email: sales@speedfloor.co.nz
PO Box 5420 Wellesley St, Auckland, New Zealand
www.speedfloor.co.nz

DESIGN CERTIFICATION

ADG Design Certificate ..... Page 2
Design Calculations..... Page 3
Speedfloor Joist design ..... Page 6
Speedfloor Perimeter channel design ..... Page 7

The Speedfloor Transportable Floor meets or exceeds the following Australian and New Zealand Building Standards.

AS/NZS 1170.0:	Structural Design Actions Part 0: General Principles
AS/NZS 1170.1:	Structural Design Actions Part 1: Permanent, Imposed and Other Actions
AS3600 :	Concrete Structures
AS/NZS 4600:2005:	Cold-formed Steel Structures
AS 4100-1998 :	Steel Structure

Melbourne Office
22/204-218 Dryburgh Street
North Melbourne, Victoria 3051

T +61 (0)3 9005 1464
F +61 (0)3 9374 4642

E info@adgce.com
www.adgce.com

Building Act 1993
Building Regulations 2006
Regulation 1507: Certificate of Compliance—Design

To
Relevant building surveyor:
Postal address: Postcode:

From
Building practitioner: Michael Knight
Category and class: Engineer (Civil) Registration No: EC36404
Postal address: Suite 22, 204-218 Dryburgh St, North Melbourne, VIC Postcode: 3051

Property details (if applicable)
Project: Speedfloor Transportable Concrete Floor

Compliance
I did prepare the design and I certify that the part of the design described as the 7.2m x 3.3m & 14.4m x 4.2m Transportable Concrete Floor complies with the following provisions of the Regulations

AS/NZS 1170.0- Structural Design Actions Part 0: General Principles
AS/NZS 1170.1- Structural Design Actions Part 1: Permanent, Imposed and Other Actions
AS3600: Concrete Structures
AS/NZS 4600:2005- Cold-formed Steel Structures
AS 4100-1998- Steel Structures
AS 2327-2003- Composite Structures Part 1

Design documents

Drawing Nos:
7.2m x 3.3m Transportable Concrete Floor, 14.4m x 4.2m Transportable Concrete Floor & 300mm Perimeter Channel 3.0mm Thk
Prepared by: Speedfloor Date: 21.09.2012

Computations: Summary Design for 7.2mx3.3m & 14.4mx4.2m Transportable Concrete Floor
Prepared by: ADG Date: September 2012

Test reports: Prepared by: Date:

Other documentation: Prepared by: Date:

Signature

Signed: Michael Knight (EC-36404) Date: 21.09.2012

Speedfloor Transportable

Design Calculations

Prepared for: Speedfloor NZ

Job No. 12736

June 2013

1 Summary of Design Certification

Design Brief

- This report outlines the minimum structural criteria adopted in the design of perimeter channel 7.2m x 3.3m & 14.4m x 4.2 transportable concrete slab.

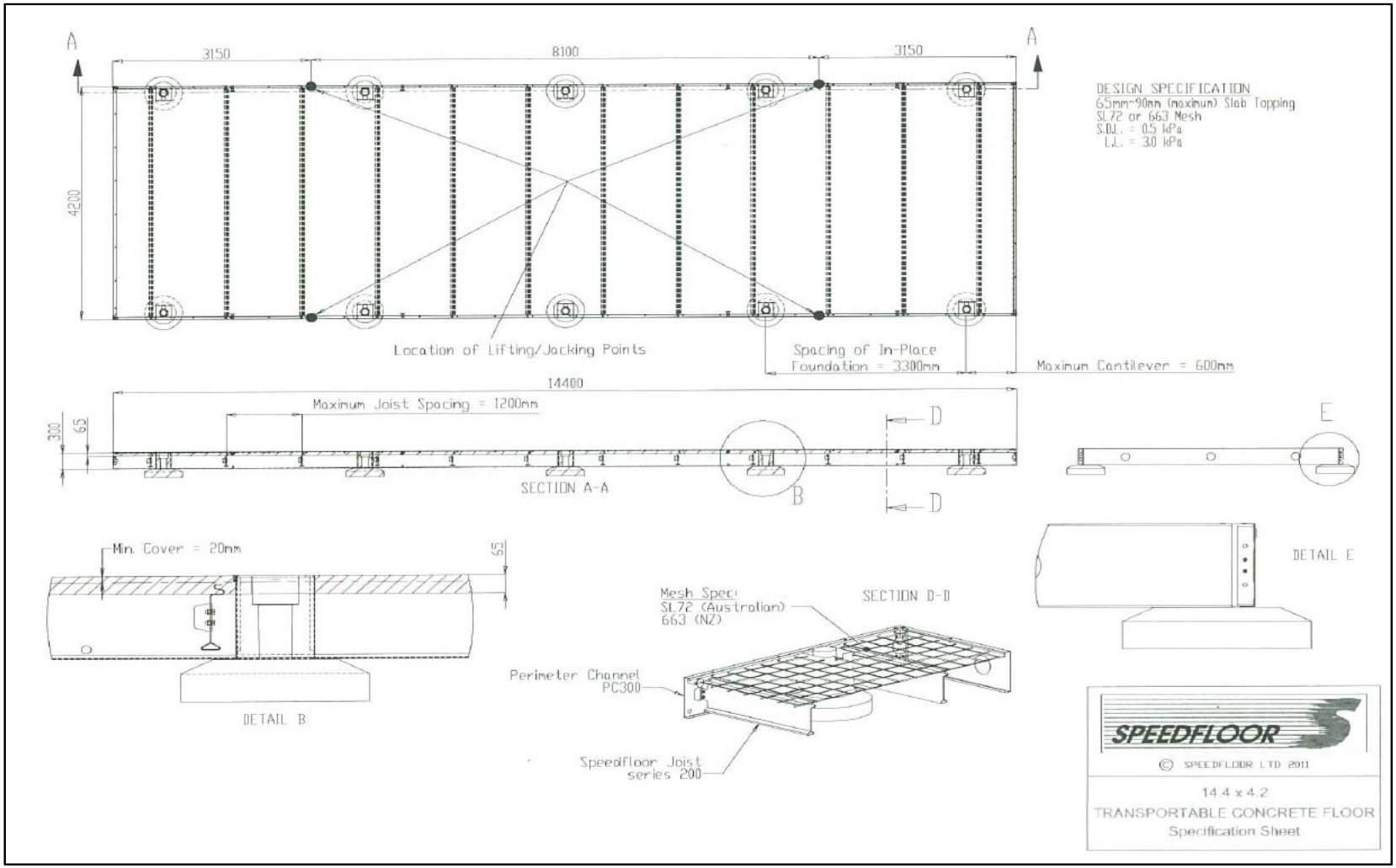
- All loads to AS/NZS 1170 – Structural Design Action.

