



**REPPPEL**

specialist building solutions



**LEWIS<sup>®</sup>**  
*Metal Deck*

LEWIS<sup>®</sup> Metal Decking solutions are used in a range of applications including renovations and conversions, traditional new build, timber frame, steel frame and other off-site building systems, ICF and modular construction and mezzanine floors.



## Our Story

Our healthy commercial spirit has been the basis of REPPEL's success for more than 90 years: seeing and seizing opportunities, listening carefully to customers and devising solutions. The expertise we have built up over the years is reflected in our products and innovations, which lead to light and economical solutions. The determined approach and substantive knowledge of our experts have made REPPEL an established and decisive player in the international flooring market. Indispensable is that we maintain relationships faithfully. We cherish our customers and partner companies. We believe that equal cooperation is of great importance. Construction site support plays a crucial role in our service provision and customer focus. This varies from proactive thinking to physical presence on the construction site.



## About Us

At Reppel, our mission is to assist you with the right flooring construction for Modular, Volumetric, Light Steel, and Hot Rolled Buildings. Our Lewis Deck product has been rigorously tested for loadbearing performance, seismic resilience, and fire safety.

More than just a product supplier, we're your dedicated partner with a wealth of knowledge and years of experience. Whether you need solutions for floors, balconies, cinemas, car parks, roofs, facades, or any other architectural feature, we're here to help you design and implement solutions tailored to your needs, all while contributing to the overall success of your projects.

## Sustainability

Raw materials are always used in a responsible and effective manner when realising our LEWIS® floor solutions.

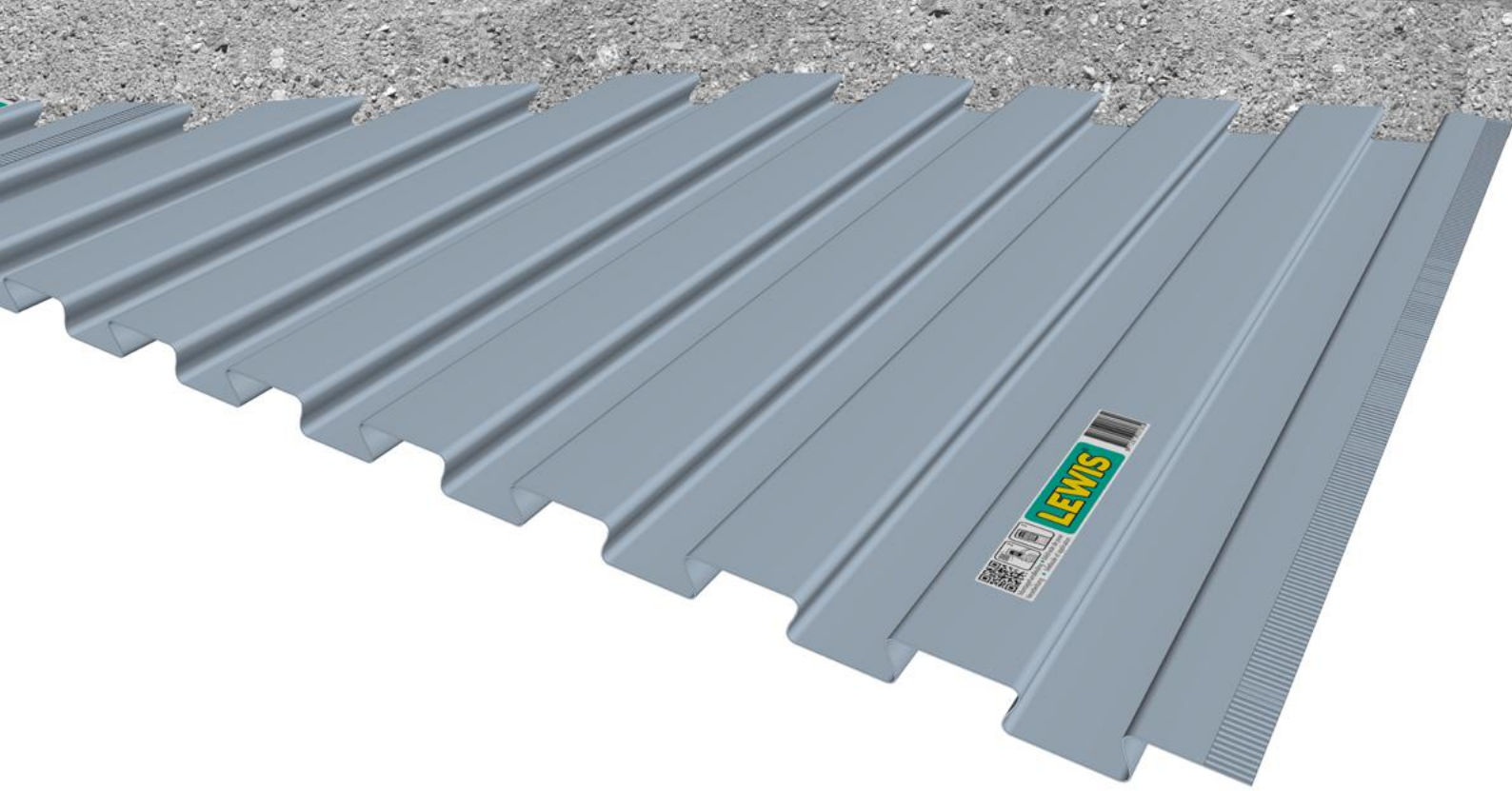
Our LEWIS® Metal Decking allow you to build a light construction floor while minimising the use of concrete. The high quality steel of the LEWIS® sheet is 100% recyclable. Because less concrete is used, and many m<sup>2</sup> of floor can be transported to a project location in one logistical movement, our LEWIS® floor solutions are able to reduce CO<sub>2</sub> emissions.

