

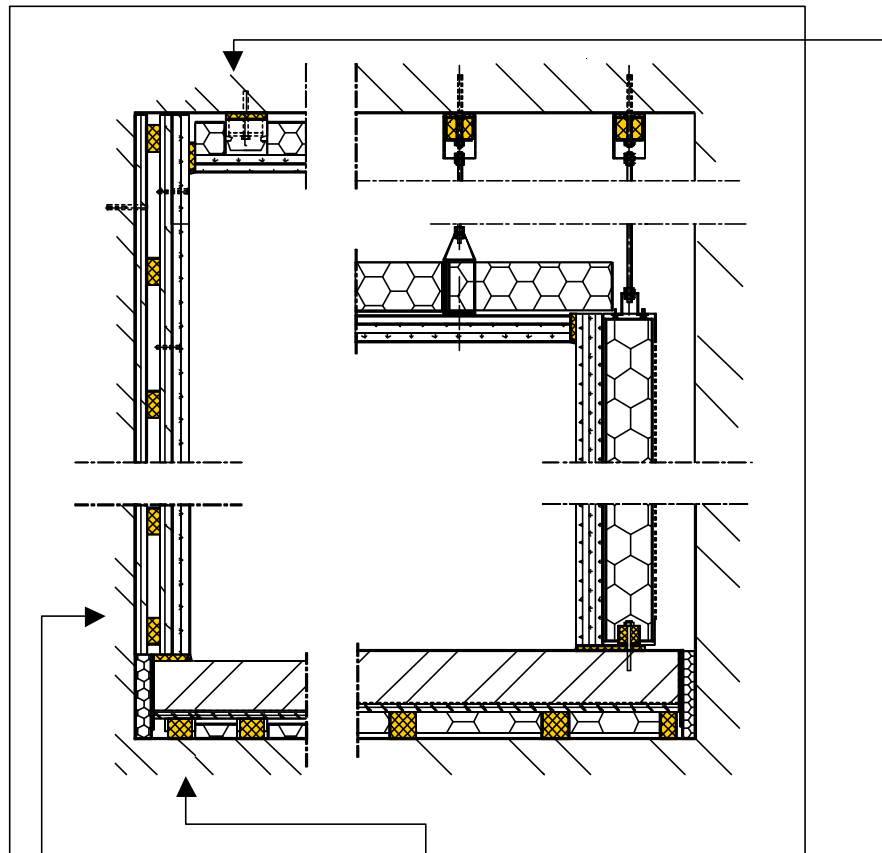
NOISE AND VIBRATION CONTROL

CDM-ISO-BOX



DR_w ≥ 30 dB
DL_w ≥ 30 dB - **Box-in-the-box systems** **N°4**

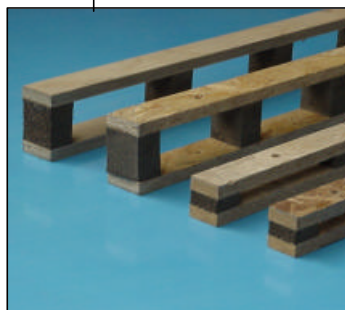
Principle



Box-in-the-box systems



▶ With the CDM standard elements, airborne and structure-borne noise improvements of more than 30 dB can be reached.



CDM-ISO-T
see Noise and Vibration Control N°1

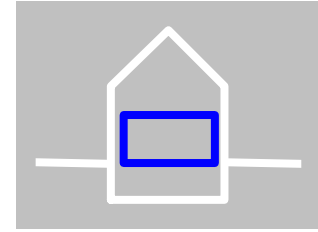


CDM-ISO-LAT
see Noise and Vibration Control N°2



CDM-ISO-CC-40
see Noise and Vibration Control N°3

3.5 BOX-IN-THE-BOX SYSTEM



CDM-ISO-BOX

1. APPLICATIONS

The 'box-in-the-box' concept is based on the complete decoupling of floor, walls and ceiling from the building structure to achieve the maximum isolation possible from the surroundings. It can be used to isolate discotheques, technical rooms, office rooms etc. It is also used in areas where low background noise levels are required such as recording studios, concert halls and anechoic rooms.