All Designs to

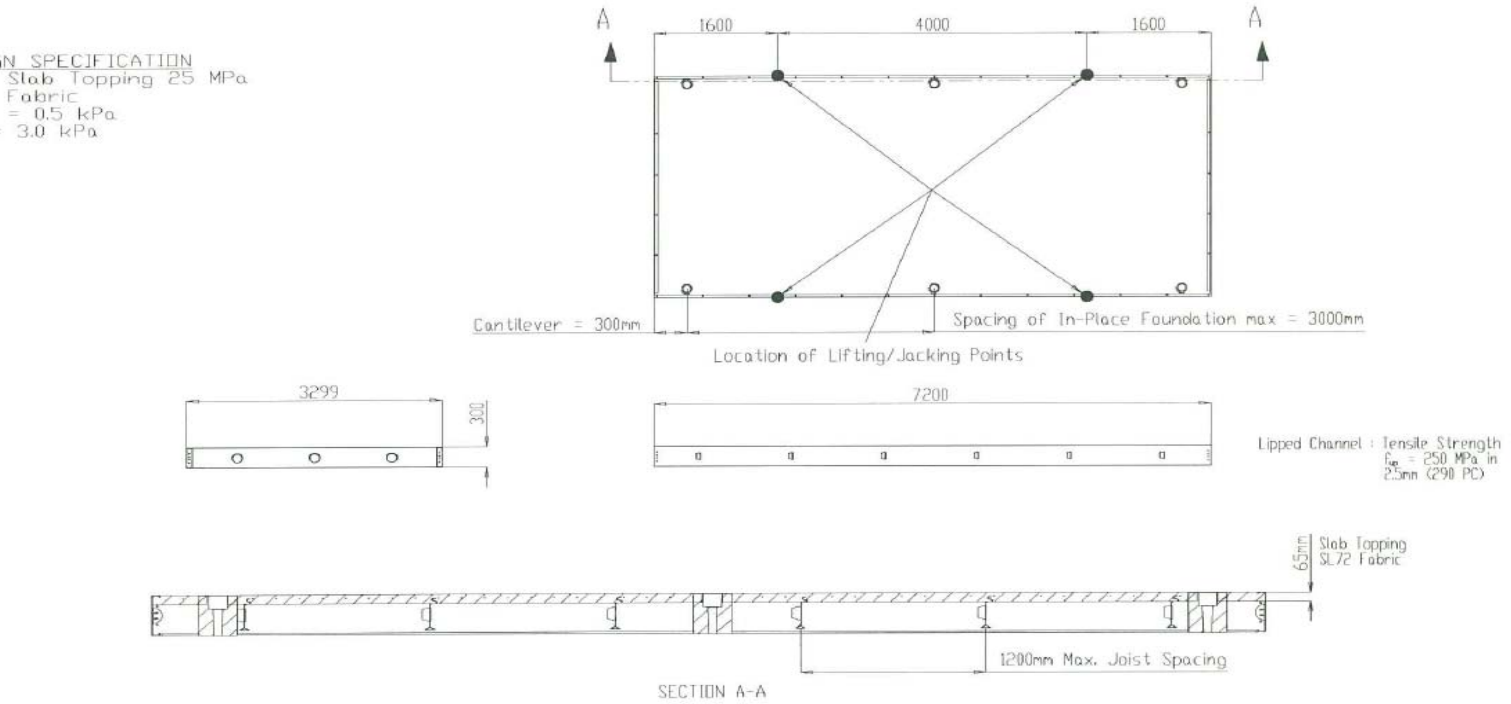
- AS 3600-2009 – Concrete Structures
- AS/NZS 4600: 2005 – Cold Formed Steel Structures
- AS 4100-1998 – Steel Structures
- AS 2327-2003 – Composite Structures Part 1

Summary

- Slab Topping: 65mm to 95mm (maximum)
- Mesh: SL72 Fabric Central
- Concrete: 25MPa minimum
- Design Load: SDL = 0.5 kPa
  L.L = 3.0 kPa
- Speedfloor joist 200mm deep @ 1230 c/c with maximum span of 4200mm.
- Lipped channel to floor:
  - 300mm deep x 3mm thick lipped channel
  - Tensile strength = 350 MPa
- Connection for speedfloor joist to channel:
  - 2 M10 4.6/S bolts (Tensile Grade 400MPa) with maximum joist span 4200mm @ 1200 c/c maximum spacing.