Our smart construction solutions allow us to reduce our impact on the climate and our living environment.

## TECHNICAL DETAILS LEWIS® METAL DECKING

Nominal width	630 mm
Effective width	580 mm
Length range	800 - 7000 mm
Dimensional tolerances	length: 1 - 4 mm width: 1 - 3 mm
Moment of inertia	$I_x = 3.6 \text{ cm}^4/\text{m}^1$
Moment of resistance	$W_x = 3.0 \text{ cm}^3/\text{m}^1$
Steel gauge	0.5 mm
Height of profile	16 mm
Flange width	38 / 34 mm
Weight	0.058 kN/m <sup>2</sup>

Material Grade: SS 340 Class 1 as per ASTM A653. Coating (GSM) ≥ 120 hot dip galvanized



## LEWIS® METAL DECKING

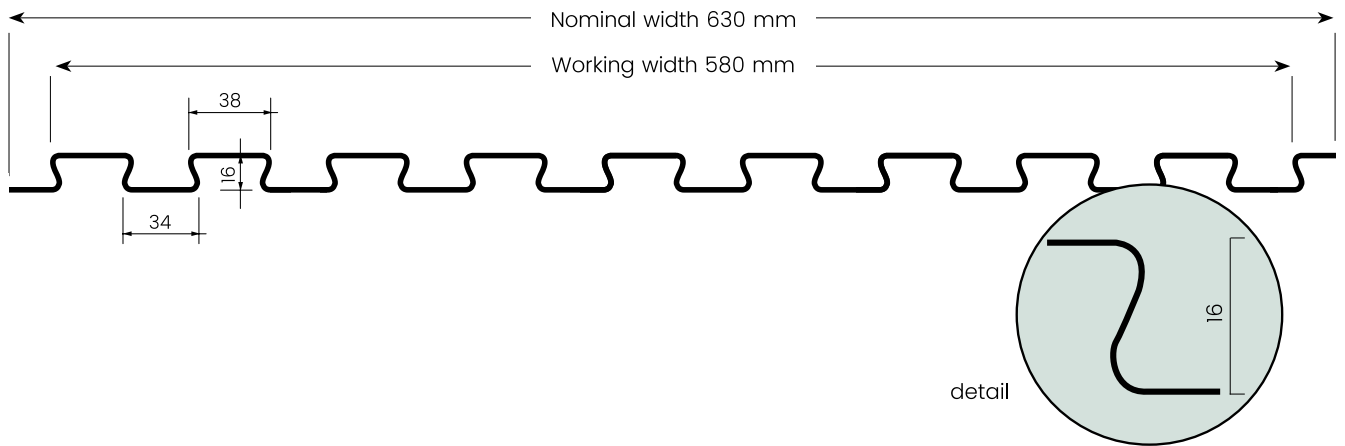
LEWIS® dovetailed metal decking is a self supporting, light gauge galvanised steel reinforcement sheet, used for shuttering and reinforcing lightweight concrete or screeded floors of limited thickness

A LEWIS® composite floor consists of the LEWIS® cold rolled steel sheet covered with a relatively thin layer of C20/25 fine grade aggregate concrete or CA25 F4 free flowing, selflevelling, liquid screed. During the curing period the LEWIS® deck acts as shuttering, but once the concrete/ screed has cured, locking into the LEWIS® deck it forms an extremely strong, composite, structurally sound floor, i.e. it becomes reinforcement for the concrete/screed. The use of fine grade aggregate concrete can also provide a monolithic finish to provide a “finished floor” option. The overall depth of a LEWIS® composite floor can be relatively thin – 50 mm in most cases.

### Fire Resistance

LEWIS® Dovetailed Sheeting makes it possible to design a composite floor meeting the standards without complicated details. Generally a fire resistance of 60 – 120 minutes is achievable with all standard LEWIS® details. Fire tests certification meeting EN 13501-2 are available.

