Multideck 206 C
Pre-Coated Steel Floor Decking System
Royal Wolverhampton NHS Trust, Wolverhampton, UK. Image courtesy of HUBER car park systems international GmbH.
Structural Products & Systems, a sub-division of Kingspan Insulated Panels, is one of Britain's leading designers and manufacturers of structural steel components for the construction industry. Based in Sherburn, North Yorkshire, we operate one of the largest and most advanced production complexes in Europe, manufacturing over 50,000 tonnes of steel products each year. In five decades of trading, we have become an established market leader, renowned for our quality products and innovative designs.

Multideck 206 C Floor Decking System
Multideck 206 C is the newest addition to our Multideck range of steel floor decking systems, combining the benefits of a strong trapezoidal-profiled system with bar-reinforced concrete to produce a long-spanning deck of up to 5.5m that’s ideally suited to car park applications.

This trapezoidal profiled system is manufactured from steel coil, protected by a zinc layer and coated in a protective outer paint layer. This added paint layer not only creates the opportunity to introduce colour to the soffit of the deck, but also protects the exposed floor deck from corrosion; prolonging lifespan and enhancing aesthetic appearance. Multideck 206 C is available in any standard RAL colour (subject to minimum order quantity) to help achieve the desired effect. This added paint layer not only creates the opportunity to introduce colour to the soffit of the deck, but also protects the exposed floor deck from corrosion; prolonging lifespan and enhancing aesthetic appearance. Multideck 206 C is available in any standard RAL colour (subject to minimum order quantity) to help achieve the desired effect.

Trapezoidal deck profiles, due to their superior spanning capabilities, are given preference by architects and engineers in the design of multi-storey buildings. Our trapezoidal profiled floor deck systems are engineered to enhance steel and concrete performance, and span further than other trapezoidal decks of equivalent slab depth available on the market.

Multideck 206 C supports normal weight concrete, on spans of up to 5.5m, without the need for temporary props; offering quick, efficient installation and producing a robust support for the casting of concrete and subsequent floors.

Furthermore, Multideck 206 C can reduce the amount of concrete required by up to 40% compared to a comparable reinforced concrete construction. A reduction in concrete volume inevitably results in quicker laying times and, on large projects such as multi-storey car parks, can even decrease the number of concrete deliveries needed to site. A lighter concrete slab could result in the use of smaller, less-costly supporting structure and foundations; providing the potential for further economic savings.

Application
Multideck 206 C provides a shallow floor slab solution that results in a smaller floor zone and lower overall building height; making it the ideal floor deck solution for a range of car park applications.

Features & Benefits
- Deck depth of 205mm.
- Minimum slab depth of 80mm above beam flange.
- Spans up to 5.5m unpropped.
- 1.00mm, 1.25mm and 1.50mm gauges are available.
- Low-slab weight achieves a saving in concrete, main frame and foundations.
- Pre-coated steel provides excellent resistance to corrosion, and is available in a range of colours to suit project specific design requirements.
- No need for temporary props - offering quick and efficient installation.
- Our Technical Services Department provides an engineering and advisory service to specifiers and end users on the use of the Multideck range of composite decks.

For information on the full range of Multideck floor decking systems (including Multideck 50-V3, 60-V2, 80-V2 and 146) please refer to the Kingspan Multideck Technical Handbook.
Material Specification
Multideck 206 C is manufactured from one continuous steel strip and complies with BS EN 10143: 2006 and BS EN 10326: 2004.

Reinforcement
Mesh or bar reinforcement of the concrete slab and shear links at all supports is required to control cracking. Steel reinforcement for crack control in the concrete should be in accordance with the appropriate National Standards.

Concrete Volumes and Specification
Grade C25/30 concrete. Density of normal weight concrete is 2500kg/m³ at wet stage.

Coatings
Standard coating consists of PLADUR SP, 25μm polyester, available in a wide range of colours, to soffit and RSL backcoat with HF Hard-PVC-Foil to concrete side. Please contact our Technical Services Department for more information.

Load / Span Tables
Project-specific load span data is available upon request. Please contact our Technical Services Department for more information.

