
# LEWIS®

## On CDM PF resilient strips

LEWIS® Dovetailed metal decking is a self-supporting, light gauge galvanized steel reinforcement sheet used for shuttering and reinforcing concrete or screed floors of limited thickness on wooden or steel frame constructions. LEWIS® provides a professional and reliable decking solution for renovation and new build applications.

### Acoustics

Besides high load bearing capacity requirements there is also an increasing demand for high quality acoustic separating floor systems. LEWIS® composite floors make it possible to create a so called "floating floor". Depending on acoustic requirements, a range of different types of resilient strips can be chosen to create an optimal mass-spring system. The highest possible acoustic performance of the LEWIS® decking system can be achieved by using LEWIS® CDM PF resilient strips.

### Common applications for LEWIS® Dovetailed sheeting

- Up-grading floors on existing timber joists, timber engineered or structural steel beams
- Acoustic separating floors within all types of new build construction
- Upgrading acoustic, fire and load bearing floor performance within existing buildings
- Timber framed floor systems
- Light gauge Steel Frame (LSF) floor systems

LEWIS

REPPEL
specialist building solutions

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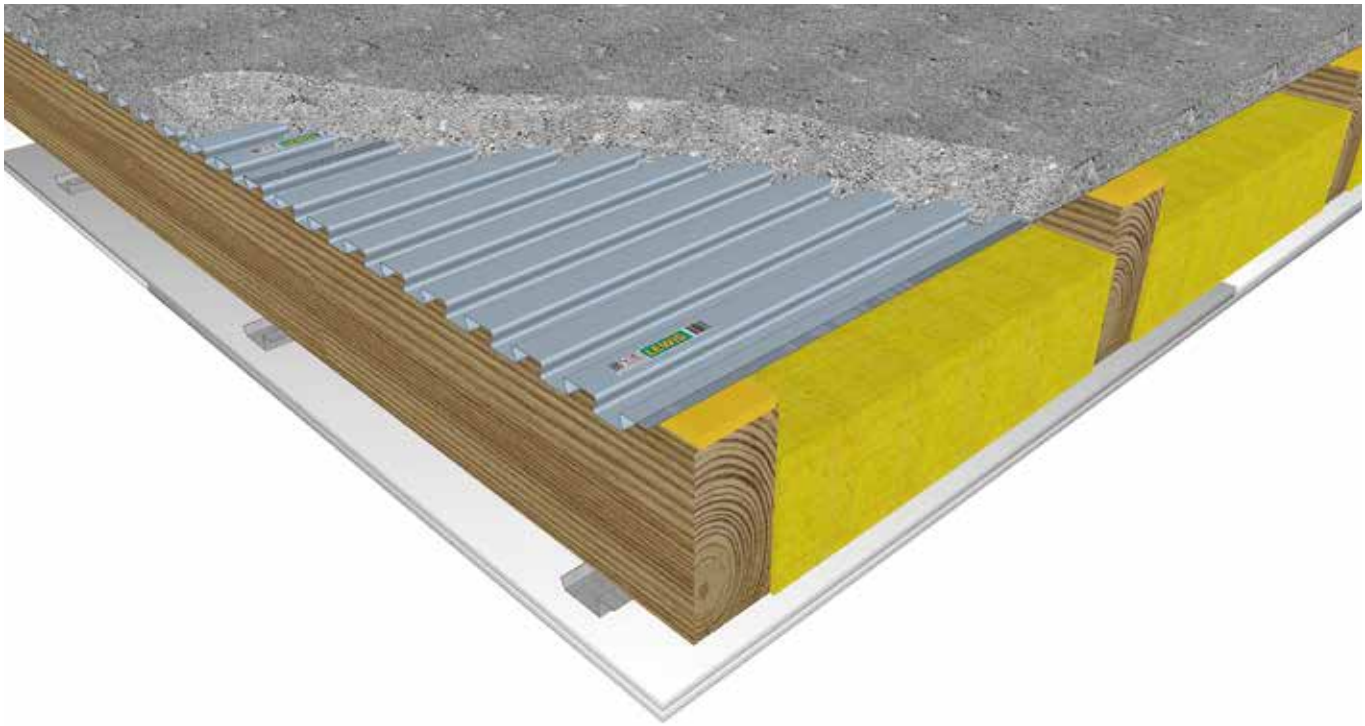

## CDM PF resilient strips

CDM PF is a high quality polyurethane foam (elastomer) that because of its permanently elastic behaviour is perfectly suitable to create a mass-spring system that decouples the vibration source from its surroundings and suppresses impact noise and vibrations. CDM PF resilient strips are specially developed by CDM to be used in combination with the LEWIS® metal decking.