## PROFILE AND DIMENSIONS (mm)

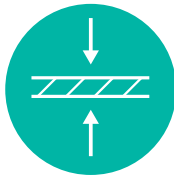


## LEWIS<sup>®</sup> METAL DECKING

The unique LEWIS<sup>®</sup> profile with its optimal geometry provides a composite action between the LEWIS<sup>®</sup> deck and the concrete/screed ensuring an extremely high load bearing capacity. Due to the dimensional accuracy of the profiling, the LEWIS<sup>®</sup> sheets fit together perfectly. During construction, the LEWIS<sup>®</sup> floor can be walked on safely, even with larger spans between the joists.



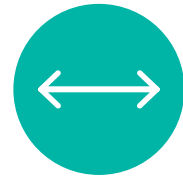
Low dead load  
from 0.90 kN/m<sup>2</sup>



Floor thickness  
from 50 mm



High permissible  
loads



Spans of up  
to 2500 mm



High Impact &  
airborne sound  
insulation



Up to 120  
minutes fire  
resistance



Flexible  
system  
construction



Manufactured  
from high quality  
steel



Sustainable and cost  
reducing solution



Easy to  
install

## Load Bearing Capacity

The LEWIS® dovetailed profile has optimized geometry as a result of which the composite action between the LEWIS® metal sheeting and the fine gravel concrete or liquid screed ensures the highest possible load bearing capacity.

### CONSTRUCTION PHASE

Table 1: Maximum span without propping

		△ — △ single span	△ — △ — △ double span
<b>deflection L/180</b>			
Weight concrete		24 kN/m <sup>3</sup>	24 kN/m <sup>3</sup>
slab depth D in (mm)	50	1050	1400
	75	1000	1300
	100	950	1200
		△ — △	△ — △ — △
<b>deflection L/250</b>		<b>single span</b>	<b>double span</b>
Weight concrete		24 kN/m <sup>3</sup>	24 kN/m <sup>3</sup>
slab depth D in (mm)	50	950	1200
	75	900	1150
	100	850	1100

## SERVICE PHASE

**Table 2:** Permissible uniformly distributed load

span L in (mm)	slab depth D in (mm)	permissible load Qk in kN/m <sup>2</sup> (excl. partial factor)
600	50	36,2
900	50	22,7
1200	50	14,8
1500	50	10,6
2000	75	11,3
2500*	75	8,2

**assumptions:**

- concrete strength class C20/25
- partial factors  $\xi_{yQ} = 1,25$  en  $\gamma_Q = 1,5$  (consequence class CC2)

**Table 3:** Permissible concentrated load

span L in (mm)	slab depth D in (mm)	permissible concentrated load Qk in (kN) excl. partial factor			
		no free edges		free edges	
		unreinforced	reinforced*	unreinforced	reinforced*
600	50	3,8	5,7	2,3	3,3
900	50	3,6	5,5	2,2	3,2
1200	50	3,5	5,4	2,1	3,1
1500	50	3,4	5,3	2,0	3,1
2000	75	4,4	6,5	**	3,6
2500*	75	4,2	6,3	**	3,5

\* reinforcement mesh  $\varnothing 5 - 150$  (Q131) or  $\varnothing 6 - 200$  (A142)

\*\* failure mode transverse bending is not considered for these spans

**assumptions:**

- partial factors  $\xi_{yQ} = 1,25$  en  $\gamma_Q = 1,5$  (consequence class CC2)
- load area dimensions 50 mm x 50 mm
- concrete strength class C20/25

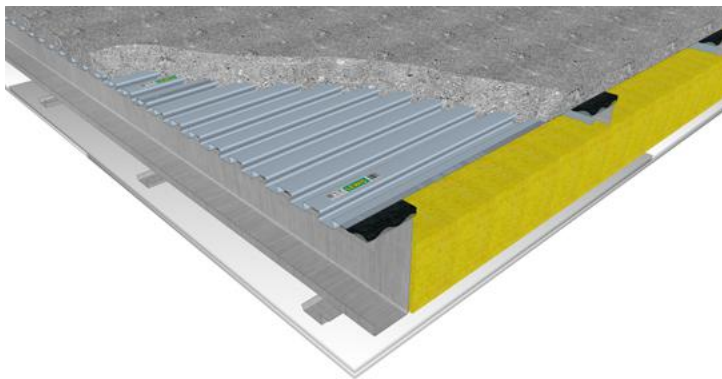


# LEWIS® Acoustic Floors

To improve the acoustic characteristics of the LEWIS® floor system it is possible to create a floating floor by means of using LEWIS® resilient strips under the LEWIS® Dovetailed metal sheeting. The strips can be laid onto the floor boards (over the joists) or directly on the joists.



