


Reducing Surface Preparation Noise Levels

PROJECT IMAGE	OBJECTIVE
	<p>The objective of this project is to identify steps within the surface preparation process that exceed the required noise decibels level. Current decibels levels have been documented in excess of 100.</p> <p>Identify and test the current noise levels associated with Abrasive Blasting. Work to reduce noise to an acceptable OSHA level for the work environment. The current process for addressing noise levels is inadequate.</p> <p>TIP Item(s): Surface Prep & Coatings 7.2.2.6.3, 7.2.2.6.4</p>
BENEFITS/ROI	PROJECT INFORMATION/FINANCIAL
<p>Safety – Obtain the required hearing noise level, < 85 decibels. Reduce Craftworkers risk of hearing loss</p> <p>Quality – Ensure Craftworkers to go home in the same condition they came to work in, maybe a little dirty</p> <p>Schedule – Increase schedule adherence</p> <p>Cost – Reduce Workers Compensation cost</p>	<p>Project Lead/Team Members: Rapid Prep LLC, GD-NASSCO, and other Shipyards</p> <p><u>Duration:</u> 12 Months</p> <p>Program Funds: \$200K Cost Share: N/A Public Sector: N/A</p>

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Testing with New Modifications

FREQUENCY (Hz)	Measurements taken in DBA					
	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6
Total	84.5	84.5	85.0	85.1	86.5	86.5
31.5	51.6	51.6	51.6	51.6	51.6	51.6
63	53.0	56.5	53.8	55.4	60.9	56.5
125	74.9	70.7	75.6	65.5	65.7	65.5
250	73.3	76.4	73.9	77.5	75.6	76.5
500	75.4	77.3	77.3	77.5	79.3	79.3
1000	77.3	76.4	77.7	78.5	78.8	78.9
2000	78.1	78.7	78.8	79.5	80.4	79.8
4000	78.2	78.2	77.9	79.5	80.2	80.0
8000	73.0	70.0	71.0	73.5	75.1	75.0
16000	64.1	60.0	61.1	64.0	64.0	65.9

All Measurements were taken at 1m away and 1m high. The test was performed inside of a building with doors closed. The Background reading was 82.5 DBA. About 10' to 20' away and above the unit. The sound level was 84 - 83 DBA respectively. When factoring in the background noise the vacuum is approximately 84.3 DBA for the high. (See below.) The 2000 Htz and 4000 Htz levels were the dominate frequencies contributing an estimate of 25% of the noise level. A Quest Model 2900 (Serial # CE0090003 with calibration dates of 9/8/06-9/8/07) was used with a Quest OB-300 (Serial # HV0080043 with calibration dates of 9/8/06-9/8/07). A Quest QC-10 field calibrator (Serial # QI0100143 with calibration dates of 9/8/06-9/8/07) was used before and after the test.

Calculated noise produced by vacuum machine at each position (using the General Method)

Position 1	Position 2	Position 3	Position 4	Position 5	Position 6
80.17	80.17	81.4	81.6	84.3	84.3

Factoring Out Estimated Background Level

$$SPL_f = 10 \text{ LOG } \{S10^{SPL/10}\}$$