Coloured yellow and blue, we have 2 different types of CDM PF resilient strips available. LEWIS® CDM PF is available in 80 mm wide x 12 mm thick x 2 m roll lengths.

### Features of LEWIS® CDM PF

- permanent elastic behaviour
- suitable for high load bearing performance requirements
- resistant to ageing
- highly stable material
- low installation height (12 mm)

| TYPE CDM PF | DENSITY* | MAX. STAT. LOAD | MAX. OC. LOAD | CREEP RATE** | RESONANCE FREQUENTIE | DEFLECTION | CDYN*** |
|---|---|---|---|---|---|---|---|
| yellow | 280 kg $m^3$ | 0,04 Mpa | 1 Mpa | 1,98% H/DEC | 20 - 40 Hz | < 3 mm | 50 $MN/m^3$ |
| bleu | 365 kg $m^3$ | 0,065 Mpa | 2 Mpa | 1,04% H/DEC | 15 - 40 Hz | < 3 mm | 71 $MN/m^3$ |

(*)ISO 845 - (**)ISO 8013, at 0.091 MPa - (***) EN 29052-1

Successful acoustic tests have been carried out in cooperation with the University of Eindhoven and Level Acoustics & Vibration on LEWIS® acoustic floor constructions with resilient strips.

## Design information

Joist and beam centres, spans, load bearing requirements and weight of the LEWIS® floor must be taken into account for the selection of the appropriate LEWIS® acoustic floors with CDM PF resilient strips. To select the appropriate type of CDM PF please make use of the design table below.

The design table is based on the building categories according to EN 1991-1-1, table 6.1.
For deviating load bearing capacities please feel free to contact us.

### Design table LEWIS® acoustic floors with CDM PF

| Category | Specific use | | qk (kN/m²) | Qk (kN) | LEWIS® floor thickness | Centre to centre span of the beams (m¹) 0,4 | 0,5 | 0,6 | 0,7 | 0,8 | 0,9 | 1 | 1,1 | 1,2 | 1,3 | 1,4 | 1,5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Areas for domestic and residential activities | | 2,0 | 2,0 | 50 mm/1,06 kN/m² | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| B | Office areas | | 3,0 | 4,5 | 50 mm/1,06 kN/m² | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| C | Areas where people may congregate | C1 | 3,0 | 4,0 | 50 mm/1,06 kN/m² | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ |
| | (with the exception of areas defined under | C2 | 4,0 | 4,0 | 50 mm/1,06 kN/m² | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |
| | categories A, B and D) | C3 | 5,0 | 4,0 | 50 mm/1,06 kN/m² | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | C4 | 5,0 | 7,0 | | Not possible for LEWIS® due to high concentrated load | | | | | | | | | | | |
| | | C5 | 5,0 | 4,5 | 50 mm/1,06 kN/m² | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| D | Shopping areas | D1 | 4,0 | 4,0 | 50 mm/1,06 kN/m² | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ |
| | | D2 | 5,0 | 7,0 | | Not possible for LEWIS® due to high concentrated load | | | | | | | | | | | |

● CDM PF ● CDM PF ○ On request

**Assumptions**

- actions according to EN 1991-1-1, table 6.1
- concentrated load area dimensions 50 mm x 50 mm
- no free edges in categories B, C and D
- concrete C20/25
- reinforcement mesh Ø5-150 (Q131) or Ø6-200 (A142) for floor thickness 50 mm in categories B, C and D.

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# LEWIS® on CDM PF resilient strips

With CDM PF resilient strips it is easily achievable to design LEWIS® composite floor systems exceeding the standard requirements for acoustic separating floors in current UK Building Regulations.