## LIGHT STEEL FRAMING WITH MTA 15/7



LEWIS® Deck	50 mm (107 kg/m <sup>2</sup> )
CDM MTA 15/7	15 x 98 mm
LSF C-joists	200 x 100 mm c.t.c. 600 mm
Mineral wool	140 mm
Spring stirrups	27 mm
Gypsum board	2 x 12,5 mm

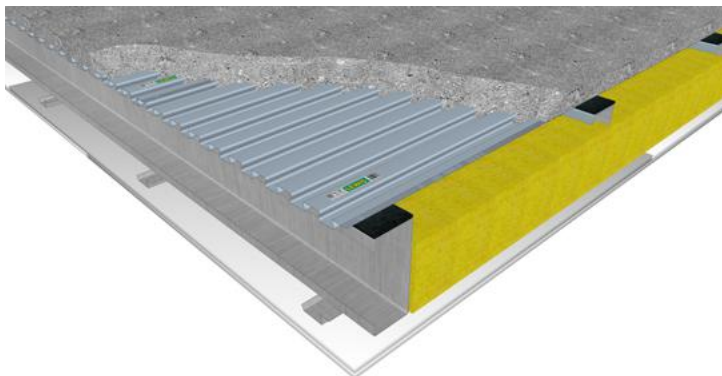
### Airborne sound

R<sub>w</sub> (C<sub>100-3150</sub>, C<sub>tr 100-3150</sub>) 70 (-3,-9)dB  
 D<sub>nT,w</sub> + C<sub>tr</sub> 57 dB  
 STC 71

### Impact sound

L<sub>n,w</sub> (C<sub>1 100-2500</sub>, C<sub>1 50-2500</sub>) 48 (-3,0)dB  
 L<sub>nT,w</sub> 52 dB  
 IIC 62

## LIGHT STEEL FRAMING WITH MTA 5



LEWIS® Deck	50 mm (107 kg/m <sup>2</sup> )
CDM MTA 5	5 x 80 mm
LSF C-joists	200 x 100 mm c.t.c. 600 mm
Mineral wool	140 mm
Spring stirrups	27 mm
Gypsum board	2 x 12,5 mm

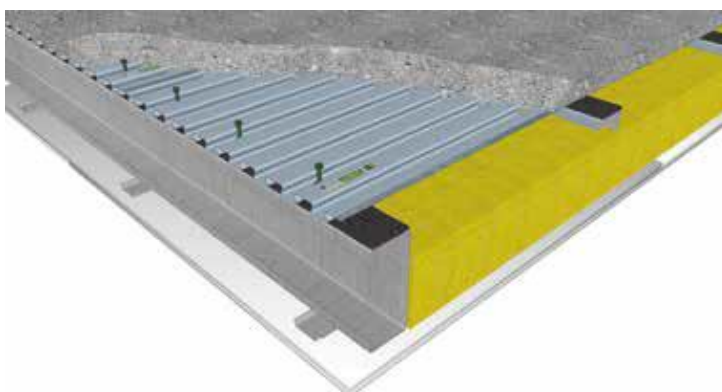
### Airborne sound

R<sub>w</sub> (C<sub>100-3150</sub>, C<sub>tr 100-3150</sub>) 69 (-2,-8)dB  
 D<sub>nT,w</sub> + C<sub>tr</sub> 57 dB  
 STC 70

### Impact sound

L<sub>nT,w</sub>(C<sub>1 100-2500</sub>, C<sub>1 50-2500</sub>) 54 (-6,-4)dB  
 L<sub>nT,w</sub> 58 dB  
 IIC 52

