ACA ACOUSTICS

Jag Sandhu
BWH UK
41 Egerton Gardens
Ilford
Essex
IG3 9HR

Our Ref: 120903-002

Date: May 2, 2013

Dear Jag,

33-41 WICKLOW STREET, LONDON

Further to our recent communications and email from Angela Ryan of London Borough of Camden forwarded to me, please find below formal response to the Council's comments. This is to be considered as an addendum to my previous acoustic report, reference 120903-001A dated October 2012.

1. RECOMMENDATIONS FOR VIBRATION CONTROL TREATMENTS

The Council has requested additional information relating to the proposed resilient footings to ensure that the proposed method of isolation is sufficient such that the proposed performance achieves the specification set out in the original report.

As discussed in Section 9 of the report, it is recommended that the vibration isolation measures should achieve minimum 85% isolation at the critical frequencies and should have a natural frequency no higher than 10Hz.

From the FFT measurements for train passes, it can be determined that the lowest forcing frequency with an influence on the overall calculated Vibration Dose Value (VDV) is 25Hz, rising to a dominant peak at 100Hz. As such, the proposed resilient footings should achieve minimum 85% isolation between 25Hz and 200Hz.

Tim Hartlib of Romboll UK Limited, the Structural Engineer's on the project has confirmed the loadings to the underside of the proposed 500mm thick raft (including the self-weight of the raft) to be 34kN/m^2.

Calculations of percentage isolation for the proposed *Sylomer* resilient footings have been carried out by Patrick Dent of Total Vibration Solutions on behalf of ACA Acoustics Limited, using Getzner's *FreqCalc* calculation programme. Total Vibration Solutions are a UK supplier of *Sylomer*; Getzner are the product manufacturer.

Based on 100mm thick *Sylomer SR42* installed to isolate the raft, isolation efficiency of greater than 85% will be achieved from 25Hz upwards for the current building design at the structural loadings advised. The 100mm thick *Sylomer SR42* has a natural frequency of 8.3Hz; below the maximum permissible 10Hz.

Print-out from the calculation programme, demonstrating performance achieve in each 1/3rd octave frequency band is attached.

I trust that the above and attached meet with your requirements, however, if you have any further questions then please do give me a call.

Yours Sincerely,

Rob Cant MIOA
Director

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the good vibrations company

by getzner sylomer®

4/30/2013

Project

33-41 Wicklow Street

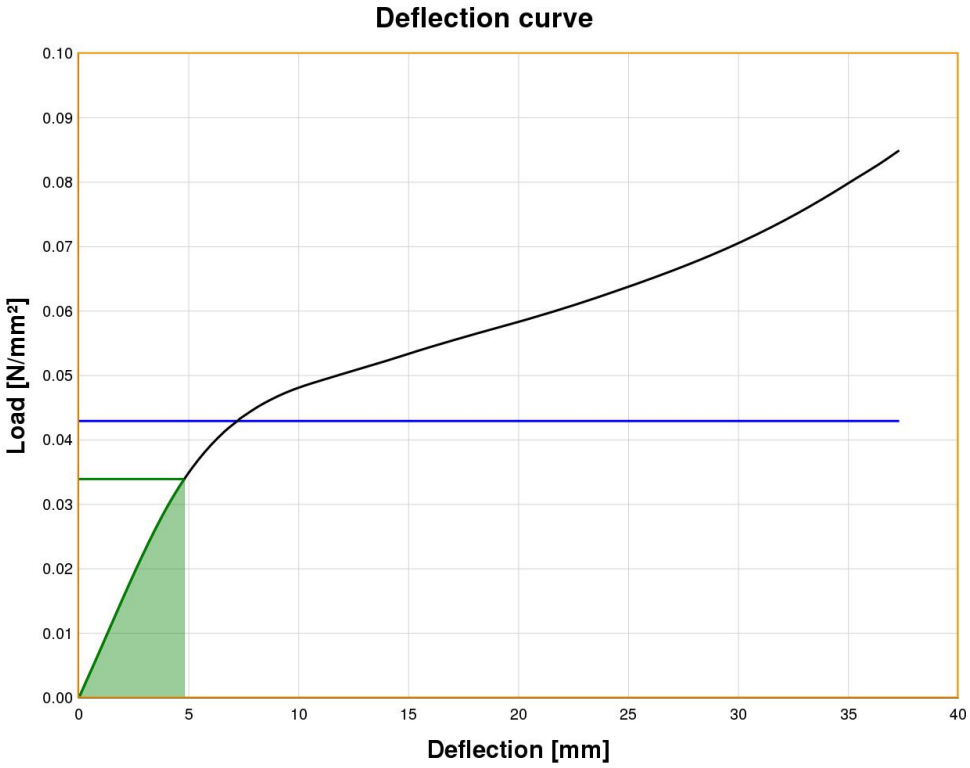
Remark	Base case (without additional floor) 100mm thick (Performance better than required)
by	Patrick Dent