Fire Performance
Multideck 206 C, together with the reinforced concrete slab, can be designed for fire periods from 90 minutes through to 120 minutes.

Where the Multideck 206 C reinforced concrete slab is used in a car park with open side walls, the required fire protection period is normally limited to 30 minutes. In most cases the standard Multideck 206 C reinforced concrete slab is suitable for a fire period of 30 minutes.

Where the fire period required is greater than 30 minutes, additional fire reinforcement may be required in the concrete slab and over the supports.

Profile and Dimensions

Gauge:
1.00mm, 1.25mm, 1.50mm
### Section Properties per Metre Width

<table>
<thead>
<tr>
<th>Nominal Thickness (mm)</th>
<th>Self Weight (kg/m²)</th>
<th>Second Moment of Area (cm⁴/m)</th>
<th>Steel Area (mm²/m)</th>
<th>Ultimate Moment Capacity Sagging (kNm/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>13.05</td>
<td>0.128</td>
<td>653</td>
<td>7.68</td>
</tr>
<tr>
<td>1.25</td>
<td>16.31</td>
<td>0.160</td>
<td>855</td>
<td>9.68</td>
</tr>
<tr>
<td>1.50</td>
<td>19.57</td>
<td>0.192</td>
<td>1030</td>
<td>11.70</td>
</tr>
</tbody>
</table>

### Volume and Weight of Composite Slabs on Multideck 206 C

<table>
<thead>
<tr>
<th>Slab Depth (mm)</th>
<th>Overall Slab Depth (mm)</th>
<th>Concrete Volume (m³/m²)</th>
<th>Weight (kN/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>285</td>
<td>0.113</td>
<td>2.724</td>
</tr>
<tr>
<td>85</td>
<td>290</td>
<td>0.118</td>
<td>2.844</td>
</tr>
<tr>
<td>90</td>
<td>295</td>
<td>0.123</td>
<td>2.964</td>
</tr>
<tr>
<td>95</td>
<td>300</td>
<td>0.128</td>
<td>3.084</td>
</tr>
<tr>
<td>100</td>
<td>305</td>
<td>0.133</td>
<td>3.204</td>
</tr>
<tr>
<td>105</td>
<td>310</td>
<td>0.138</td>
<td>3.324</td>
</tr>
<tr>
<td>110</td>
<td>315</td>
<td>0.143</td>
<td>3.444</td>
</tr>
<tr>
<td>115</td>
<td>320</td>
<td>0.148</td>
<td>3.564</td>
</tr>
<tr>
<td>120</td>
<td>325</td>
<td>0.153</td>
<td>3.684</td>
</tr>
</tbody>
</table>

Notes:
1. Important - concrete volumes do not take into account deflection.
2. Excludes weight of steel decking and relates only to weight of concrete.
3. Concrete volumes are based upon a calculated minimum value (nominal slab depth). Account should be taken of deck and supporting structure deflections.
Multideck 206 C Assembly

Multideck 206 C is typically suspended on 35mm x 25mm steel cleats, welded to the top flange of the supporting beams.

Shear studs can be welded directly to the top flange of the steel beam in the fabrication shop, allowing the top flange of the steel beam to be painted, or for the whole beam to be hot-dip galvanised, both of which enhance the corrosion protection of the main steel.

Multideck 206 C is a single span floor deck system, spanning between beams, and must not be supported on the bottom of the ribs or propped during construction.

Multideck 206 C Assembly Detail

Reinforced Concrete Ribbed Slab

Z-Profile

Plastic Sealing Cap

Stud Shear Connector

Steel Bar Cleat

Steel Composite Girder

Mesh Reinforcement

Longitudinal Reinforcement in the Span

Multideck 206 C Steel Floor Deck

Sealing of Upper Chord

Z-Profiles

Sealing of Rib

Sealing Caps

Multideck 206 C Assembly
Multideck 206 C Construction Details
Steel Bar Cleats

35mm x 25mm steel bar cleats are fillet-welded to the top flange of the steel beam. The cleat projects a minimum of 60mm from the edge of the beam flange, and the Multideck 206 C steel floor deck hangs from the cleats and is held in place with a shot-fired nail.