## LIGHT STEEL FRAMING WITH MTA 5



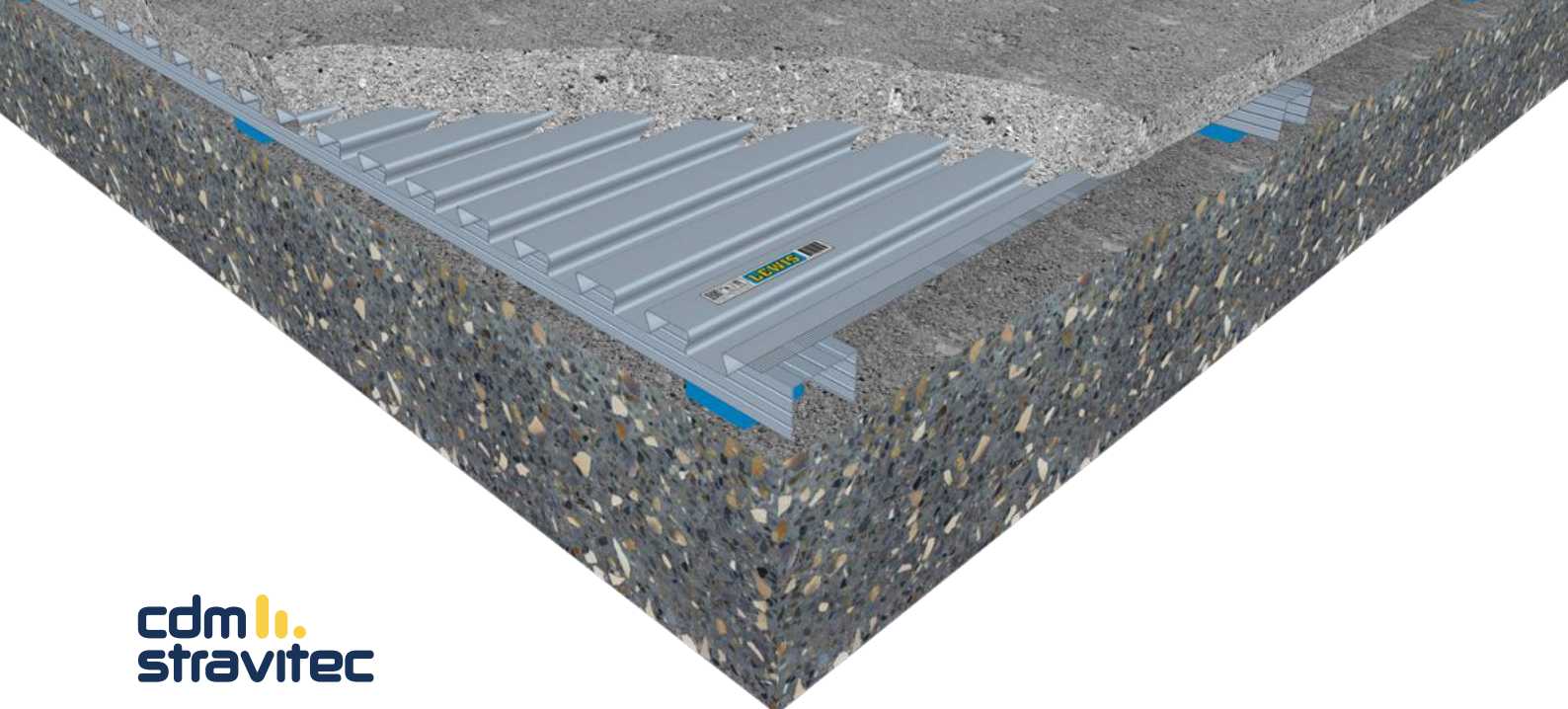
LEWIS® Deck	50 mm (107 kg/m <sup>2</sup> )
CDM MTA 5	5 x 80 mm
LSF C-joists	200 x 100 mm c.t.c. 600 mm
Mineral wool	140 mm
Spring stirrups	27 mm
Gypsum board	2 x 12,5 mm

### Airborne sound

R<sub>w</sub> (C<sub>100-3150</sub>, C<sub>tr 100-3150</sub>) 68 (-2,-7)dB  
 D<sub>nT,w</sub> + C<sub>tr</sub> 57 dB  
 STC 68

### Impact sound

L<sub>n,w</sub>(C<sub>1 100-2500</sub>, C<sub>1 50-2500</sub>) 65 (-12,-12)dB  
 L<sub>nT,w</sub> 69 dB  
 IIC 38



## High-Performance Acoustic Floating Floor

### STRAVIFLOOR DECK

Stravifloor Deck is a low-profile floating floor system using the LEWIS® metal deck for thin concrete pours. The system's high bending stiffness allows for concrete toppings as thin as 50 mm, making this system a great solution for projects that require a low-profile or lightweight concrete floating floor. It is also suitable for areas with high live loads.

This system provides a high-performance floating floor system for excellent structure-borne and airborne noise isolation, while minimizing any impact on the available floor-ceiling height.

### SYSTEM FEATURES

- A high performance floating floor system with large support spans (up to 1200 mm).
- The system uses elastomeric isolators with low stiffness/high resilience allowing natural frequencies as low as 6Hz, or springs allowing natural frequencies as low as 2.5Hz.
- Can be changed to meet the project specifications in terms of natural frequency and damping requirements,  $L_{nw}$  (IIC) or  $R_w$  (STC).
- High bending stiffness specifically for both restricted build-up height and limited extra weight applications.
- The system is compatible with high permissible loads.
- Easy to incorporate underfloor heating or cooling systems