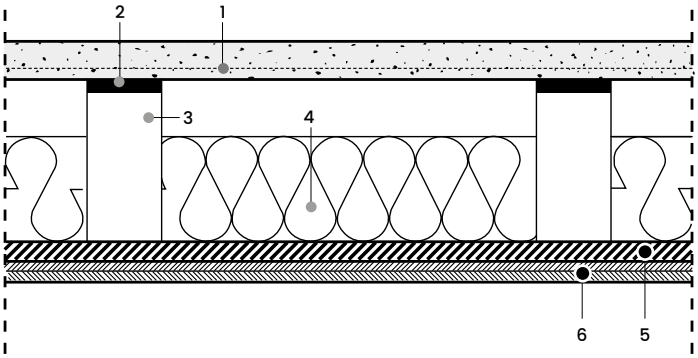
## Requirements

| New build | Airborne sound | Impact sound |
|---|---|---|
| England & Wales | $D_nT_{,w}$ + Ctr ≥ 45 dB | $L_nT_{,w}$ ≤ 62 dB |
| Scotland, | $D_nT_{,w}$ ≥ 56 dB | $L_nT_{,w}$ ≤ 56 dB |
| Ireland | $D_nT_{,w}$ ≥ 53 dB | $L_nT_{,w}$ ≤ 62 dB |

## Conversion

| | | |
|---|---|---|
| England & Wales | $D_nT_{,w}$ + Ctr ≥ 43 dB | $L_nT_{,w}$ ≤ 64 dB |
| Scotland | $D_nT_{,w}$ ≥ 53 dB | $L_nT_{,w}$ ≤ 58 dB |

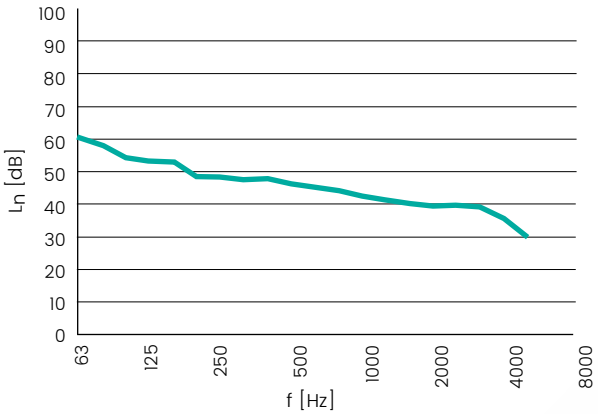
## LEWIS® acoustic seperating floors




| | | |
|---|---|---|
| 1 | • LEWIS® Deck | 50 mm |
| 2 | • CDM PF strips | 12 x 80 mm |
| 3 | • Timber joists c.t.c. 600 mm | 200 x 100 mm |
| 4 | • Mineral wool | 140 mm |
| 5 | • Spring stirrups | 27 mm |
| 6 | • Gypsum board | 2 x 12,5 mm |

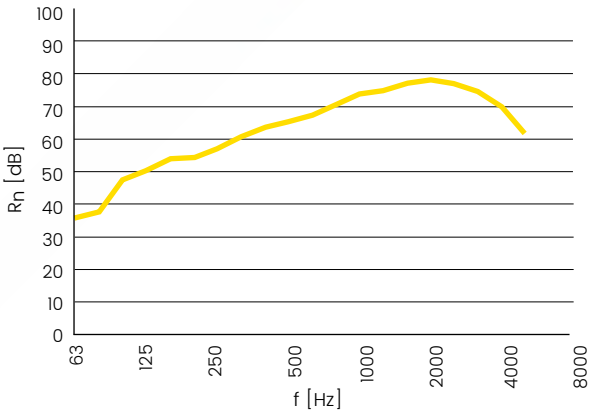
| | England / Wales / Ireland | Scotland |
|---|---|---|
| Airborne sound | 58 dB | 65 dB |
| Impact sound | 52 dB | 52 dB |

## Impact sound




$L_{n,w}(C_{100-2500};C_{150-2500})$ = 48 dB (-3;6)

## Airborne sound




$R_W$ $(C_{100-3150};C_{tr100-3150})$ = 69 dB (-2;-7)

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