

LYSAGHT® SMARTDEK®

LYSAGHT



We're Your Best Partner for Your Roofing/Walling Solution





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

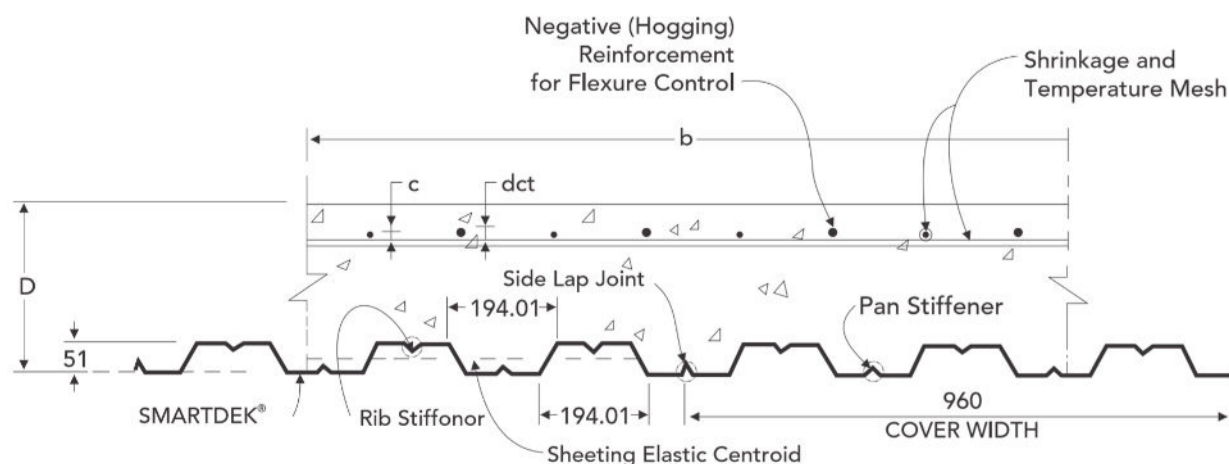
Proven track of successful worldwide project from previous profiles (POWERDEK, BONDEK, 2W-DEK, 3W-DEK) on medium to high-rise buildings give us strong knowledge for implementary SMARTDEK®, on every construction.

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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.

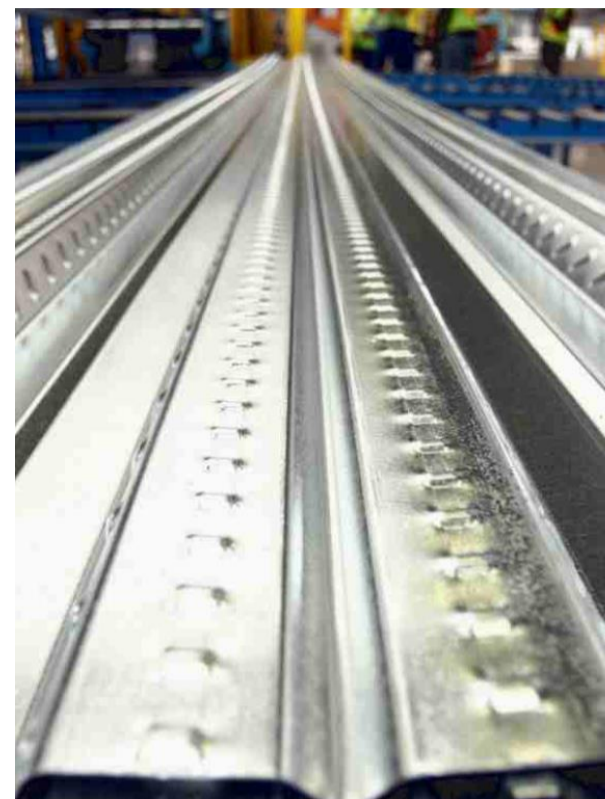


PROPERTIES AND QUALITY

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 ² | 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 ² /mm | A | 889.69 | 1269.7 | 1523.96 |
| Inertia Moment | mm ⁴ /m | Ix ¹ | 409375.50 | 584791.00 | 701979.17 |
| Section Modulus | mm ³ /m | Zx ¹ | 16974 | 24357.17 | 29330.33 |
| Mass | kg/m ² | | 7.38 | 10.34 | 12.33 |