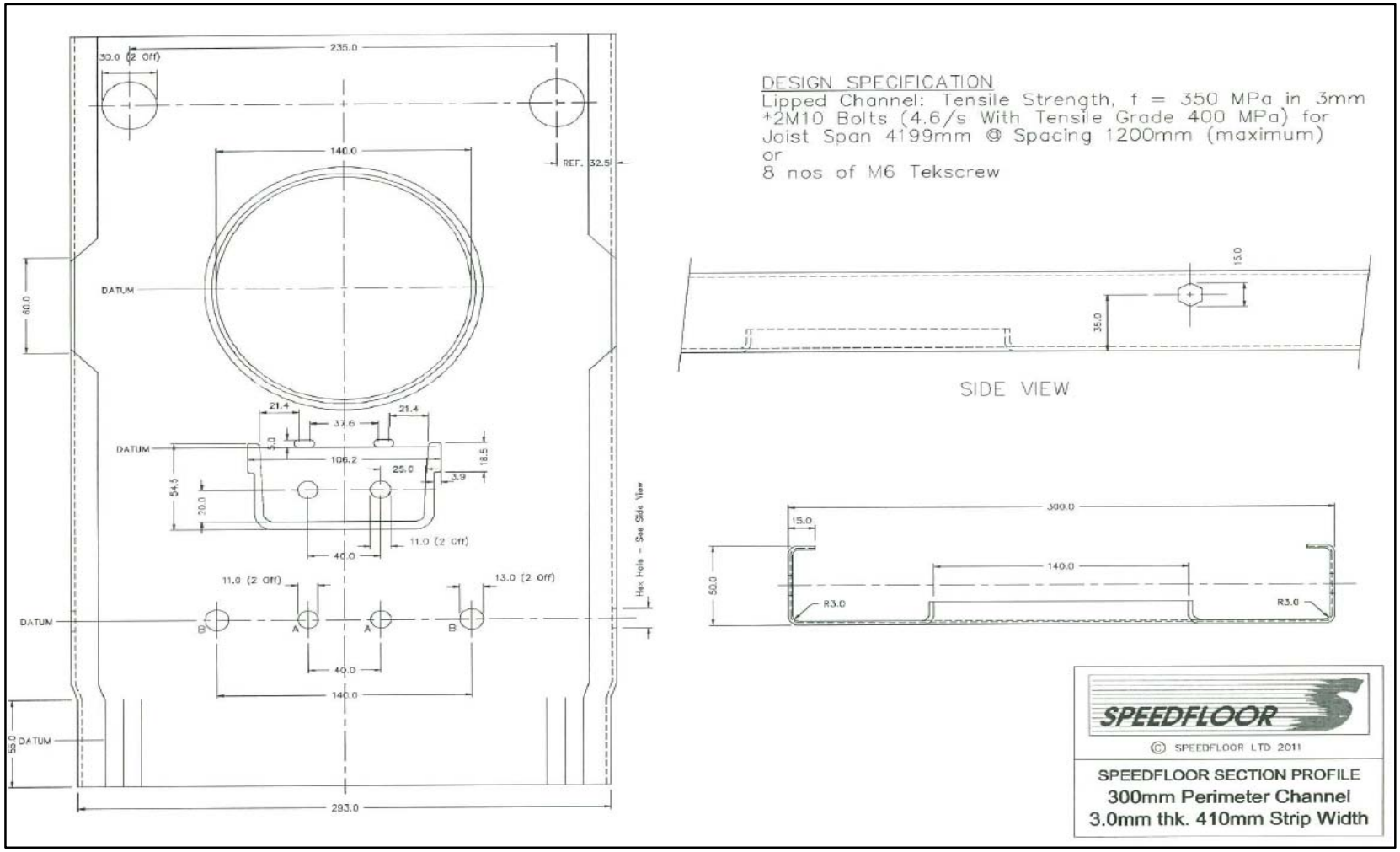

A
3150
8100
3150
A
4200
DESIGN SPECIFICATION
65mm-90mm (maximum) Slab Topping
SL72 or 663 Mesh
S.D.L. = 0.5 kPa
L.L. = 3.0 kPa
Location of Lifting/Jacking Points
Spacing of In-Place Foundation = 3300mm
Maximum Cantilever = 600mm
14400
Maximum Joist Spacing = 1200mm
300
65
SECTION A-A
D
B
D
E
Min. Cover = 20mm
65
DETAIL B
Mesh Spec:
SL72 (Australian)
663 (NZ)
SECTION D-D
Perimeter Channel
PC300
Speedfloor Joist
series 200
DETAIL E
SPEEDFLOOR
© SPEEDFLOOR LTD 2011
14.4 x 4.2
TRANSPORTABLE CONCRETE FLOOR
Specification Sheet

DESIGN SPECIFICATION
65mm Slab Topping 25 MPa
SL72 Fabric
S.D.L. = 0.5 kPa
L.L. = 3.0 kPa



SPEEDFLOOR

7.2 x 3.3
TRANSPORTABLE CONCRETE FLOOR
Specification Sheet


DESIGN SPECIFICATION
Lipped Channel: Tensile Strength, f = 350 MPa in 3mm
*2M10 Bolts (4.6/s With Tensile Grade 400 MPa) for
Joist Span 4199mm @ Spacing 1200mm (maximum)
or
8 nos of M6 Tekscrew
SIDE VIEW
DATUM
235.0
30.0 (2 Off)
140.0
REF. 32.5
60.0
21.4
37.6
106.2
25.0
3.9
18.5
54.5
20.0
11.0 (2 Off)
40.0
13.0 (2 Off)
Hex. Hole - See Side View
50.0
293.0
300.0
15.0
35.0
R3.0
SPEEDFLOOR
© SPEEDFLOOR LTD 2011
SPEEDFLOOR SECTION PROFILE
300mm Perimeter Channel
3.0mm thk. 410mm Strip Width

2 Design

The typical prototype of 14.4m x 4.2m and 7.2m x 3.3m transportable concrete frames as detailed on Page 2 and 3 respectively.

The structural engineering scope is not intended to cover every loading condition. It is expected that each in service condition will be considered on a per site basis, including but not limited to:

- Temporary shoring.
- Site wind case for specified wind speed.
- Earthquake design.
- Durability considerations.
- Geotechnical report & recommendations.
- Point loads on slab.
- Size & weight of structure to be supported on transportable unit.

The following critical items have been checked and considered in the design:-

1. **3mm Lipped Channel Design**
    a. Section Properties & Channel Capacity
    b. Strength / Lifting Case
    c. Connection Detail
2. **Speedfloor Joist Design**

1. 3mm Lipped Channel Design

a. Section Properties & Channel Capacity

SECTION PROPERTIES:
Lipped Channel 300mm x 50mm x 3mm thick

			REMARK		
			Refer Table 1.5 - AS 4600		
f_y (Yield Stress)	350	N/mm^2	Refer Table 1.5 - AS 4600		
E	2.00E+05	N/mm^2			
B	50	mm			
D	300	mm			
A	1200.78	mm^2			
J	3602				
r_i	3	mm			
t	3	mm		b= 44	
b_f	44	mm	B - (ri + t)	t= 3	
b_w	288	mm	D - 2(ri + t)	bw= 288	
I_x	1.275E+07	mm^4		y1 148.5	
I_y	2.786E+05	mm^4			
I_w	4.837E+09	mm^4		I_{eff} 1.179E+07	
I_{xy}	0.000E+00				
Ø	0.9		Refer Table 1.6 - AS 4600	y_{eff} 148.5	
y_{eff}	148.5	mm			
y_{full}	150				
Z_f (full unreduced section modulus)	8.500E+04				
Z_c (eff. section modulus)	7.942E+04				

NOMINAL SECTION MOMENT CAPACITY

M_s $Z_e f_y$ b/t 14.67 < $1.25 Z_e f_y$
λ1 26.534
λ2 30.598

Ze = $I_x/\bar{y}_x$
7.942E+04

M_s $Z_e f_y$
27.797 kNm
ØM_s 25.017 kNm

NOMINAL MEMBER MOMENT CAPACITY
(laterally unbraced segments of singly-symmetric section subjected to lateral buckling)

M_b $Z_c (M_c/Z_f)$

For Channel or Z -sections bent about the centroidal axis perpendicular to the web:

$\lambda_b = \sqrt{(M_y/M_o)}$ 0.688678543
M_y $Z_f f_y$ **2.975E+07** Nmm

M_o $C_b A r_{01} \sqrt{(f_{oy} f_{oz})}$ **62726906.0** Nmm
62.73 kNm

C_b	1.22	(Table 3.3.3.2)	$r_x = \sqrt{I_x/A}$	103.04416	mm
A	1200.78	mm^2	$r_y = \sqrt{Iy/A}$	15.232	mm
r_{01}	105.7028		x_0	17.971453	
$f_{oy} = \pi^2 E/(l_{ey}/r_y)2$	318.125		y_0	0	
$f_{oz} = G J/(Ar_{01}^2) * (1+\pi^2 E I_w/G J l_{ez}^2)$	515.8108				
			l_{ey}	1200	mm
			l_{ex}	1200	mm
			l_{ez}	1200	mm
			G	8.000E+04	
			$(1+\pi^2 E I_w/G J l_{ez}^2)$	24.015598	
			$G J/(Ar_{01}^2)$	21.478159	

M_c 28671986.19 Nmm
28.672 kNm

2.975E+07 My
2.867E+07 $1.11My(1-(10\lambda_b^2/36))$
6.273E+07 $My(1/\lambda_b^2)$