Kempinski Hotel Palm Jumeirah, Dubai



Grand Millennium, Dubai



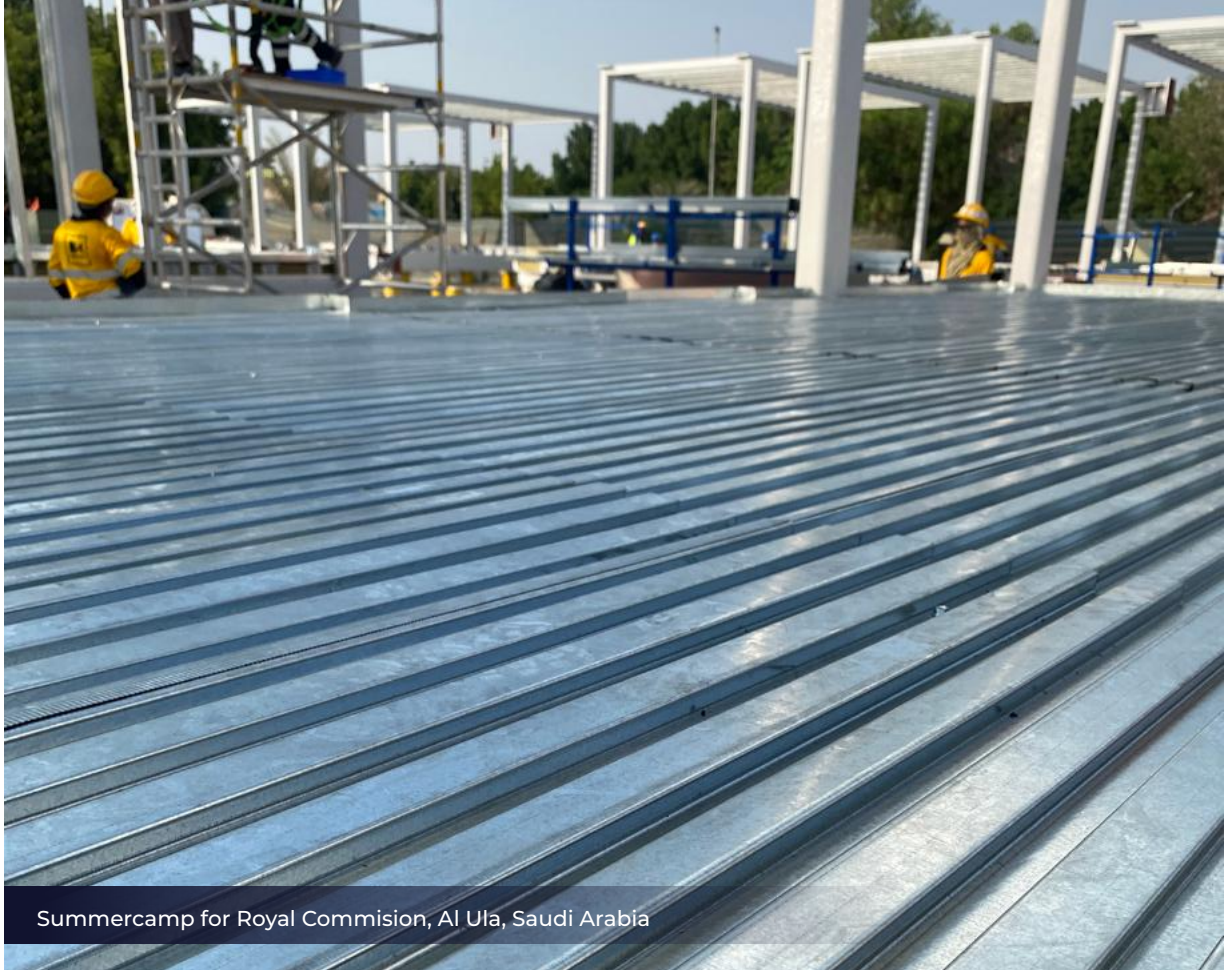
New York University, Abu Dhabi

## LEWIS® Metal Decking in LGSF building systems

- Floor thickness from 50 mm
- High load bearing capacity
- Spans of up to 2500 mm
- Excellent acoustic performance
- Fire ratings up to 120 minutes
- Underfloor Heating and Cooling



