

## FLATDECK ACOUSTIC PERFORMANCE

### SCOPE

This section provides guidelines for specifiers and constructors who require noise control systems for residential applications such as separate multi-unit dwellings or single dwellings, commercial applications such as retail spaces, offices and institutional buildings. It is not intended that these guidelines replace the need for specialist acoustic design to meet the specified sound insulation performance for the building.

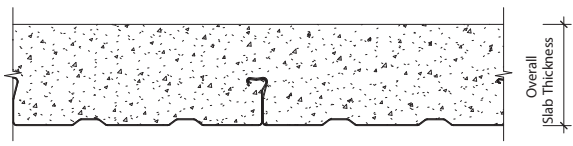
A Dimond Structural Noise Control System consists of a Flatdeck composite floor slab with a selected USG ceiling system, GIB® standard plasterboard ceiling linings, selected floor coverings and the specific inclusion of a cavity absorber. It must be noted that the floor covering is an essential aspect of the performance of the system.

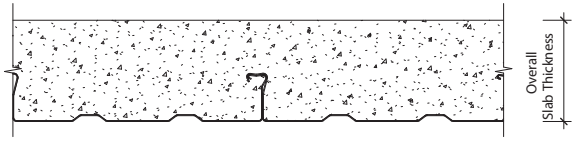
The information in this section is based on laboratory testing of a 120mm Hibond 55 composite floor slab carried out by the University of Auckland, Acoustics Testing Service and opinions on expected acoustic performance by Marshall Day Acoustics Limited Report Rp001 R00\_2006476. More information is available on request.

The systems set out in this section provide the expected sound transmission performance under laboratory conditions. However in practical applications on site there is a significant element of subjectivity to interpreting noise levels within rooms. No matter how low a sound level might be, if it is intrusive upon a person's privacy, then it is likely to cause annoyance. No practical system can guarantee complete sound insulation and completely satisfy everyone.

Introduction of light fittings, vents or other floor or ceiling penetrations will reduce the acoustic performance of the system, requiring specific assessment in each case.

#### Flatdeck Composite Floor Slab - Bare Composite Floor Slab

<b>System Description:</b> Steel Decking: 0.75, 0.95mm Flatdeck Composite Floor Slab: Overall thickness (mm)	
Overall Composite Floor Slab Thickness (mm)	STC
120	48
140	52
160	53
180	56
200	57

<b>System Description:</b> Steel Decking: 0.75, 0.95mm Flatdeck Composite Floor Slab: 120mm overall thickness		
Floor Surface Treatment	STC	IIC
No Covering	48	23
15mm strip timber on Bostic Ultraset adhesive	48	40
15mm strip timber on 1mm polyethylene foam	48	44
6mm Cork flooring	48	41
Gerflor Taralay Comfor Vinyl, 3.1mm thick	48	46
Carpet, nylon or wool 40oz without underlay	48	66
Carpet, wool 60oz without underlay	48	67
Carpet, wool or nylon on 8mm foam underlay	48	71

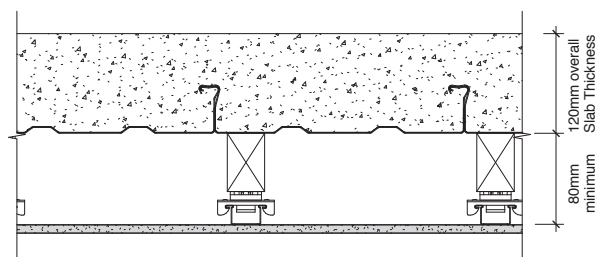
#### Notes:

- The acoustic opinion has a margin of error of +/- 3 STC/IIC points
- IIC result depends on the quality of the floor covering material and installation
- All adhesives must be applied to manufacturers instructions, and Bostic Ultraset adhesive dry film thickness must not be less than 1.9mm
- It is prudent to allow a 5 point reduction for expected field STC and IIC when compared to the above performance expected in laboratory conditions. This is considered a reasonable compensation to allow for flanking paths at junctions and construction variations.

## Flatdeck Composite Floor Slab with Direct Fix Ceiling System - Non-Insulated

### System Description:

Steel Decking: 0.75, 0.95mm Flatdeck  
 Composite Floor Slab: 120mm overall thickness  
 Ceiling System: Potters Direct Fix with sound isolation clips  
 USG furring channel at maximum 600mm centres  
 Ceiling Lining: 13mm GIB standard plasterboard in one or two layers

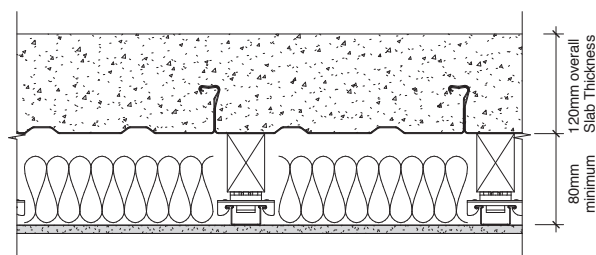


Floor Surface Treatment	Ceiling Lining			
	One Layer 13mm GIB		Two Layers 13mm GIB	
	STC	IIC	STC	IIC
No Covering	55	39	58	41
15mm strip timber on Bostic Ultraset adhesive	55	46	58	48
15mm strip timber on 1mm polyethylene foam	55	47	58	49
6mm Cork flooring	55	48	58	50
Gerflor Taralay Comfort Vinyl, 3.1mm thick	55	52	58	54
Carpet, nylon or wool 40oz without underlay	55	60	58	62
Carpet, wool 60oz without underlay	55	62	58	64
Carpet, wool or nylon on 8mm foam underlay	55	66	58	68