M_b $Z_c (M_c/Z_f)$ 2.679E+07 Nmm
26.79 kNm
ØM_b 24.11096315 kNm

Zc = $Ix/\bar{y}$ 7.942E+04 mm3
Zf = I/y 8.500E+04 mm3

1. 3mm Lipped Channel Design

b. Check in Strength / Lifting Case

In Strength and Service

Factored Design Actions: 1.2G + 1.5Q

G, DL = 24 kN/m³ x 0.090 = 2.16 kPa

SDL = 1.0 kPa

3.16 kPa

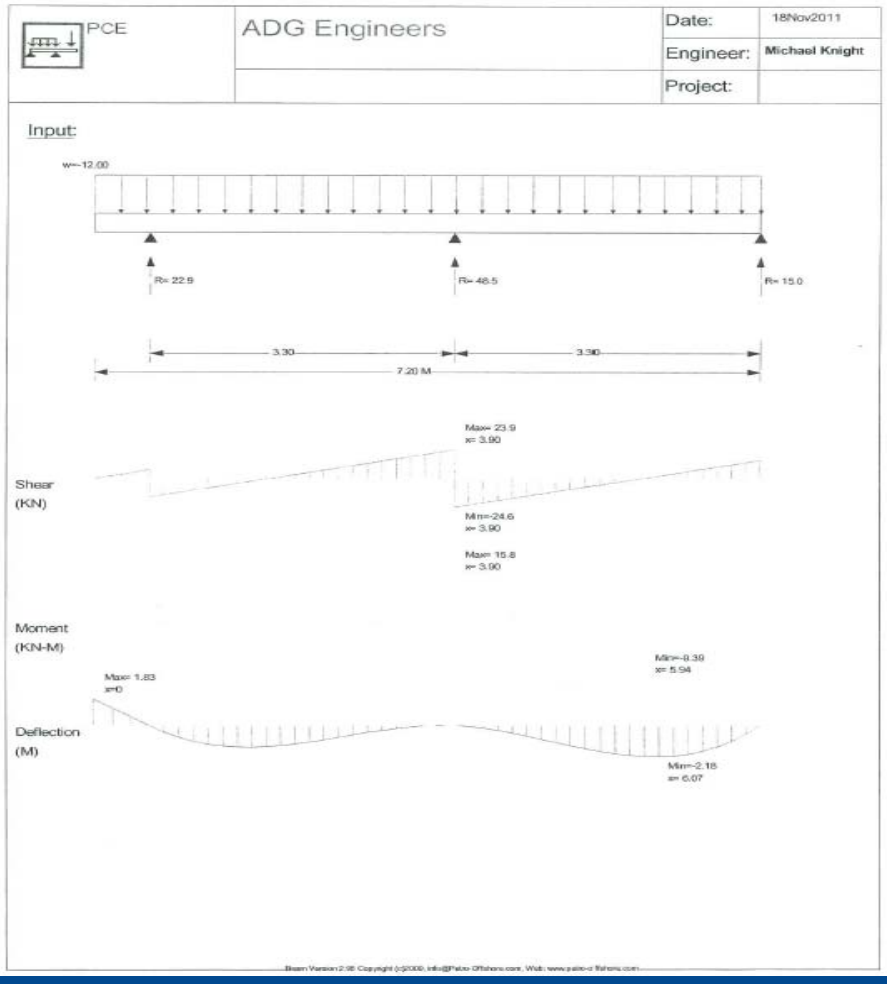
Q, LL = 3.0 kPa

Assume Design Width = 4200mm/2 = 2100mm

UDL - G = 3.16 kPa x 2.1m = 6.6 kN/m

Q = 3.0 kPa x 2.1m = 6.3 kN/m

M* = 22.9 kN/m < ø M_b ∴ ok

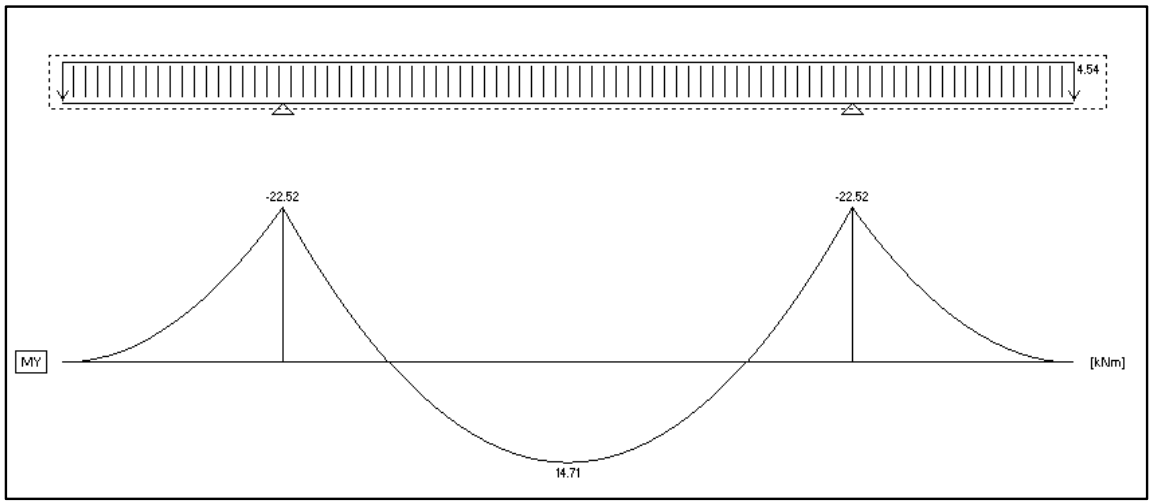


In Lifting Case

Only slab self-weight is considered for lifting case

W = 24 kN/m³ x 0.090m x $\frac{4.2}{2}$ = 4.54 kN/m

Maximum M* = 22.52 kN/m < ø M_b ∴ ok



1. 3mm Lipped Channel Design
c. Connection Detail Checked

Bolt Capacity Check for Lipped Channel

4.6/s 2M10 bolts with Tensile Grade 400MPa

(i) Shear capacity øVf of a bolt

$øV_f = ø0.62\ f_{uf}\ k_r\ (N_n\ A_c + N_x\ A_{o)}$

= 10.4kN

Provide 2 nos M10

(ii) Crushing capacity of the ply materials for bolt bearing

$V_b = 3.2\ t_p\ d_f\ f_{up}\ ø$

= 33.6 kN

t_p = 3mm
d_f = 10mm
f_{up} = 350 MPa

(iii) Bearing capacity of the ply materials for bolt tear out

$V_p = a_e\ t_p\ f_{up}\ ø$

= 23.6 kN

a_c = 25mm
t_p = 3m
f_{up} = MPa

Note: Bolt capacity checked based on slab = 90mm maximum with speedfloor joist = 420mm maximum @ 1200 c/c maximum

2. Speedfloor Joist Design

The design is carried out using the Speedfloor joist analysis program. The program considers the joists as composite sections once the concrete is poured and cured.

The following pages are the load / span checks for each case considered.

SPEEDFLOOR

Project: SPEEDFLOOR LOAD VERSUS SPAN CALCULATOR

Joist Size (mm)	200	Joist Spacing (m)	1.23	Construction live load Q (kPa)	1.0
Steel fy (MPa)	350.0	Slab topping (m)	0.09	Short term Factor Ys	0.7
Concrete strength f'c (MPa)	25	S.D.L. (kPa)	0.5	Long term Factor Yl	0.4

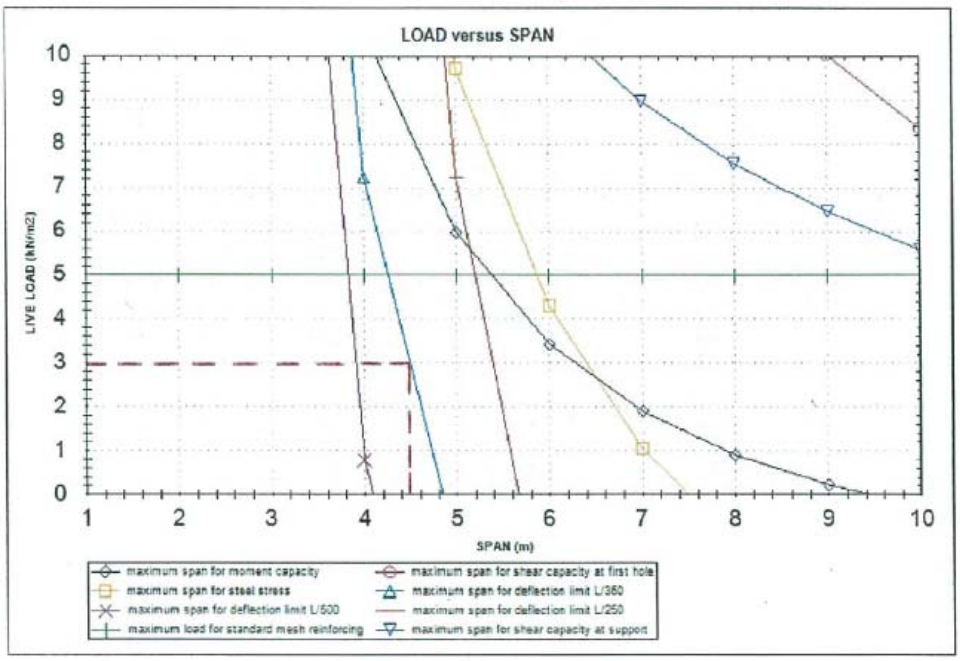
Section Properties

Capacity of end bolted support bracket: 48.0 kN

	I non composite mm4	I composite mm4	Zt non composite mm3	Zb non composite mm3	Zt composite mm3	Zb composite mm3	øMsx non composite kNm	øMrc composite kNm	non composite kN	composite kN
by section analysis	8.14E+06	3.54E+07	6.52E+04	7.20E+04	6.34E+05	1.51E+05	20.6	47.9		
I effective		3.13E+07								
Shear capacity with holes									71.0	73.0
Shear capacity without holes									71.0	73.0

Deflections

span (m)	Dead Load Deflection mm	Precamber in joist mm	Drying Shrinkage Deflection mm	Superimposed Dead Load Deflection mm	Creep Deflection mm	Total Deflectio mm
1	0.02	0.00	0.15	0.00	1.00	1.17
2	0.4	0.00	0.59	0.02	1.00	1.99
3	1.9	-0.50	1.34	0.10	1.00	3.87
4	6.1	-2.00	2.37	0.33	1.00	7.79
5	14.9	-5.00	3.71	0.80	1.00	15.38
6	30.8	-10.00	5.34	1.66	1.00	28.84
7	57.1	-14.00	7.27	3.07	1.00	54.47
8	97.5	-16.00	9.50	5.24	1.00	97.20
9	156.1	-18.00	12.02	8.40	1.00	159.53



Brisbane
584 Milton Road
Cnr. Sylvan Rd
Toowong, QLD 4066
PO Box 1492
Toowong BC, QLD 4066
Phone: +61 07 3859 6600
Fax: +61 07 3871 2266
Email: bris@adgce.com

Gold Coast
Suit 201/ Level 1
1 Short Street
PO Box 208
Southport, QLD 4215
Phone: +61 07 5528 1855
Fax: +61 07 5528 4723
Email: info@adgce.com

Melbourne
22 - 204/218 Dryburgh Street
North Melbourne, Vic 3051
Phone: +61 03 9005 1464
Fax: +61 03 9328 4599
Email: info@adgce.com

Gladstone
35 Lord Street
Cnr Glenlyon St
Gladstone, QLD 4680
Phone: +61 07 4972 9455
Email: info@adgce.com

Perth
51 Forrest Street
Subiaco WA 6008
PO Box 443
Subiaco WA 6904
Phone +61 08 9373 1176
Email: info@adgce.com

Darwin
Suite 4, Level 1, TEM House
5 Edmunds Street
Darwin, NT 0800
GPO Box 2422
Darwin, NT 0801
Phone: +61 08 8986 7588
Fax: +61 08 8981 9887
Email: info@adgce.com

ADG

ISO 9001 www.intlcert.com

DURABILITY & MAINTENANCE

Compliance

When supplied and installed in accordance with the manufacturers specifications and design parameters, the SPEEDFLOOR transportable concrete floor can be reasonably expected to meet the performance criteria set out in clause B2, Durability of the New Zealand Building Code for a period of 50 years.

