



# HAVS Management

**Steven McKenna**

Group Health, Safety and Environmental Manager

# Veitchi Group

Glasgow based, but with  
branches from Elgin to Dumfries

2017 is the Centenary year

Sub Contractor mainly

5 different companies

Cover anywhere in the UK



# Veitchi Flooring

Carpets and carpet tiles, Vinyls, Raised Access Flooring Systems.  
Branches in Glasgow and Aberdeen.



# Veitchi Homes



Exclusive luxury homes in Aberdeen and North East Scotland. Based in Aberdeen.



# Veitchi Industrial Flooring

Resins, Screeds, Car Parking Systems, Veitchiflor (Linotol), VeitchiGuard (Conductive flooring).

Based in Glasgow and covering the whole UK.



# Veitchi Interiors

Based in Glasgow, covering the whole UK

- Metframe
- Structural Metal Framing
- Dry Lining
- Suspended Ceiling Systems
- PVC Hygienic Wall Cladding
- Joinery



# Richardson and Starling

12 branches across Scotland and North of England

Property Preservations services:

- Damp Treatments,
- Water Proofing,
- Dry / Wet Rot,
- Condensation



Glasgow – Edinburgh – Stirling – Aberdeen – Kirkcaldy – Dumfries – Carlisle – Elgin – Dundee – Perth – Oban – Ayr



**veitchi**  
group

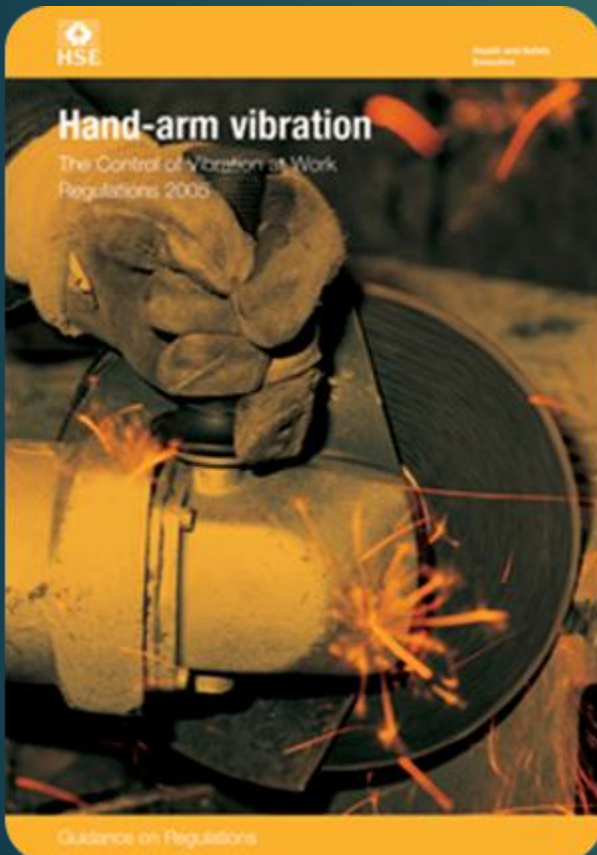


# Trigger Times

The Health and Safety Executive refurbishment campaigns look at Health issues and have Health Initiative campaigns

*“Sites placing a lot of reliance on monitoring / recording vibration trigger time”*