2. CDM PRODUCTS AND SYSTEMS

Each of the systems **CDM-ISO-FLOOR** and **CDM-ISO-SUSPENSION** can be used separately but when combined in the right way, they form a high-performance box-in-the-box system. In such a system, all the noise coming from structure borne transmission is eliminated and the airborne noise transmission is reduced considerably. The **CDM-ISO-BOX** can be built combining the following systems:

- Floor systems **CDM-ISO-FLOOR**:
 - CDM-ISO-FLOAT**: high performance floor isolation systems
 - CDM-ISO-LAT**: light floating floors
 - CDM-ISO-MAT**: thin elastic cork layers
- Wall systems **CDM-ISO-SUSPENSION**
 - CDM-ISO-PHS/PHR**: high performance wall isolation systems
 - CDM-ISO-T**: acoustic mounting battens
- Ceiling systems **CDM-ISO-SUSPENSION**
 - CDM-ISO-PHS/PHR**: high performance ceiling isolation systems for heavy suspended ceilings
 - CDM-ISO-CC-40**: high performance ceiling isolation systems for light suspended ceilings

3. PERFORMANCES

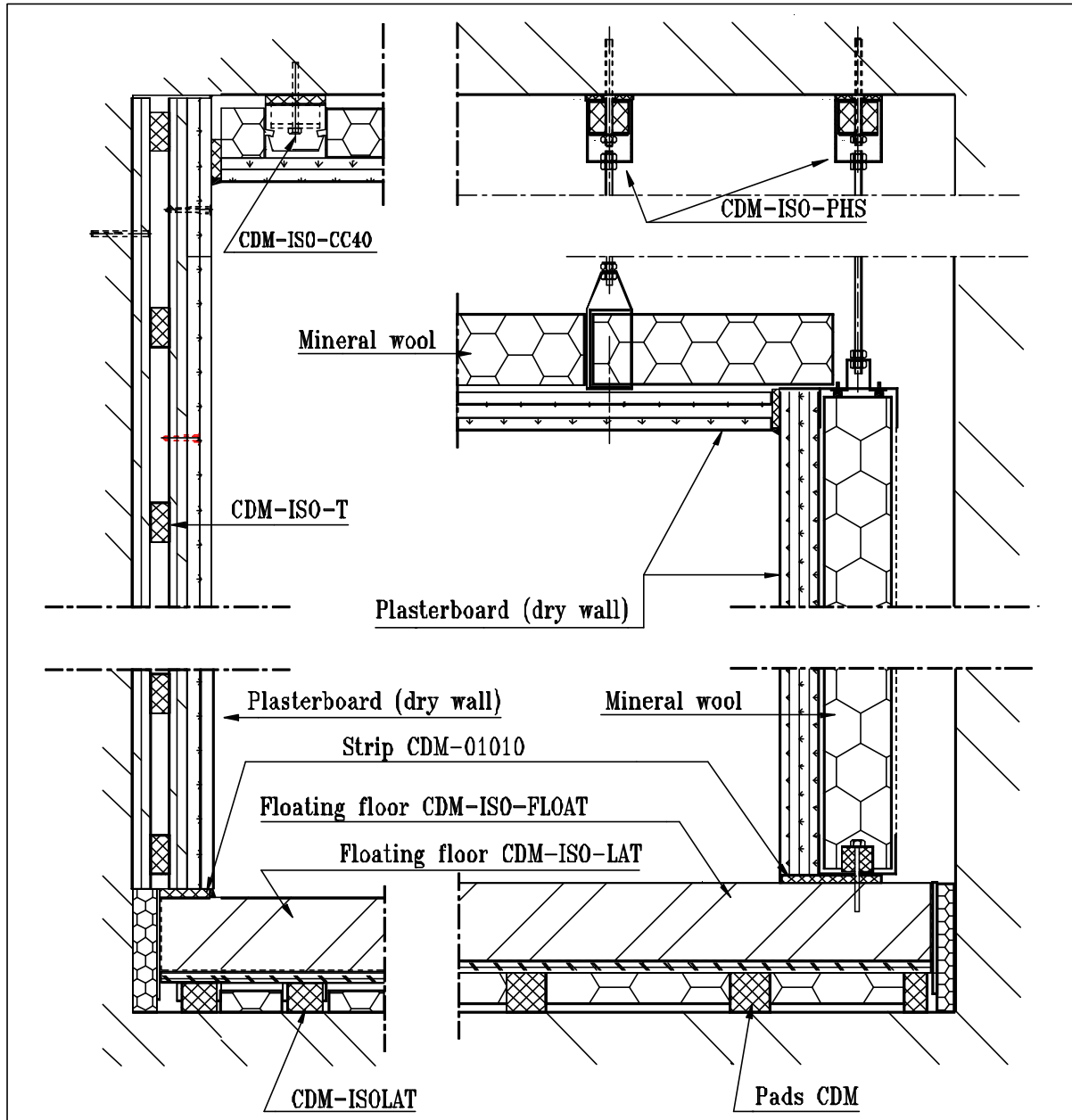
The performance of the **CDM-ISO-BOX** system depends on the systems that are combined but on average, the following improvements can be expected when compared to the non-isolated case:

CDM-ISO-BOX	Impact noise reduction (dB)	Airborne noise reduction (dB)
	30 - 45	20 – 30



4. INSTALLATION

The mounting principles are described in the documentation of each of the separate CDM systems. Some possible combinations are given in the figure below:



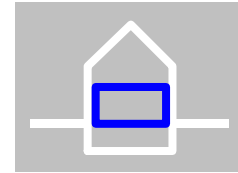
Some recommendations:

- Avoid all stiff contacts between the acoustic floor, wall and ceiling elements on the one hand and the existing structure on the other hand. Special attention should therefore be paid to the perimeter isolation.
 - To obtain the best result, each separate isolation system has to be used correctly, taking into account the design loads and the distance in between elements as specified in the product sheets. High performance isolation systems should be combined with one another; the same holds for medium and lower performance systems.
 - No maintenance required after installation. The systems for walls and ceilings can easily be removed without structural changes. This is also possible for floating floor systems in case no concrete was poured on the isolation system.
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Test info sheet

CDM-ISO-BOX

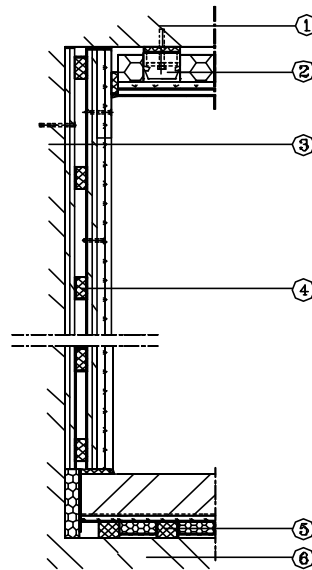


CDM-ISO-BOX

CDM-product tested	CDM-ISO-FLOAT, CDM-ISO-T, CDM-ISO-CC
Description	CDM-ISO-BOX, see drawing and legend
Tested by	El Ingeniero Tecnico Municipal Vitoria
Test site	Discotheca 'The End', Vitoria, Spain
Test date	02/03/1985
Measured parameter	Sound pressure Lp in room above disco

Legend

1. Existing concrete floor
2. CDM-ISO-CC system
3. Existing wall structure
4. CDM-ISO-T system
5. CDM-ISO-FLOAT system
6. Existing concrete floor



Measurements		
f [Hz]	L1	L2
100	55	37
125	56	35
160	62	36
200	61	37
250	65	39
315	70	40
400	68	42
500	67	43
630	77	44
800	80	46
1000	85	48
1250	86	48
1600	86	50
2000	87	52
2500	88	56
3150	86	57
4000	87	
5000	89	