Serviceable Life

Speedfloor is a composite floor system using both steel and concrete. The two elements must be treated and maintained separately.

Steel

The rollformed joist and perimeter channel is manufactured from steel coated with either 275g/sqm or 450g/sqm of zinc. If they reside in a clean and dry environment they will require no maintenance. If they are exposed, they will require a minimum of maintenance to ensure the expected performance is achieved. Guidelines for this maintenance are;

1.Keep surfaces clean and free from continuous contact with moisture, dust and other debris.

2.Periodically inspect for any signs of surface corrosion. Remove any by-products of the corrosion by mechanical means and spot prime the exposed steel substrate with an approved steel primer. Repaint the area using an appropriate paint manufacturer's recommendations.

3.All cut edges will initially form a dark red by-product which will in time change to black and then to grey. This is not surface corrosion and is not detrimental to the performance of the product. It is simply a sign that zinc migration is taking place.

Concrete

Special attention is paid to the concrete mixture and the placement of the concrete in the Speedfloor system to minimise the likelihood of shrinkage cracks occurring during the initial curing period. The slump is specified at 60mm and a super-plasticiser is used to improve workability during placement. An expanding agent can be used to reduce the effect of shrinkage during the initial cure and a curing compound is used to help control the curing process.

Specifications

- Zinc coating Weight – 275g/m2 (Z275) or 450g/m2 (Z45)
- Complying with – AS 1397:2001
- Steel grade – G250, G300, G350, G450, G500 or G550
- Steel thickness range – 2.0 – 3.0 mm
- Bend diameter – G250, G300 ≥ 2T. G450, G500, G550≥4T

Galvanized steel

Galvanizing generally refers to hot-dip galvanizing which is a way of coating steel with a layer of metallic zinc. Galvanized coatings are quite durable in most environments because they combine the barrier properties of a coating with some of the benefits of cathodic protection. If the zinc coating is scratched or otherwise locally damaged and steel is exposed, the surrounding areas of zinc coating form a galvanic cell with the exposed steel and the coating essentially re-seals itself. Even for large areas the surrounding zinc continues to significantly impede corrosion of the base metal. This is a form of localized cathodic protection - the zinc acts as a sacrificial anode.

Because the galvanized coating is metal-lurgically bonded to the steel, under no circumstances can moisture travel under the coating to create an accelerated corrosion cell.

Reaction between Galvanized surface and concrete

Zinc reacts with wet concrete to form calcium hydroxyzincate accompanied by the evolution of hydrogen. This corrosion product is insoluble and protective of the underlying zinc (provided that the surrounding concrete mixture is below a pH of about 13.3). Research has shown that during this initial reaction period until coating passivation and concrete hardens occurs, some of the pure zinc layer of the coating is dissolved. However, this initial reaction ceases once the concrete hardens and the hydroxyzincate coating has formed.

BUILDING CODE PARAMETERS

Australia

The Building Code of Australia Volume 2 sets out the following requirements for coatings of steel frame products

	Area 1	Area 2	Area 3
Where	Within building envelope	Outside building envelope	Where 1 & 2 do not apply
Location	More than 300 metres from breaking surf	More than 1 kilometre from still water	
	and	and	
	Not in a heavy industrial area	More than 10 kilometres from coast with breaking surf	
		And	
		Not in a heavy industrial area	
Coating	Minimum Z275 or AZ150	Minimum Z275 or AZ150	More than Z275 or AZ150

NOTE: The building envelope is deemed to be a space in the building where the steel frame does not have direct contact with the external atmosphere, other than for normal ventilation purposes. Areas not within the building envelope include floor framing members where there is no continuous perimeter subfloor walling.

