

# LYSAGHT® SMARTDEK®

**LYSAGHT**

**SMARTDEK**



  
**BLUESCOPE  
LYSAGHT**

# LYSAGHT® SMARTDEK®

## Best Metal Floor Deck Design

SMARTDEK® is a new innovative steel decking profile that brings greater economy and design freedom to building with composite concrete slabs.

It is a unique and proudly to say that our design engineers scoured the around the globe to find the best “W” – profiles in the world. After several advanced examinatiois, our engineers incorporated the best aspects of each profile into new SMARTDEK®.

The profile has been specifically developed for Australian high tensile steels – which makes SMARTDEK® one of the best performing “W” profiles in the world. This profile is designed to meet your requirement availability for diverse building needs. This resulted in a new innovative and optimized shape for SMARTDEK®, having flange stiffeners and deep embossments, which act as web stiffeners, to increase the load carrying capacity. Due to the large depth of the profile, an increase of the flexural rigidity reduces deflections.

SMARTDEK® steel sheets are permanent formwork for a suspended composite concrete slab. SMARTDEK® is a complete structural steel decking system for concrete, masonry or steel frame construction.

The effective cover width is 960mm. In the assembled state, the profile comprises two intermediate male and female ribs for every interlocking side-lap joint.

When concrete hardens, SMARTDEK® acts as the bottom reinforcement of the concrete slab. SMARTDEK® is a complete structural steel decking system for concrete, masonry or steel frame construction.



### WHY SMARTDEK®?

#### 1 Research and Development Support

BlueScope Lysaght places great emphasis on product research and testing. All of our LYSAGHT® structural products are subjected to rigorous test such as slip-block test, formwork test including shear and bearing, full scale lab test, composite slab cyclic test, fire rating test, formwork – air pressure test, formwork – four points load test and concentrated load test. These tests are carried out in the labs of the LYSAGHT Technology Center in Chester Hill, Sydney, Australia, to ensure maximum performance and quality of our decking profiles.

#### 2 Product Recommendation and Design to Suit Your Specifications

Working from your project specifications, our engineers will follow up on your requirements and work out a set of calculations and project proposal. A user friendly excel-based software for the design of composite slabs

with LYSAGHT® SMARTDEK® profile will be available to assist a competent engineer in deriving an optimal solution. This software should be used in conjunction with the SMARTDEK® Design and Construction Guide.

#### 3 Quality Assurance – Material and Manufacturing Process

The LYSAGHT® brand name is synonymous with quality and performance. As with all other LYSAGHT® products, SMARTDEK® profiled steel sheets comply with major design standards adopted across Asia.