## Flatdeck Composite Floor Slab with Direct Fix Ceiling System - Insulated

### System Description:

Steel Decking: 0.75, 0.95mm Flatdeck  
 Composite Floor Slab: 120mm overall thickness  
 Insulation Blanket: 75mm thick R1.8 Pink Batts  
 Ceiling System: Potters Direct Fix with sound isolation clips  
 USG furring channel at maximum 600mm centres  
 Ceiling Lining: 13mm GIB standard plasterboard in one or two layers



Floor Surface Treatment	Ceiling Lining			
	One Layer 13mm GIB		Two Layers 13mm GIB	
	STC	IIC	STC	IIC
No Covering	67	46	70	48
15mm strip timber on Bostic Ultraset adhesive	67	54	70	56
15mm strip timber on 1mm polyethylene foam	67	57	70	59
6mm Cork flooring	67	59	70	61
Gerflor Taralay Comfor Vinyl, 3.1mm thick	67	62	70	64
Carpet, nylon or wool 40oz without underlay	67	70	70	72
Carpet, wool 60oz without underlay	67	72	70	74
Carpet, wool or nylon on 8mm foam underlay	67	75	70	75+

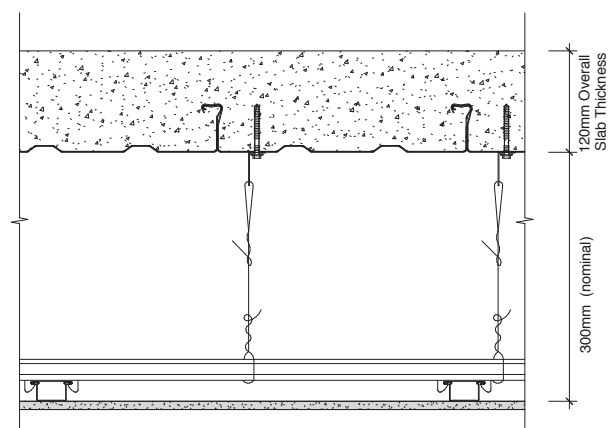
### Notes:

1. The acoustic opinion has a margin of error of +/- 3 STC/IIC points
2. IIC result depends on the quality of the floor covering material and installation
3. All adhesives must be applied to manufacturers instructions, and Bostic Ultraset adhesive dry film thickness must not be less than 1.9mm
4. It is prudent to allow a 5 point reduction for expected field STC and IIC when compared to the above performance expected in laboratory conditions. This is considered a reasonable compensation to allow for flanking paths at junctions and construction variations.

### Flatdeck Composite Floor Slab with Suspended Ceiling System - Non-Insulated

**System Description:**

Steel Decking: 0.75 or 0.95mm Flatdeck  
 Composite Floor Slab: 120mm overall thickness  
 Ceiling System: Don suspended ceiling system  
 USG furring channel at maximum 600mm centres  
 Ceiling Lining: 13mm GIB standard plasterboard in one or two layers

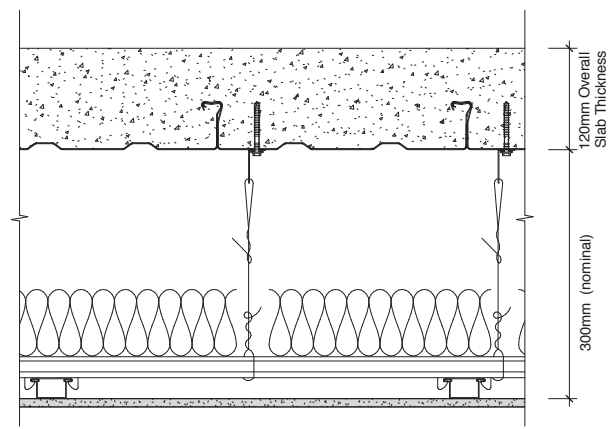


Floor Surface Treatment	Ceiling Lining			
	One Layer 13mm GIB		Two Layers 13mm GIB	
	STC	IIC	STC	IIC
No Covering	60	41	63	43
15mm strip timber on Bostic Ultraset adhesive	60	50	63	52
Ceramic tile on Bostic Ultraset adhesive	60	51	63	53
6mm Cork flooring	60	53	63	55
Gerfloor Taralay Comfort Vinyl, 3.1mm thick	60	55	63	57
Carpet, nylon or wool 40oz without underlay	60	63	63	65
Carpet, wool 60oz without underlay	60	65	63	67
Carpet, wool or nylon on 8mm foam underlay	60	69	63	71

### Flatdeck Composite Floor Slab with Suspended Ceiling System - Insulated

**System Description:**

Steel Decking: 0.75 or 0.95mm Flatdeck  
 Composite Floor Slab: 120mm overall thickness  
 Insulation Blanket: 75mm thick R1.8 Pink Batts  
 Ceiling System: Don suspended ceiling system  
 USG furring channel at maximum 600mm centres  
 Ceiling Lining: 13mm GIB standard plasterboard in one or two layers



Floor Surface Treatment	Ceiling Lining			
	One Layer 13mm GIB		Two Layers 13mm GIB	
	STC	IIC	STC	IIC
No Covering	66	42	69	44
15mm strip timber on Bostic Ultraset adhesive	66	62	69	64
Ceramic tile on Bostic Ultraset adhesive	66	55	69	57
6mm Cork flooring	66	64	69	66
Gerfloor Taralay Comfor Vinyl, 3.1mm thick	66	68	69	70
Carpet, nylon or wool 40oz without underlay	66	75+	69	75+
Carpet, wool 60oz without underlay	66	75+	69	75+
Carpet, wool or nylon on 8mm foam underlay	66	75+	69	75+

**Notes:**

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