Recognised as being  
*“Difficult / time consuming to verify on site”*



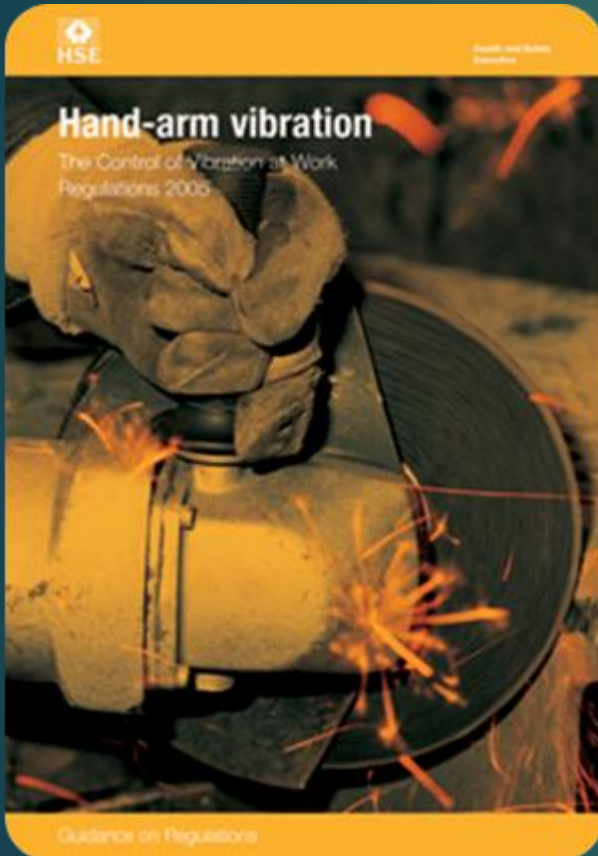
## Health Initiative June/July 2014



Top health hazards dealt with:-

1. COSHH – Silica Dust
2. Control of Vibration
3. MSDs
4. Welfare
5. Control of Noise
6. COSHH (other than Silica dust)
7. Control of Asbestos
8. Control of Lead

# What is the exposure time?



After the vibration magnitude has been established, we will need to identify the time for which an employee is exposed in a day. This is not the overall time spent on the job, but the ‘trigger time’ for which the operator’s hands are actually exposed to the vibration.

Operatives will often overestimate the time they spend in contact with the vibrating tool, so we need to assess the daily contact time by observing a sample of typical work and considering how much of the time you are actually being exposed to the vibration.

# Vibration Points System

Exposure Action Value  
**100 Points**

Exposure Limit Value  
**400 Points**

Vibration magnitude m/s <sup>2</sup>	40	800									
	30	450	900								
	25	315	625	1250							
	20	200	400	800							
	19	180	360	720	1450						
	18	160	325	650	1300						
	17	145	290	580	1150						
	16	130	255	510	1000						
	15	115	225	450	900	1350					
	14	98	195	390	785	1200					
	13	85	170	340	675	1000	1350				
	12	72	145	290	575	865	1150	1450			
	11	61	120	240	485	725	970	1200	1450		
	10	50	100	200	400	600	800	1000	1200		
	9	41	81	160	325	485	650	810	970	1300	
	8	32	64	130	255	385	510	640	770	1000	1200
	7	25	49	98	195	295	390	490	590	785	865
	6	18	36	72	145	215	290	360	430	575	720
	5.5	15	30	61	120	180	240	305	365	485	605
	5	13	25	50	100	150	200	250	300	400	500
	4.5	10	20	41	81	120	160	205	245	325	405
	4	8	16	32	64	96	130	160	190	255	320
	3.5	6	12	25	49	74	98	125	145	195	245
	3	5	9	18	36	54	72	90	110	145	180
	2.5	3	6	13	25	38	50	63	75	100	125
	2	2	4	8	16	24	32	40	48	64	80
	1.5	1	2	5	9	14	18	23	27	36	45
	1	1	1	2	4	6	8	10	12	16	20
	15 m	30 m	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h	
Daily exposure time											