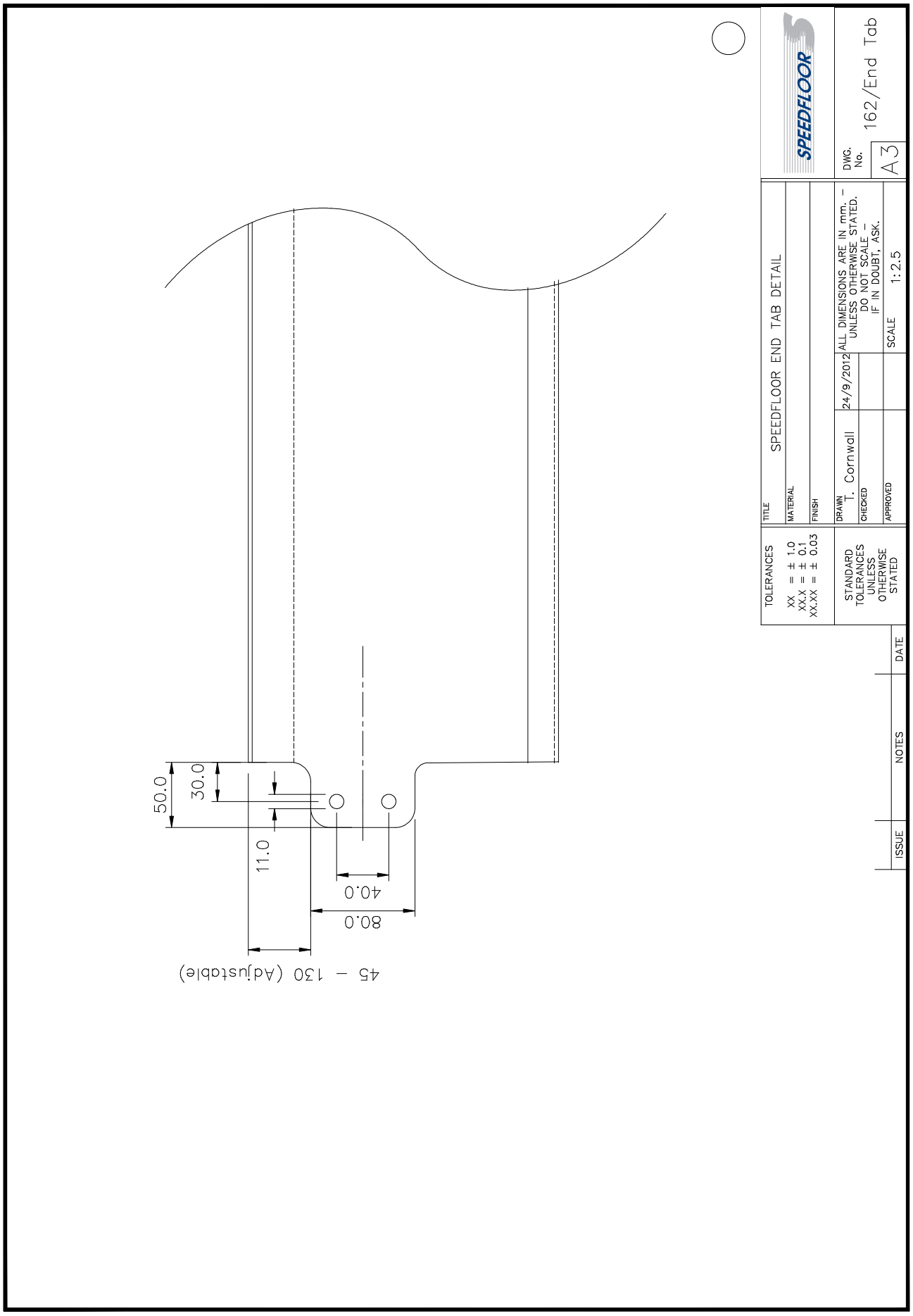
New Zealand

Corrosion map to NZS3404.1	ISO 9223	Typically	Location	Characterised by	Residential /Dry	Internal		Open front		Awning
						Damp	High humidity	Protected	Open	
Seaspray	C5	Within 200m of breaking surf	West coast, South Island	Heavy salt deposits, almost constant smell of salt spray in the air.	1	3	4	4	4	4
		Within 100m of breaking surf	West coast, North Island		1	3	4	4	4	4
		Within 50m of breaking surf	Other coasts		1	3	4	4	4	4
	C4	200m up to 500m or more inland from breaking surf. In the immediate vicinity of calm salt water such as harbour foreshores.	West coast, South Island	Medium salt deposits, Frequent smell of salt in the air.	1	3	4	4	4	4
		50m up to 500m or more inland from breaking surf. In the immediate vicinity of calm salt water such as harbour foreshores.	All other coasts		1	1	3	4	4	4
		500m to 1km from breaking surf. In the immediate vicinity of calm salt water such as estuaries.	West coast of both islands and South coast of South Island.	Little salt deposits, occasional smell of salt in the air.	1	1	3	4	4	4
Zone 1	C3	500m to 1km from breaking surf. In the immediate vicinity of calm salt water such as estuaries.	East coast of both islands, South coast of North Island and all harbours.		1	1	3	3	4	4
		1km to 20 km from salt water	West coast of both islands and South coast of South Island	Minor salt deposits, no smell of salt in the air.	1	1	3	4	4	4
		1km to 5km from salt water	East coast of both islands, South coast of North Island and all harbours.		1	1	2	3	4	4
Zone 2	C2	20km to 50km from salt water.	West coast of both islands and South coast of South Island	No marine influence.	1	1	1	2	3	3
		5km to 50km from salt water	East coast of both islands, South coast of North Island and all harbours.		1	1	1	2	3	3
Zone 3		Inland more than 50km from salt water.	Both Islands		1	1	1	1	1	1

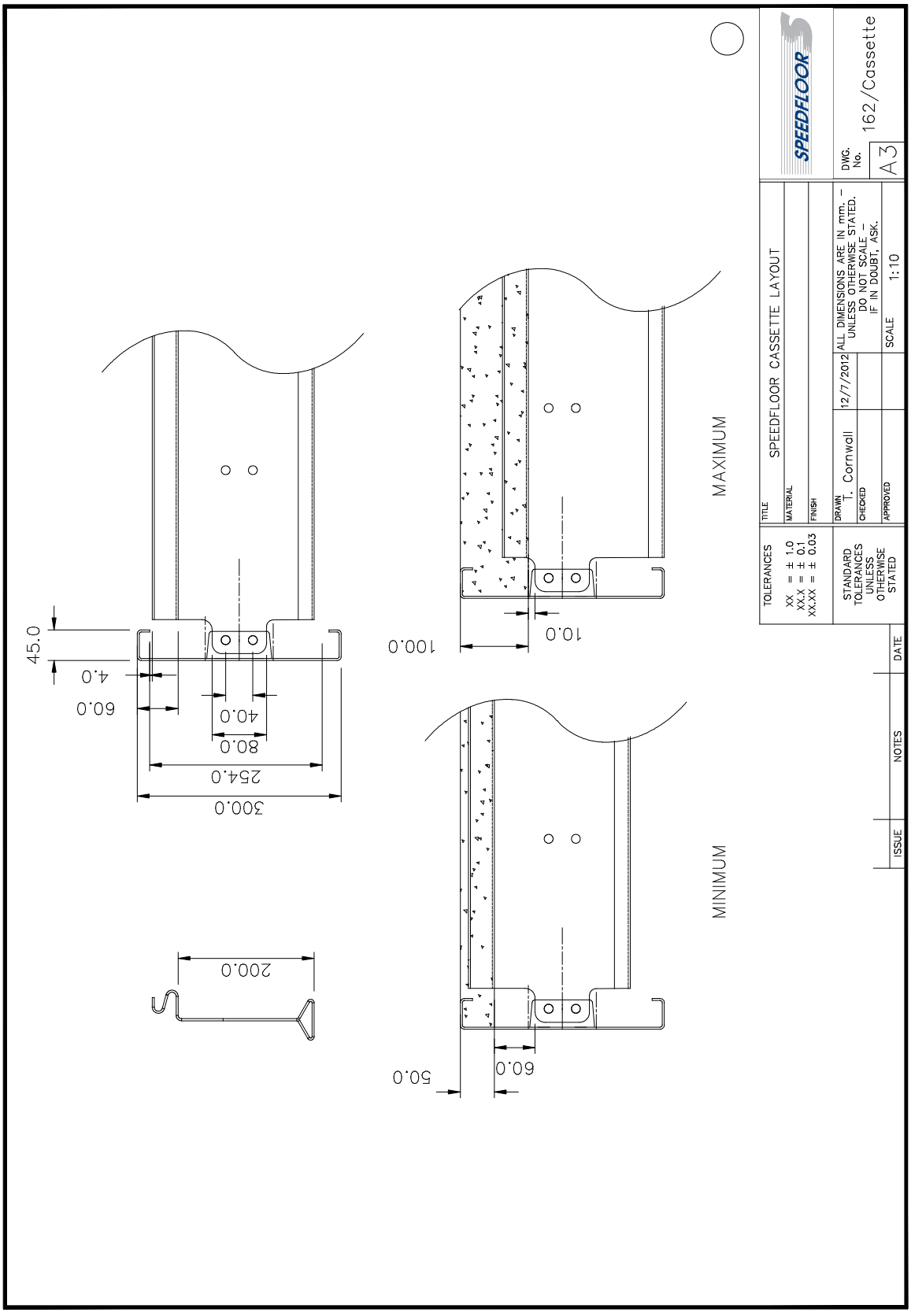
Note; all environments may be extended inland by prevailing winds and local conditions.