SMARTDEK® FEATURES & BENEFITS

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



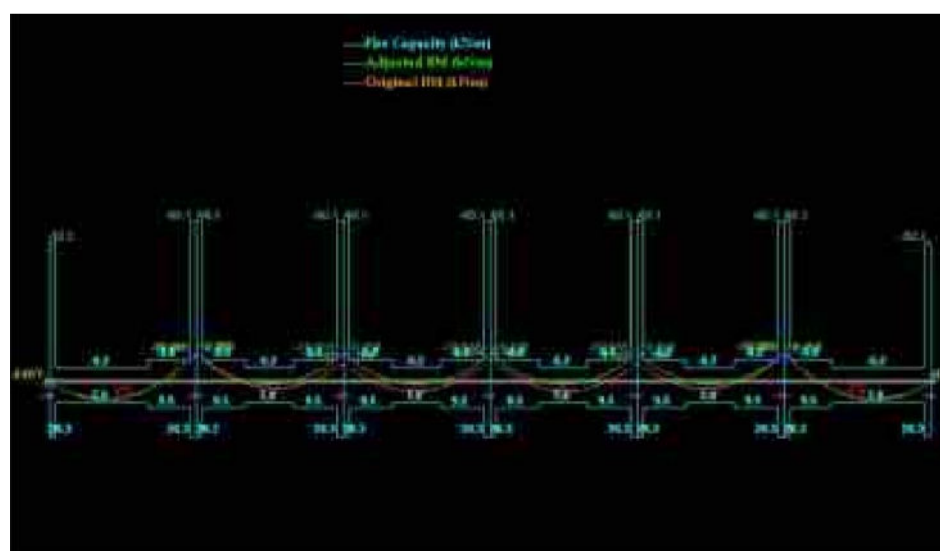
MEGAFLOOR® SOFTWARE

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®.



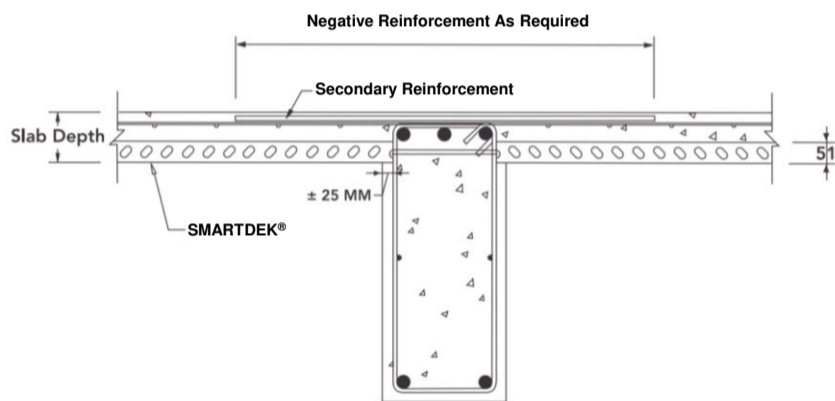


INSTALLATION AND PROPERTIES

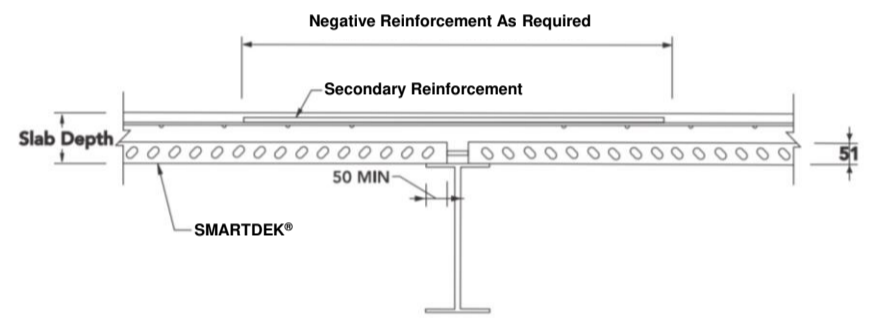
SMARTDEK® SPAN TABLE (FORMWORK STAGE)

| Span Type | Single | | | Continuous End | | | Continuous Interior | | | |
|---------------------|-------------|-------------|-------------|----------------|-------------|-------------|---------------------|-------------|-------------|------|
| | | | | | | | | | | |
| BMT | 0.70 | 1.00 | 1.20 | 0.70 | 1.00 | 1.20 | 0.70 | 1.00 | 1.20 | |
| Slab Thickness (mm) | 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



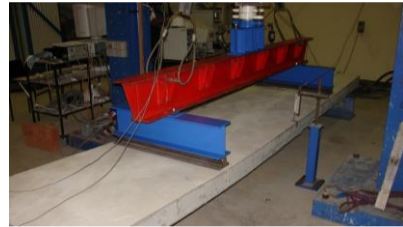
Formwork – Point Load



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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