## LEWIS® Metal Decking in LGSF building systems



## LEWIS® Metal Decking in modular construction



Al Masaood Workers Residential Village

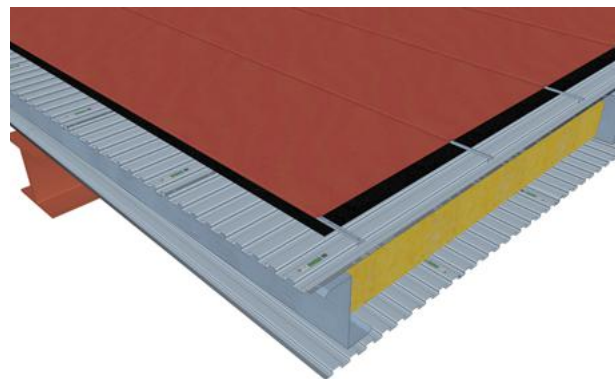
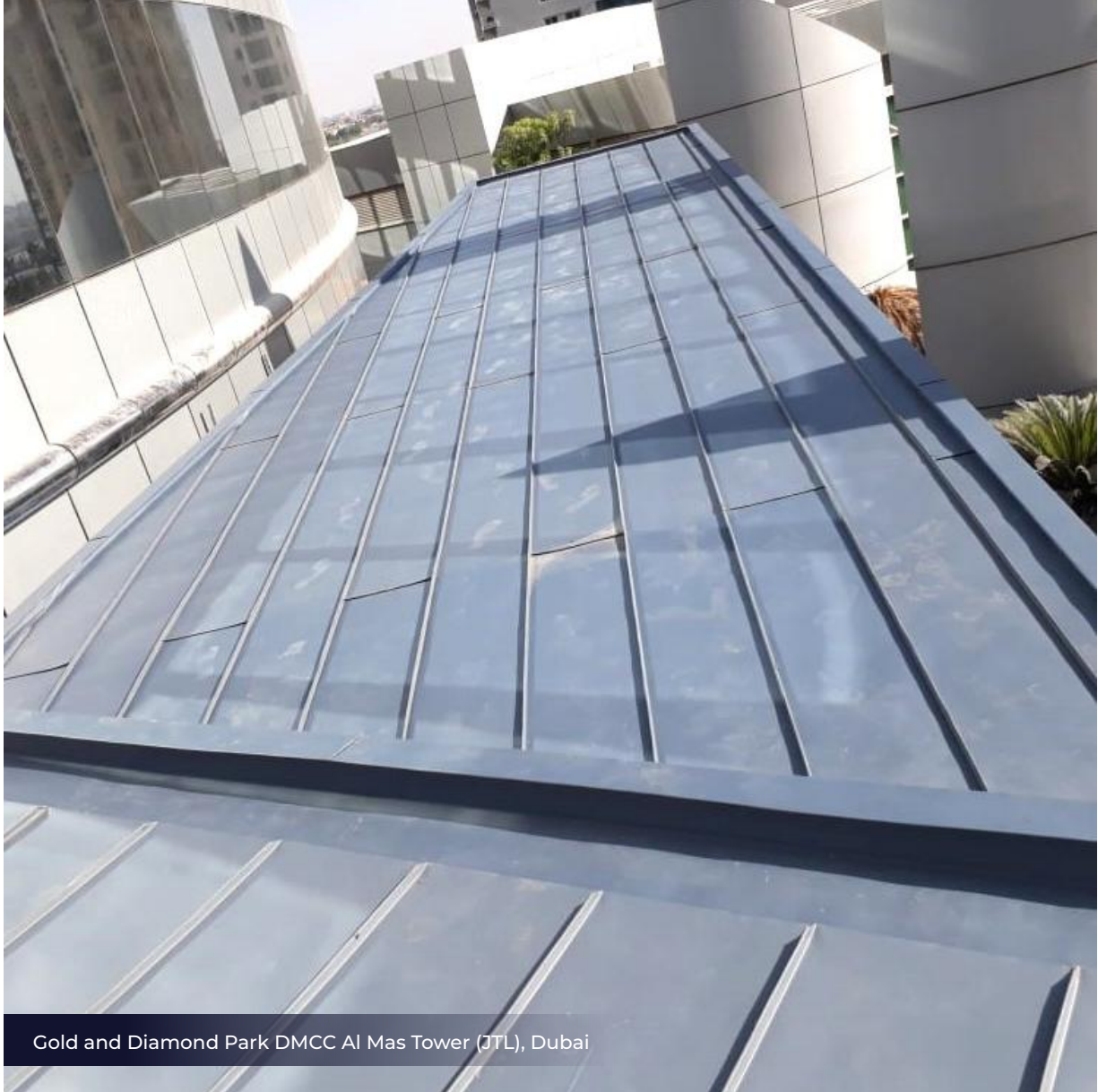


Avitis Multispeciality Hospital, Palakkad, India

- Concrete floor with low dead weight
- High load bearing capacity
- Steel savings (c.t.c. spans of 1200 mm)
- Excellent acoustic performance
- Fire ratings up to 120 minutes
- Modular and off site building



## LEWIS® Metal Decking in roof constructions





American Academy School, Doha, Qatar



- Dry roof cassette
- Estimated weight 15 kg/m<sup>2</sup>
- Fire safe solution
- Exceptional rigidity
- Ease on installation and fixing