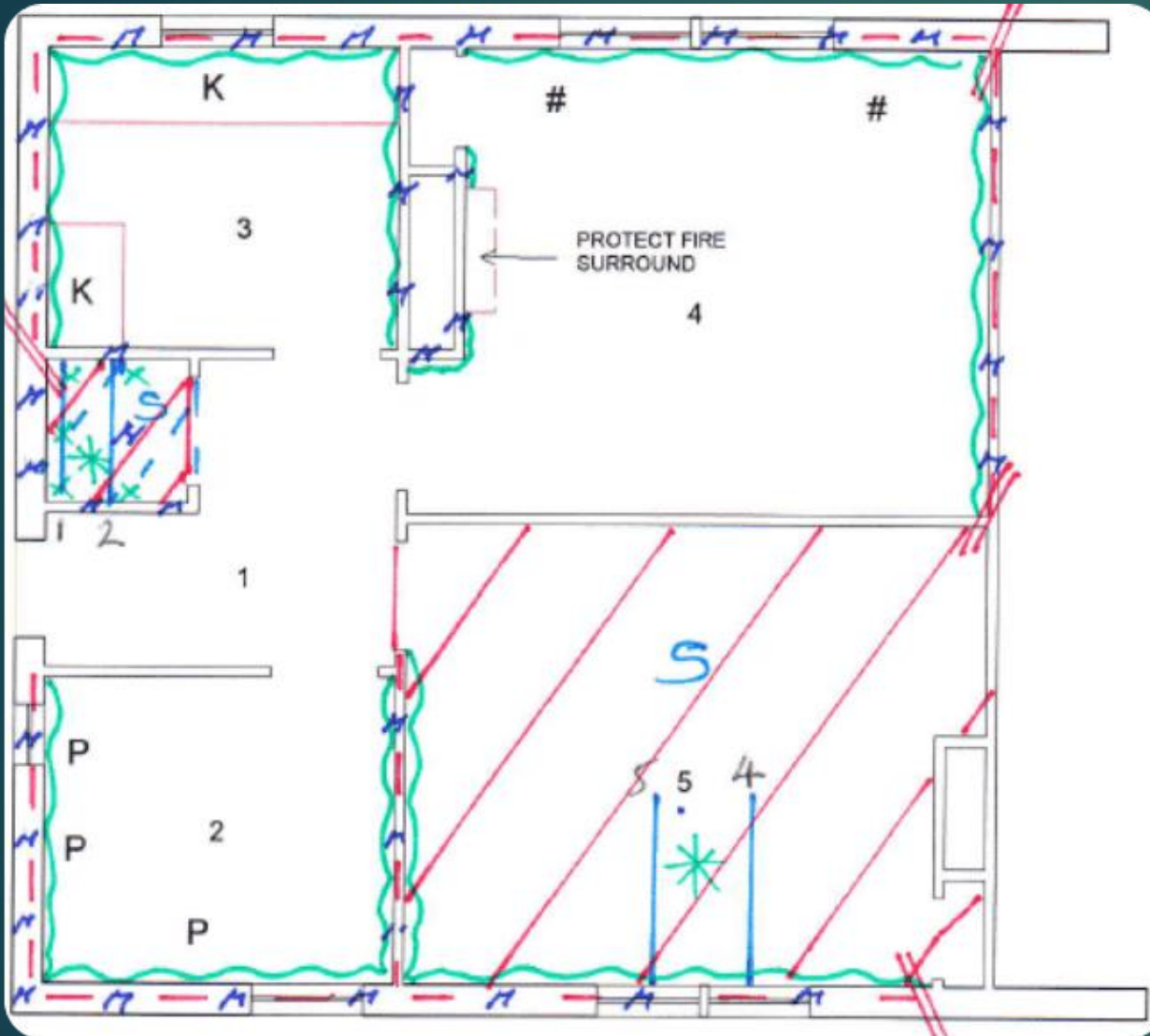
## RICHARDSON AND STARLING VIBRATION GUIDE

	<p><b>Hacking Off Render</b></p> <p>11 minutes per square metre</p> <p>Hack Off Gun - Hilti TE50-AVR(02) = 11.4m/s<sub>r</sub> Vibration Magnitude</p> <p><b>Approximately 48 Vibration Points per square metre</b></p>
	<p><b>Hacking Off Render</b></p> <p>8 minutes per square metre</p> <p>Hack Off Gun - Hilti TE500-AVR = 10.1m/s<sub>r</sub> Vibration Magnitude</p> <p><b>Approximately 27 Vibration Points per square metre</b></p>
	<p><b>Hacking Off Plaster</b></p> <p>3 minutes per square metre</p> <p>Hack Off Gun - Hilti TE50-AVR(02) = 11.4m/s<sub>r</sub> Vibration Magnitude</p>

We know the Vibration Magnitude from the Manufacturer

We know approximate trigger times for each task

Translated this into Vibration Points using the Health and Safety Executive's Vibration Calculator



**Room 1 - Strip plaster 3m<sup>2</sup>**

**Room 2 - Strip plaster 5m<sup>2</sup>**

**Room 3 - Strip render 8m<sup>2</sup>**

**Room 4 - Strip plaster 11m<sup>2</sup>**

**Room 5 - Strip plaster 7m<sup>2</sup>**

- New Membrane
- Chemical Injection
- Cut Back Flooring 12m<sup>2</sup>

# HAND-ARM VIBRATION EXPOSURE CALCULATOR

Version 4.3 January 2014

Tool or process name	Vibration magnitude m/s <sup>2</sup> r.m.s.	Exposure points per hour	Time to reach EAV 2.5 m/s <sup>2</sup> A (8)		Time to reach ELV 5 m/s <sup>2</sup> A (8)		Exposure duration		Partial exposure m/s <sup>2</sup> A (8)	Partial exposure points
			hours	minutes	hours	minutes	hours	minutes		
Strip Plaster	11.4	260		23	1	32		21	2.4	91
New Membrane	16	512		12		47		21	3.3	179
Chemical Injection	16	512		12		47		14	2.7	120
Cut Back Flooring	22	968		6		25		3	1.7	48