Material

Sylomer® SR42

Quantity	1	Holes	
Length / Width	18300 mm / 9700 mm	Quantity	0
Surface	177510000 mm²	Diameter	0 mm
Thickness	100 mm		
Shape factor	31,7		

Load	0,034 N/mm²	Dynamic bedding modulus	0,009 N/mm³
Capacity	79 %	Dyn. Modulus of elasticity	0,93 N/mm²
Deflection	4,8 mm		
Frequency	8,3 Hz		



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sylomer®

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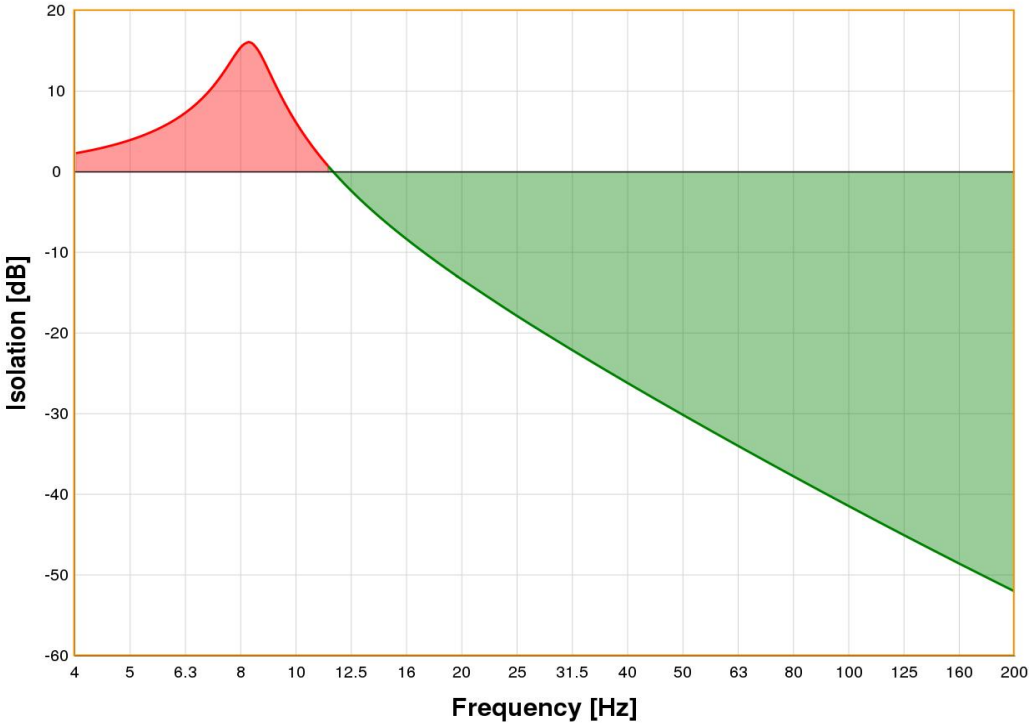
Graph of isolation



Frequency	Isolation
4 Hz	2,4 dB / -31%
5 Hz	4 dB / -58%
6,3 Hz	7,3 dB / -133%
8 Hz	15,7 dB / -510%
8,3 Hz	16,1 dB / -538%
10 Hz	6,2 dB / -103%
12,5 Hz	-2,1 dB / 22%
16 Hz	-8,5 dB / 63%
20 Hz	-13,4 dB / 79%
25 Hz	-17,7 dB / 87%
31,5 Hz	-22 dB / 92%
40 Hz	-26,2 dB / 95%
50 Hz	-30,1 dB / 97%
63 Hz	-33,9 dB / 98%
80 Hz	-37,8 dB / 99%
100 Hz	-41,4 dB / 99%
125 Hz	-44,9 dB / 99%
160 Hz	-48,7 dB / 100%
200 Hz	-52 dB / 100%

Basis of calculation:
The calculations are based on the physical model of a SDOF oscillator with a mass-less spring on a solid, smooth foundation. The calculation program FreqCalc makes calculations based on the assumption of loading with a rigid mass in the centre of gravity. The calculated value are relevant for the degree of freedom in the vertical direction (1st degree of freedom), taking into consideration the non-linear behavior of the material.
The material data taking into account form factor dependence was last updated: 12/21/2010 | SW-Version 121018