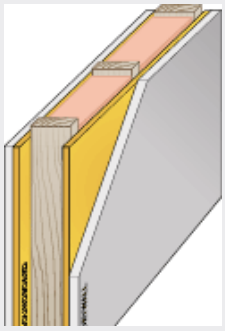
GREEN GLUE VS. SOUNDBOARD

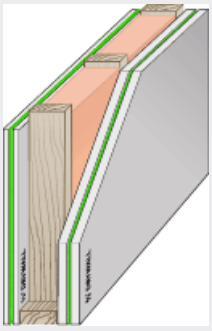
The Green Glue Company is pleased to present data for Green Glue (a viscoelastic damping material) and soundboard, a commonly used and low cost sound isolation product. Green Glue adds more cost to the wall than soundboard (which is a relatively inexpensive material), so for its use to be justified, it would have to perform considerably better than soundboard.

The data was collected at Orfield Laboratories, an independent NVLAP accredited lab in Minneapolis, MN, in 2005 on nominally identical wall configurations.

1. TEST DESCRIPTION

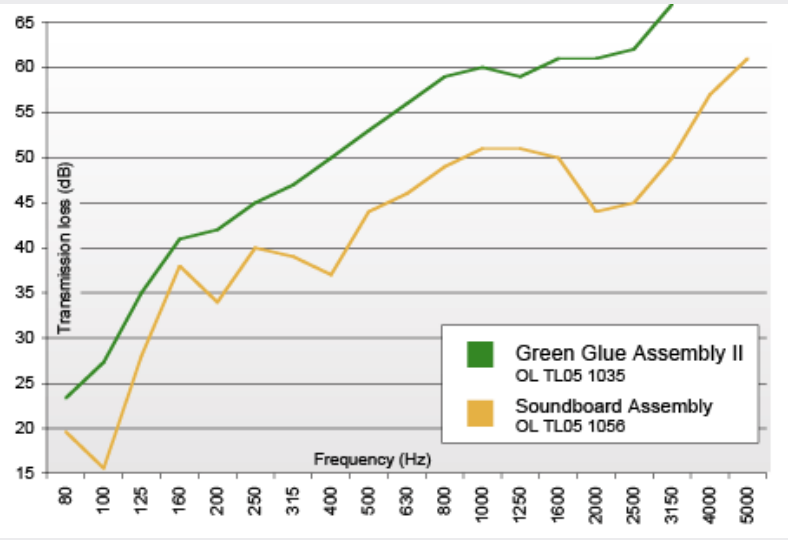
To compare Green Glue and Soundboard we selected a common wall configuration in line with configurations typically tested by acoustic product manufacturers.

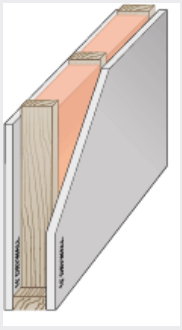


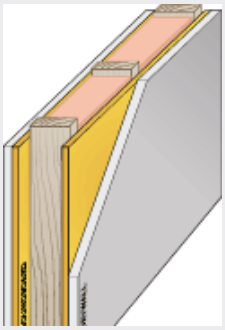


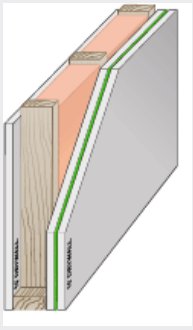
Soundboard Assembly
5/8” drywall, 1/2” soundboard
2x4 single wood studs, 24” on center
R13 fiberglass insulation
5/8” drywall, 1/2” soundboard
Screws 24” O.C. through base layer, 12” O.C. through the face layer
OL 05 1056

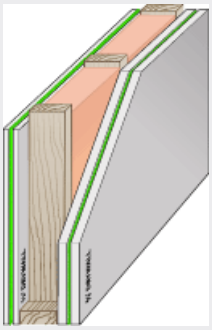
Green Glue Assembly
5/8” drywall + Green Glue @ 58 fluid ounces per 4’ x 8’ sheet + 5/8” drywall
2x4 single wood studs, 24” on center
R13 fiberglass insulation
1/2” drywall + Green Glue @ 58 fluid ounces per 4’ x 8’ sheet + 1/2” drywall
Screws 24” O.C. through base layer, 12” O.C. through the face layer
OL 05 1035











Reference Assembly 5/8" on both sides	Soundboard Assembly	GG Assembly I 1 layer on source side	GG Assembly I 1 layer on source side
40	46	52	56
29	32	29	40
38	42	38	50.4
OL 05-1003	OL 05-1011	OL 05-1003	OL 05-1035

[A] An assessment of wall performance that is not an official standard, but is utilized by Audio Alloy as a superior method to STC or OITC for music and theater applications where low-frequency content is high. It calcualtes using the ISO 226 equal loudness standard, and using a bandwidth of 31.5-5000Hz. Equal Loudness attempts to correlate to how people actually hear.

[B] The A-weighted sound reduction for a noise source having flat response from 31.5 to 5000Hz. For additional information about how these ratings are calculated, and for spreadsheets that will allow you to calculate them, visit our website at www.greengluecompany.com

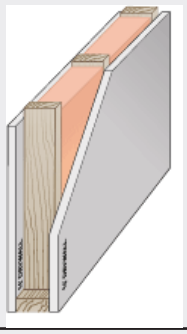
[C] Complete analysis is found in the appendix of this document.