☒ Lock Tool or process names

Zoom to fit

Help

Reset

## Instructions for use:

Enter vibration magnitudes and exposure durations in the white areas

To calculate, press <Enter>, or move the cursor to a different cell

The results are displayed in the yellow areas

To clear all cells, click on the 'Reset' button

Tick the 'Lock tool or process name' check box to prevent 'Reset' clearing these cells

For more information, click the 'Help' button

Daily exposure  
m/s<sup>2</sup> A (8)  
5.2

Total exposure points  
438

**WARNING: Exposure above  
5m/s<sup>2</sup>A(8) ELV (400 points)**

# HAND-ARM VIBRATION EXPOSURE CALCULATOR

Version 4.3 January 2014

Tool or process name	Vibration magnitude m/s <sup>2</sup> r.m.s.	Exposure points per hour	Time to reach EAV 2.5 m/s <sup>2</sup> A (8)		Time to reach ELV 5 m/s <sup>2</sup> A (8)		Exposure duration		Partial exposure m/s <sup>2</sup> A (8)	Partial exposure points
			hours	minutes	hours	minutes	hours	minutes		
Strip Plaster	11.4	260		23	1	32		10	1.6	43
New Membrane	16	512		12		47		10	2.3	85
Chemical Injection	16	512		12		47		7	1.9	60
Cut Back Flooring	22	968		6		25		3	1.7	48

☒ Lock Tool or process names

Zoom to fit

Help

Reset

## Instructions for use:

Enter vibration magnitudes and exposure durations in the white areas

To calculate, press <Enter>, or move the cursor to a different cell

The results are displayed in the yellow areas

To clear all cells, click on the 'Reset' button

Tick the 'Lock tool or process name' check box to prevent 'Reset' clearing these cells

For more information, click the 'Help' button

Daily exposure  
m/s<sup>2</sup> A (8)

3.8

Total exposure points

236

**WARNING:** Exposure at or above  
2.5m/s<sup>2</sup>A(8) EAV (100 points)

# RIDDOR

Operative's fingers were completely white

Occupational Health Physician appointment made

HAVS Stage 3 Diagnosis

HSE "Mandatory Investigation"

Interview with HSE Inspector and Vibration Specialist

# Findings of Investigation

- No further action
- Risk Assessed vibration exposure for each task
- Operatives have been briefed on the Guide, and have had follow up training
- We have Occupational Health Surveillance in place.
- Following the diagnosis, we managed the individual's work and specifically Risk Assessed him.
- HSE inspectors investigated how we went about task allocation, how this translates into points, how this is resourced etc.

# HAVI Meter



- Strap the monitor to the tool
- Put in the vibration magnitude of the equipment
- HAVi monitor displays accurate trigger time and actual vibration points.

- After 100 vibration points, a warning light flashes amber.
- After 400 points, the light turns red

# Veitchi Estimates v HAVI Meter



Slab for shower trays to be prepared and made smooth. Operative was concerned about vibration risk.

Veitchi estimates 6 minutes of trigger time (7 Vibration Points)

Maximum number of trays per day = 56, with a maximum trigger time of 5h40m

HSE Vibration Calculator shows 5h33m.

Operative used the HAVI Meter and did a couple of shower trays. Estimated around 6 hours of trigger time.

In reality there were 61 trays to be prepared and were being done over a period of weeks

# HAVI Meter



# RIDDOR

April 2017 Stage 3 HAVS Diagnosis

A more robust internal investigation building on the positive steps we already had in place

Ability to track back and calculate exactly how much vibration exposure an operative has had

July 2017 Stage 1 HAVS Diagnosis picked up at Occupational Health Surveillance

# Influences



**Exposure Duration**



**Smoking Habits**



**Annual Health Surveillance**  
(concealed symptoms)

# Avoiding Vibration



Forming drainage channel at new slab stage.

Avoiding the need to cast whole slab and then chasing out the channel.

# Alternative Work Methods



Can we avoid the use of vibrating tools? Do we need to use a breaker?