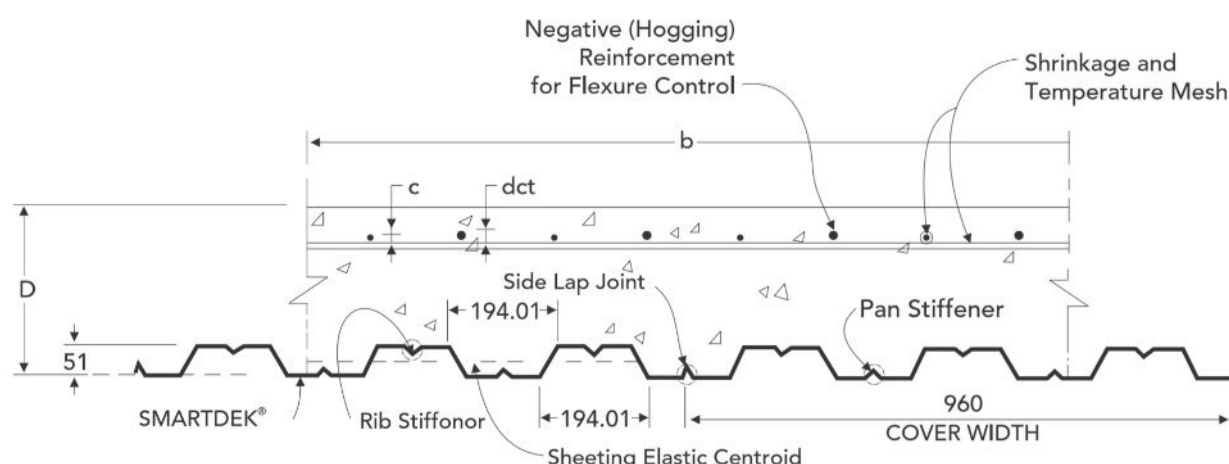
#### 4 Worldwide Project Experience

Proven track of successful worldwide project from previous profiles (POWERDEK, BONDEK, 2W-DEK, 3W-DEK) on medium to high-rise buildings give us strong knowledge for implementary SMARTDEK®, on every construction.



## SMARTDEK® PROFILE & DIMENSION

### Typical SMARTDEK® composite section



The nominal dimensions of SMARTDEK® profiled steel sheeting are shown in the figure beside.

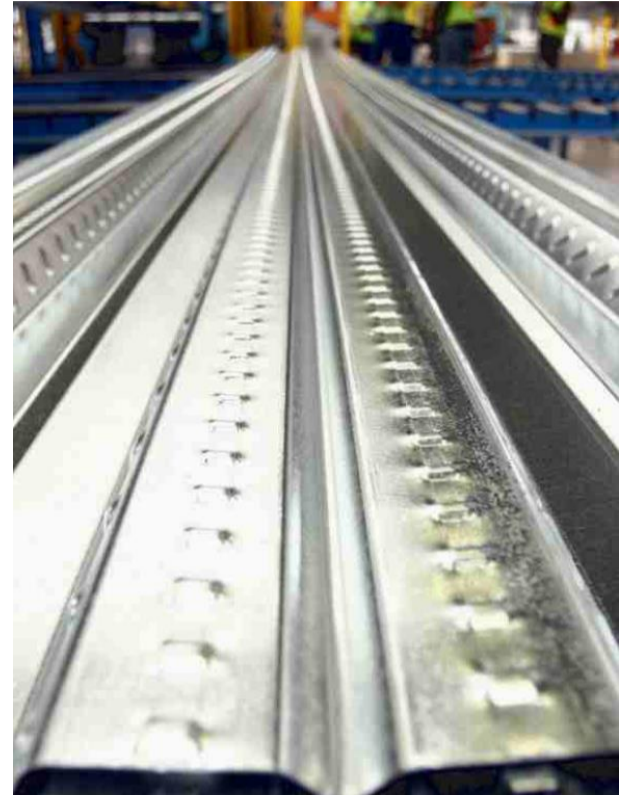
The effective cover width is 960mm. In the assembled state, the profile comprises two intermediate male and female ribs for every interlocking side-lap joint.

# PROPERTIES AND QUALITY

## MATERIAL SPECIFICATION

SMARTDEK® profiled steel sheeting is rollformed from hot-dipped, zinc-coated, chromate-passivated, and high-strength grade steel strip.

Thickness (mm)		Coating Mass (total on both sides)	Yield Strength	Standard
BMT	TCT			
0.70	0.75	Zinc-coated 275 gr/m <sup>2</sup>	550 MPa	AS1397-2001
1.00	1.05		550 MPa	JIS G3302 & G3321 ASTM 653 & 792
1.20	1.25		450 MPa	BS EN 10142 & 10147 & 10215:2000



## SECTION PROPERTIES TABLE

	Unit	Symbol	Base Metal Thickness – BMT (mm)		
			0.70	1.00	1.20
Area	mm <sup>2</sup> /mm	A	889.69	1269.7	1523.96
Inertia Moment	mm <sup>4</sup> /m	Ix <sup>1</sup>	409375.50	584791.00	701979.17
Section Modulus	mm <sup>3</sup> /m	Zx <sup>1</sup>	16974	24357.17	29330.33
Mass	kg/m <sup>2</sup>		7.38	10.34	12.33