Vox Cinema, Deira City Center, Dubai

## LEWIS® Metal Decking in facades







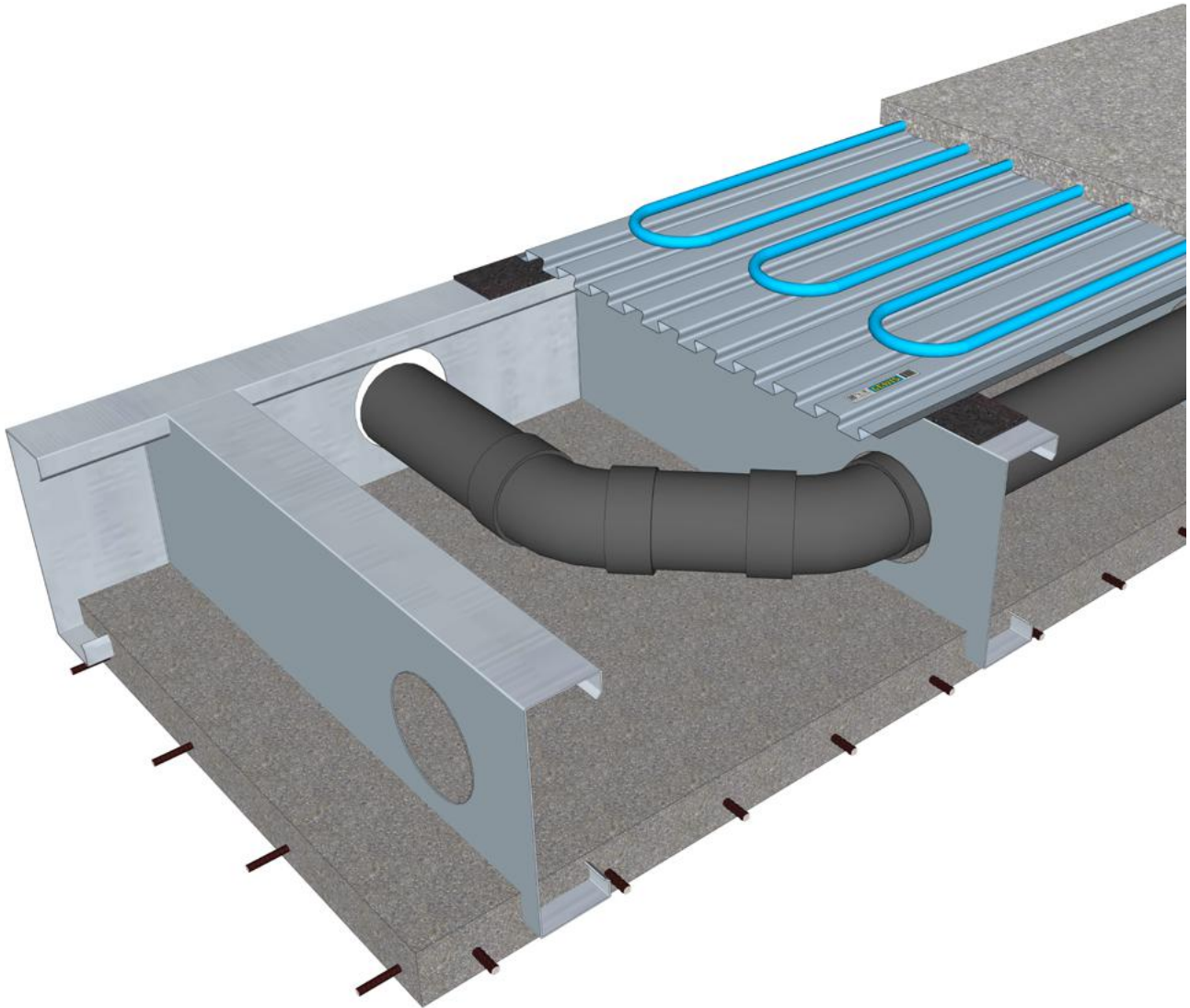
Sa'Adiyat Beach Club, Abu Dhabi

- Dead loads-zinc cladding (10 kg/m<sup>2</sup>)
- Wind loads-140/150 km/h
- Class A fire rating
- Ease of installation
- Ease of fixing
- High contact area



## LEWIS® Steelframe Concrete Floor (SCF)

The LEWIS® Steelframe Concrete Floor (SCF) is a lightweight steel frame concrete floor for residential, industrial and commercial construction.



## Application of LEWIS® Steelframe Concrete Floor

LEWIS® Steelframe Concrete Floor is a patented, self-supporting floor system of prefabricated elements. It consists of a closed steel frame of cold formed C-sections that have been cast into a reinforced concrete shell, which is also the ceiling slab. The round holes in the steel frame make it easy for pipes and services to be incorporated into the floor. A LEWIS® top floor is applied to the steel frame.


Depending on the desired flexibility, removable floor zones can be installed in the top floor. The LEWIS® Steelframe Concrete Floor can achieve free spans up to approx. 15 meters. This floor system can be used both as an intermediate floor and as an insulated ground floor.




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 [www.lewismetaldeck.com](http://www.lewismetaldeck.com)

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