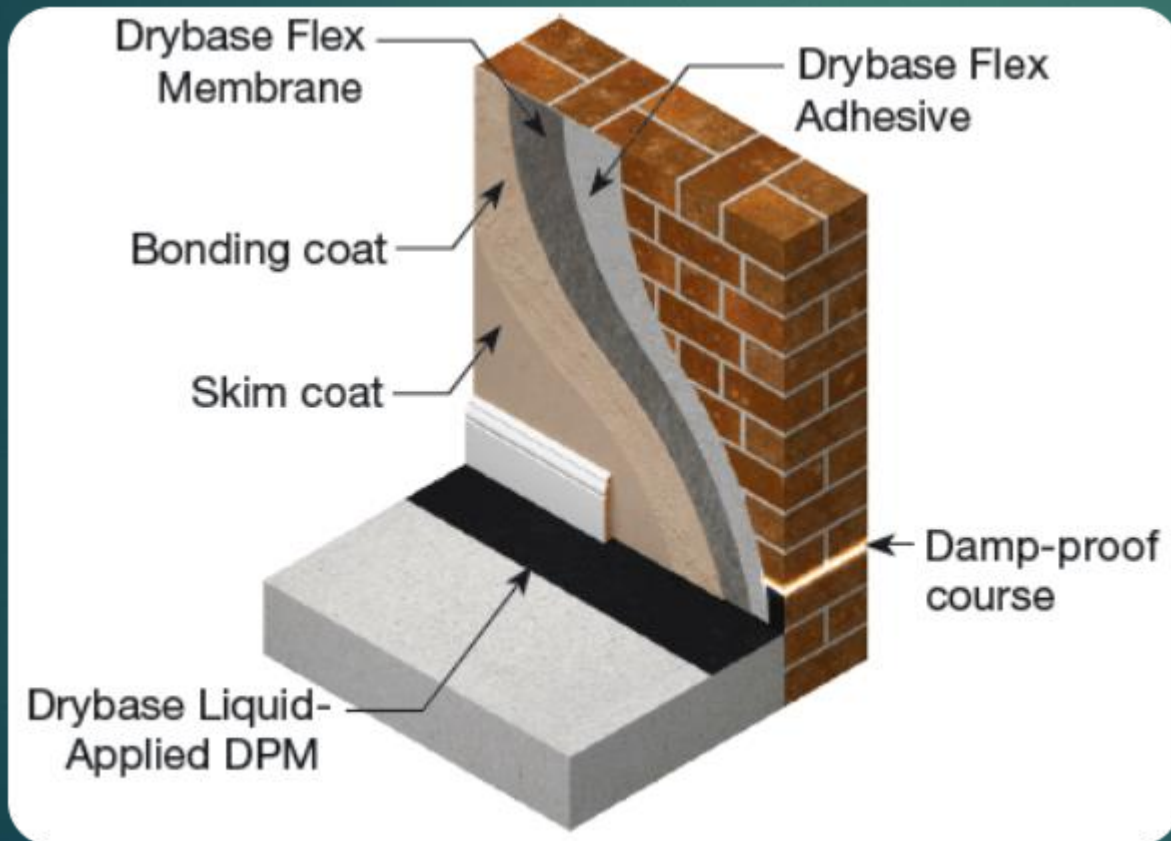
# Alternative Work Methods

Striking the plaster first? Does this weaken the plaster and reduce trigger time?



# Alternative Work Methods

Existing wall fabric removed. Do we need to use guns for mechanical fixing?



# Alternate Work Methods



- Hilti gas tool piloted to fit membrane and a comparison was made against the traditional drilling.
- Vibration points of around 26 Points per square metre for traditional drilling.
- Vibration points of around 1 Point per square metre for gas fixing.