## SMARTDEK® FEATURES & BENEFITS

Feature	Benefit	
	Technical	Commercial
<b>G550</b>	Increase free span Stiffer profile no indentation after support removed	Less support Saving cost for formwork
<b>3 mm Embossment</b>	Better composite action Able to receive high intensity of loading without additional bottom reinforcement	Optimize reinforcement design Optimize overall design
<b>960 mm Effective Width</b>	Fit with most column grid, no waste	Saving cost for material waste Less on-site cutting needed, improve safety
<b>MEGAFLOOR® Software</b>	Powerful tool to design decking as formwork and composite	Less time and resources to design composite slab



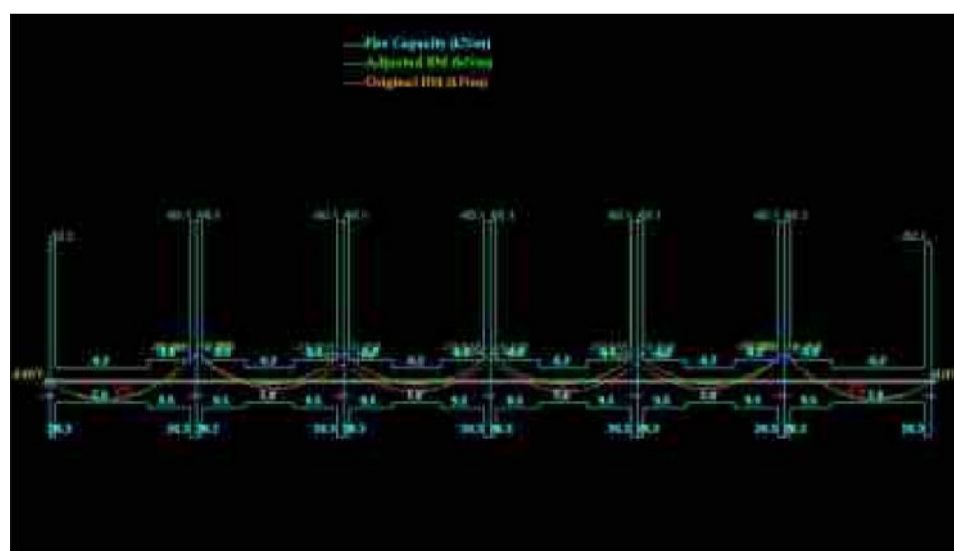
## MEGAFLOOR® SOFTWARE

SMARTDEK® is supported by excellence and PC based design software.

MEGAFLOOR® software is an ultimate tool to design decking as formwork and composite for optimum result using empirical equation.

Becomes ultimate tool to design decking as formwork, composite and fire.

Fast in designing composite slab. Less resource for planning the usage of SMARTDEK®.