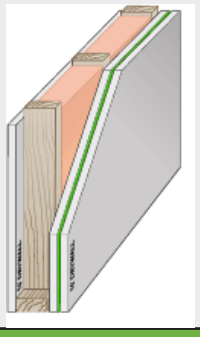
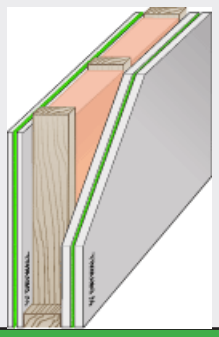
SUMMARY

Triple leaf (or quadruple or higher # of leaf) constructions should be avoided like the plague. You will always get a lower level of sound isolation, and this loss may be most severe where you need performance the most – low frequencies. The Green Glue Company has a variety of such information available on the web site.

COST ANALYSIS OF THESE WALLS

Here we will take a look at the cost of each of the assemblies that feature product on both sides.



	Reference 1 Single 5/8" on Both Sided	**Soundboard Assembly**	**Green Glue I** 2 Layers Drywall one side, 1 layer other side	**Green Glue II** 2 Layers Drywall each side 2 Damping Layers
Drywall, materials	$0.68	$0.68	$1.02	$1.28
Drywall, labor	$1.20	$1.20	$1.80	$2.28
Soundboard, materials	-	$0.75	-	-
Soundboard, labor	-	$0.78	-	-
Green Glue, materials	0	0	$0.78	$1.56
Green Glue, labor	0	0	$0.18	$0.36
Framework, materials	$0.40	$0.40	$0.40	$0.40
Framework, labor	$0.60	$0.60	$0.60	$0.60
Insulation, materials	$0.33	$0.33	$0.33	$0.33
Insulation, labor	$0.40	$0.40	$0.40	$0.40
Sealant, materials & labor	$0.65	$0.65*	$0.65	$0.65
Mudding/taping, materials & labor	$0.56	$0.56	$0.56	$0.56
Total Cost, materials	**$1.61**	**$2.36**	**$2.73**	**$3.77**
Total Cost, materials + labor	**$4.82**	**$6.35**	**$6.67**	**$8.42**
Test Number	**OL 05-1057**	**OL 05-1056**	**OL 05-0416**	**OL 05-1035**

* - Resilient channel calls for floating drywall with thicker beads of sealant. The Green Glue wall was tested with Drywall resting on the concrete of Orfield's lab, requiring far less sealant application.

** - In some situations it is necessary to compensate for floor space consumed by the wall, as the consumed floor space represents lost saleable value. In this calculation we assume a 9-foot high demising wall, and floor space valued at $200 per square foot. We normalize to a 4.75" deep wall. Labor for saw-cut panels assumed to be 15% higher than for scored drywall.

Despite the now very large performance advantages, the GG wall remains considerably less expensive.

Results will vary. All costs based on national average material and labor rates taken from the National Construction Estimator, a Craftsman product. Rates will vary considerably depending on location, time of year, and other factors. Labor will vary the most.

Soundboard costs vary. Some brands of soundboard are nearly as costly as a layer of Green Glue, at ~$20 per 4' x 8' sheet. In this case, the cost entered above is the cost paid for the board tested, $12 per sheet. At other times soundboard can cost less, perhaps as little as $8-$9 per sheet. The performance of soundboard may vary somewhat, but is unlikely to vary considerably as the mass, thickness, and damping of the boards is reasonably similar. More expensive boards tend to be heavier, and would probably perform a little better.

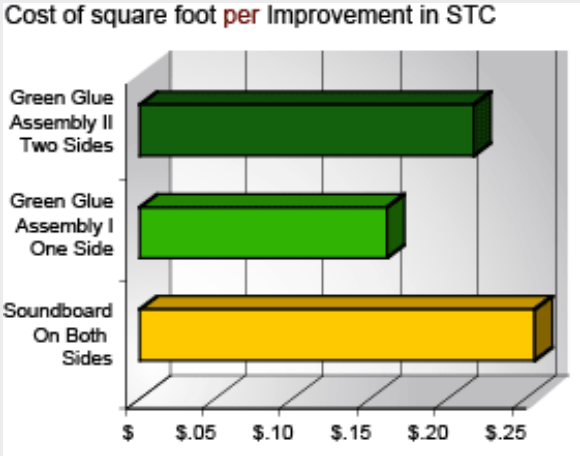
ANALYSIS OF PERFORMANCE IMPROVEMENT/COST RATIO

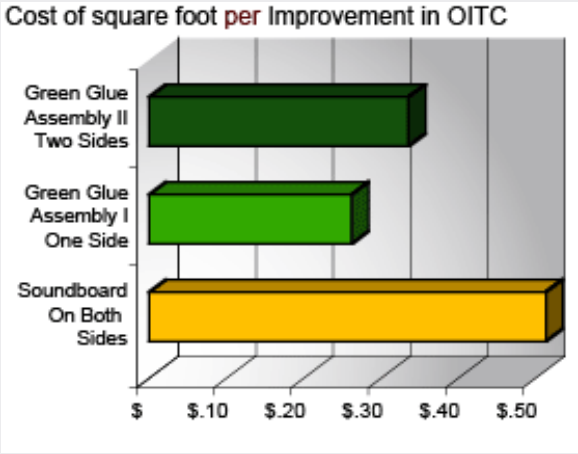
To analyze the benefits of Green Glue relative to less costly technologies such as soundboard, we perform this simple calculation:

$$\frac{\left(\text{Upgraded Wall -Soundboard or GG-}\right) - \left(\text{Cost of Reference Wall}\right)}{\left(\text{Performance of the upgraded Wall}\right) - \left(\text{Performance of Reference Wall.}\right)}$$

The results of this calculation for different walls are shown to the right.

Green Glue can indeed hold its own in cost/performance against soundboard, especially when low frequencies are considered. Its higher material cost is more than offset by its significantly larger performance improvements.





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