The steel bar cleats are positioned at 550mm - 200mm - 550mm - 200mm along the beam. Where the deck edge starts and finishes as a part width, the edge is supported by a continuous hot-rolled edge angle. Multideck 206 C deck sheet ribs can be supported at a minimum of 190mm and a maximum of 210mm, where it is necessary to change the cover of the deck.
When designing multi-storey car parks, various design layouts must be taken into account to ensure that maximum economic efficiency, performance and durability is achieved.

Design and specification relies primarily on the nature of use, and a distinction is drawn between distributed volumes of traffic (e.g. shopping centres) and peak volumes of traffic (e.g. staff car parks).

Multideck 206 C is suitable for various car park applications, including:

- Single-storey car parks with a single parking area above street level are one of the simplest and most economic solutions with Multideck 206 C. In most cases this type of car park is used to extend existing facilities, and foundations / supports can be designed to allow for the future addition of further levels.
- Flat car parks featuring multi-storey parking areas with separate internal or external access ramps. This type of car park is particularly suited to large areas designed to withstand distributed and peak volumes of traffic.
- Split-level car parks with mezzanine parking levels linked by short access ramps are the most commonly-used type. The flexible design ensures maximisation of space and ensures a smooth flow of traffic.
- Ramped car parks, used mainly for long buildings, where parking levels are inclined (access and exit ramps are not required) to maximise space and achieve the required number of storeys. This type of car park is not suitable for rapid traffic flow, but is considered the most user friendly due low-sloping access.

**Practical Car Park Spaces**

The use of Multideck 206 C, with it’s deeper deck and further spans, reduces the number of columns and supporting steelwork required, allowing for a more practical and effective use of space. Different coloured coatings can also be used to differentiate between floor levels. The result? An open, bright and welcoming environment for car park users.

**Lighting**

Kingspan Smart-Lite Linear offers a range of utility lighting modules that is ideal for car park applications. This durable LED luminaire delivers a tough, tamper-resistant and easy-to-install module that offers significant energy savings compared to traditional fluorescent lighting.
SEGRO
Slough, UK

Commercial

Project Type:
Car Park, New Build

Design & Build Contractor:
HUBER car park systems international GmbH

Products Used:
- Multideck 206 C Structural System

Images courtesy of HUBER car park systems international GmbH
Health

Project Type:
Car Park, New Build

Design & Build Contractor:
HUBER car park systems international GmbH

Products Used:
- Multideck 206 C Structural System

Images courtesy of HUBER car park systems international GmbH
Technical Services
Our technical engineers are a key part of our design and development process, providing a wide range of technical support and working with customers on an individual project basis to ensure that the correct products are specified and ordered.

Multideck 206 C, and its use, is covered by the European Technical Approval ETA-10/0113. A full detailed engineered design, including fire performance, can be requested through the Multideck 206 C design request form at: www.kingspanstructural.com/206cdesign.

UK
Tel: +44 (0) 1944 712000
Email: technical3@kingspanpanels.com

Ireland
Tel: +353 (0) 42 96 98529
Email: technicalkc@kingspan.net

Quotes
To receive a quote and expected lead times for your project requirements, please call one of our team on:

UK
Tel: +44 (0) 1944 712000
Email: marketing@kingspanstructural.co.uk

Ireland
Tel: +353 (0) 42 96 98555
Email: quotationskc@kingspan.net

Marketing Support
Our marketing team aims to provide a fast turnaround on literature requests, eliminating delays with material planning and client approval.

UK
Tel: +44 (0) 1352 717251
Email: info@kingspanpanels.com

Ireland
Tel: +353 (0) 42 96 98540
Email: info@kingspanpanels.com

Area Sales Managers
To find your nearest area sales manager, simply visit: www.kingspanstructural.com/asm

Approved Installers
MSW (UK) Ltd
Tel: +44 (0) 115 946 2316
Email: sales@mswukltd.com

Raised Floor Solutions Ltd
Tel: +44 (0) 1695 555 070
Email: enquiries@raisedfloor.co.uk

Composite Design Ireland LLP
Tel: +44 (0) 28 8224 8046
Email: info@compositedesign.ltd.uk