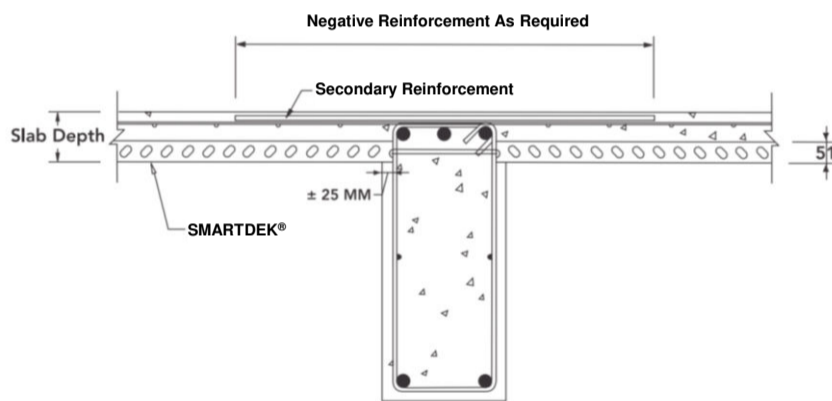


# INSTALLATION AND PROPERTIES

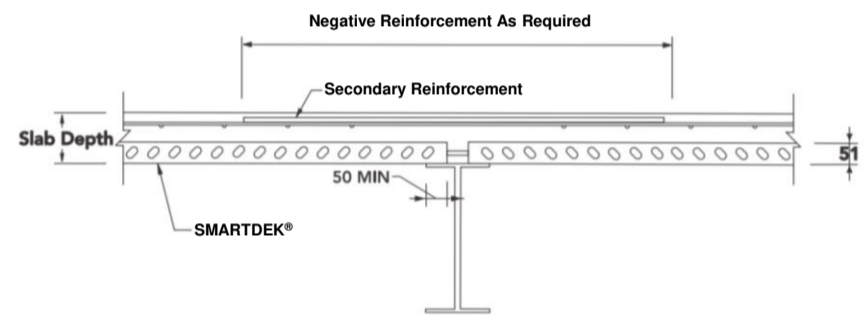
## SMARTDEK® SPAN TABLE (FORMWORK STAGE)

Span Type	Single			Continuous End			Continuous Interior		
	0.70	1.00	1.20	0.70	1.00	1.20	0.70	1.00	1.20
<b>BMT</b>	<b>0.70</b>	<b>1.00</b>	<b>1.20</b>	<b>0.70</b>	<b>1.00</b>	<b>1.20</b>	<b>0.70</b>	<b>1.00</b>	<b>1.20</b>
100	2380	2740	2800	2640	3410	3200	2640	3280	3200
110	2310	2650	2780	2550	3320	3110	2550	3170	3110
120	2230	2570	2700	2470	3230	3020	2470	3070	3020
130	2170	2500	2620	2400	3150	2930	2400	2990	2930
140	2110	2430	2560	2330	3080	2850	2330	2900	2850
150	2060	2370	2500	2270	3000	2770	2270	2800	2770
160	2010	2330	2440	2210	2930	2700	2210	2710	2700
170	1960	2260	2390	2160	2850	2640	2140	2630	2640
180	1920	2230	2340	2110	2790	2580	2080	2550	2580
200	1840	2150	2180	2030	2670	2470	1870	2300	2470

### Installation on Concrete Frame Construction



### Installation on Steel Frame Construction



## SMARTDEK® INSTALLATION PROCESS



1 Open SMARTDEK® sheet bundles



2 Place temporary support if required



3 Trim SMARTDEK® sheets if required



4 Place on steel or concrete beam



5 Fix SMARTDEK® to steel or concrete beam if required



3 Trim SMARTDEK® sheets if required



7 Fix steel edge form



8 Place reinforcement



9 Pour concrete

# TEST, FEATURE AND BENEFIT

## INTERNATIONAL TEST

Formwork Test, Composite Test & Fire Test



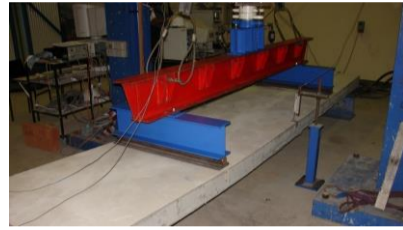
Formwork – Point Load



Formwork – Air Pressure Test



Composite – Slip Block Test



Composite – 5000 Cyclic Load Test



Fire Test – BRANZ



Fire Test – Victoria University

## LOCAL TEST

AT BANDUNG INSTITUTE OF TECHNOLOGY (ITB)

Formwork Test, Composite Test, Fire Test & Vibration Test

Vibration Test



Fire Test



## PROJECT REFERENCES



Blok M Square



Citra Mall Batam



Pacific Place Office Tower



Ministry of Religious Affair



Kievit Factory Salatiga



Central Park Outdoor



Arcadia Office Building



Yarn Factory Sidoarjo



Summarecon Mall Serpong



IKEA Alam Sutera



Omni International Hospital Serpong

### OTHER PROJECTS

**Shopping Center:** Blok M Square, Summarecon Mall Serpong, Summarecon Mall Bekasi, Citra Mall Batam, Central Park, IKEA Alam Sutera, Trans Studio Bandung | **Office:** Pacific Place Office Tower, Eminence Dharmawangsa, Gudang Garam Tower, ANTAM Tower, WTC II Sudirman Tower, Ministry of Religious Affair | **Industrial:** KIEVIT Factory Salatiga, Yarn Factory Sidoarjo | **Facilities:** OMNI International Hospital Serpong, Sepinggan International Airport Balikpapan

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