Key

1	Z275
2	Z450 or Z275 and one of the paint systems P1 – P5 applied when new.
3	Z275 and one of (P3, P4 or P5) applied when new, or P1 or P2 applied when new and recoated every 15 years.
4	Z275 and one of (P3, P4 or P5) applied when new and then recoated every 15 years


50.0
30.0
11.0
40.0
80.0
45 – 130 (Adjustable)
TOLERANCES
XX = ± 1.0
XX.X = ± 0.1
XX.XX = ± 0.03
STANDARD TOLERANCES UNLESS OTHERWISE STATED
TITLE
SPEEDFLOOR END TAB DETAIL
MATERIAL
FINISH
DRAWN
T. Cornwall
24/9/2012
CHECKED
APPROVED
ALL DIMENSIONS ARE IN mm. – UNLESS OTHERWISE STATED. DO NOT SCALE – IF IN DOUBT, ASK.
SCALE 1:2.5
SPEEDFLOOR
DWG. No.
162/End Tab
A3
ISSUE
NOTES
DATE

ADDITIONAL INFORMATION



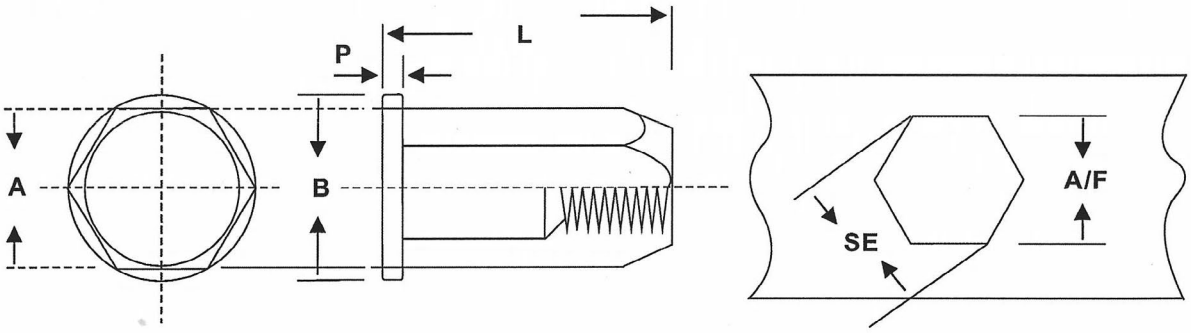
BLIND RIVET NUT

(THIN SHEET NUT-INSERT)

SPECIFICATIONS

MATERIAL: LOW CARBON STEEL
FINISH: ZINC YELLOW

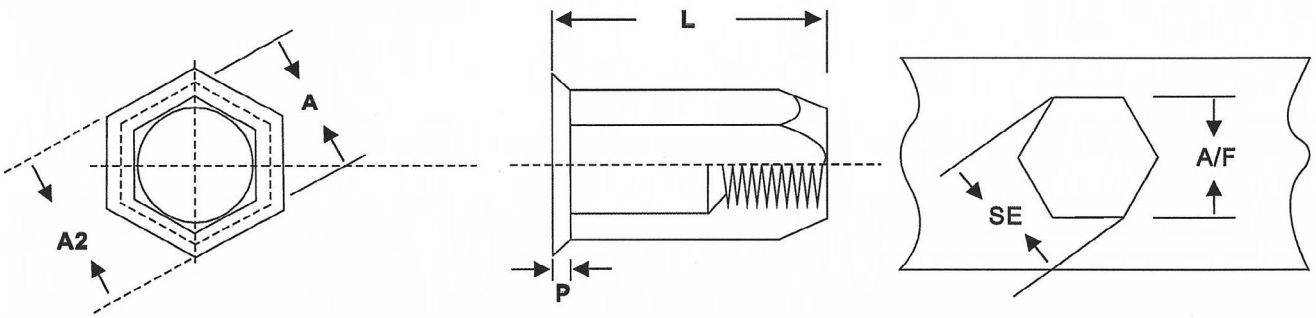
Full Hex Flat Head Type



METRIC DIMENSIONS (mm)

THREAD SIZE	ITEM NO.	A -0.2	B ± 0.3	GRIP RANGE	L +0.5/-0.3	P ± 0.3	SE Min.	HEX HOLE A/F (+ 0.2)
M4 x 0.7	HH LM4	6.0	9.0	0.5-2.5	11.1	0.8	6.8	6.1
M5 x 08	HH LM5	7.0	10.0	0.5-3.0	13.0	1.0	8.0	7.1
M6 x 1.0	HH LM6	9.0	13.0	0.5-3.0	16.0	1.5	10.3	9.1
M8 x 1.25	HH LM8	11.0	16.0	0.5-3.0	18.0	1.5	12.6	11.1
M10 x 1.50	HH LM10	13.0	19.0	1.0-4.5	24.0	2.0	14.9	13.1

Full Hex Flush Head Type



METRIC DIMENSIONS (mm)

THREAD SIZE	ITEM NO.	A +0.05/-0.1	A2 +0.2/-0.5	GRIP RANGE	L +0.5/-0.3	P ± 0.3	SE Min.	HEX HOLE A/F (+ 0.2)
M4 x 0.7	HH SM4	6.0	7.0	0.5-2.5	10.2	0.5	6.8	6.1
M5 x 08	HH SM5	7.0	8.0	0.5-3.0	12.1	0.5	8.0	7.1
M6 x 1.0	HH SM6	9.0	10.1	0.6-3.0	15.2	0.5	10.3	9.1
M8 x 1.25	HH SM8	11.0	12.0	0.7-4.0	17.8	0.6	12.6	11.1
M10 x 1.50	HH SM10	13.0	14.5	0.8-4.5	22.8	1.0	14.9	13.1