# Planning Work

Approximately 48 Vibration Points per square metre

Hacking Off Plaster

3 minutes per square metre

Hack Off Gun - Hilti TE50-AVR(02) = 11.4m/si Vibration Magnitude

Approximately 13 Vibration Points per square metre

17

12713

120

36

152

312

46

514

Drill (SDS) - Hilti TE2-01 = 26m Vibration Magnitude

17 Vibration Points per square metre

Damp Proofing

2 minutes per square metre

Drill (SDS) - Hilti TE2-01 = Vibration Magnitude

17 Vibration Points per square metre

12726

160

81

512

## Contract Details-Techs File

Property Address 34 GEORGE STREET

Client Name GRANGEMOUTH

Job No 167/318

Survevor SK

Supervisor GB

(H) (W) (M) \_\_\_\_\_

(H) (W) (M) \_\_\_\_\_

Pre-Start Meeting Date \_\_\_\_\_

Completion Date \_\_\_\_\_

Accepted 27/07/17

Credit Status \_\_\_\_\_

Start Date 01/08/00

Final Inspection \_\_\_\_\_

19x38  
Plaster Vert - 12 m

Render = 432

Plaster = 16

DPC = 85

Monobase = 52

Total = 595

See asbestos report attached

electrics - socket / switch

Plaster	Dry Coat	Hard Wall	Skim	Render	Other	Ops Assigned:	Issued
Chemical	Biocide	Dual	W Worm	20 Gel	40 Inject	DPC Cream	C.D.M
Quantity	12					1 V2	2
Skip	Skip Permit	Scaffold	Plumber	Electrician	Slater	Builder	Others
	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

Asbestos Check

Suspected Asbestos Containing Materials Identified

Certificates recorded in file & on system Yes / No / NA

Do we have copy of report Yes / No / NA

Was asbestos found to be present Yes / No / NA

Has it been removed Yes / No / NA


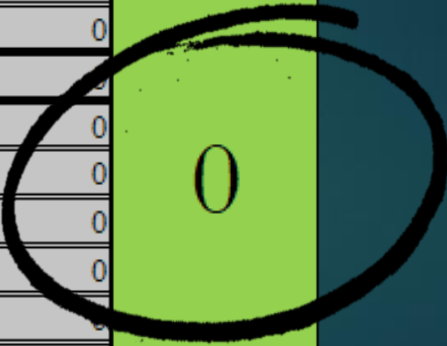
Clear to work: Yes / No

FOLLOW CONCEALED VOID PROCEDURES AT ALL TIMES

Signed GM Date: 2/8/17

Should you require further clarification then please contact your supervisor immediately.  
If in doubt don't strip out.

# Planning Work

 <b>Richardson &amp; Starling</b>				Person Specific HAV calculator			Status	Key
Job number		Address		Warning additional resource required				
Surveyor		Supervisor		Exposure action value				
Resource required		Client		Exposure below action value				
				Enter Quantity		Indicator		
Task	Substrate	Tool	Vibration magnitude	per unit(m2/m/cu)	per unit(m2/m/cut)	Task points		
Hack off Render	Cement render	Hilti - TE50	11.4m/s2	48		0		
Hack off Plaster	Plaster	Hilti - TE50	11.4m/s2	13		0		
Hack off Render	Cement render	Hilti - TE500-AVR	10.1m/s2	27		0		
Hack off Plaster	Plaster	Hilti - TE500-AVR	10.1m/s2	10		0		
Drill and Plug	Masonry	Hilti TE2 SDS	16m/s2	26		0		
Irrigation	Masonry	Hilti TE2 SDS	16m/s2	17		0		
Damp proofing	Masonry	Hilti TE2 SDS	16m/s2	17		0		
Cutting pockets	Masonry	Hilti - TE50	11.4m/s2	4		0		
Cutting flooring	Timber	Recip - Makita JR350T	22m/s2	16		0		
Cutting floor joists	Timber	Recip - Makita JR350T	22m/s2	16		0		
Cutting floor joists	Timber	Jigsaw - Bosch GST 150	7m/s2	2		0		
Wood cutting tasks	Timber	Makita 5008MG	3m/s2	1		0		
Cutting Floor channels	Concrete	Stihl Saw	4.2m/s2	1		0		
Cutting Floor channels	Concrete	Hilti - TE50	11.4m/s2	9		0		

# Planning Work



# Summary

- Vibration levels can be easily established – It takes time
- There is no need to immediately opt for technology to monitor and record exposure
- Work methods can be tailored to suit vibration, and not affect the work
- Training operatives on vibration, especially the points system, can pay benefits
- Occupational health provision is effective, but relies on the information given by the operative
- Formally planning the work can allow vibration exposure to be logged for operatives



**Steven McKenna**

Group Health, Safety and Environmental Manager

T - 0141 212 3961 / M - 07811 826056 / [steven.mckenna@veitchi.com](mailto:steven.mckenna@veitchi.com) / [www.veitchi.com](http://www.veitchi.com)