

End Goal: Transform Thomas 303 into a rehearsal studio that is acoustically isolated from its adjacencies and provides comfortable interior acoustics for those using the space.

1. Benchmark testing of the room – what are the existing conditions
 - a. Current finishes
 - b. RT testing
 - c. NIC
 - d. Room dimensions
 - e. Room mode
2. Interior acoustics
 - a. What is our target RT?
 - b. Determine how much surface area we need to cover
 - c. Finishes:
 - i. Curtains?
 - ii. Paneling
 - iii. Bass traps
 - iv. rugs
 - d. Tools/material:
 - e. Barrier for Isolating drums and vocal
3. Acoustic Isolation
 - a. What is our target STC of our walls/ceiling/floor/etc
 - b. Items:
 - i. Door seals
 - ii. Ceiling iso?
4. Ask Pottinger and Andy about budget – What is our budget?

Data:

RT Test Results:

	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz
Test: 000	0.55 sec	0.73 sec	0.51 sec	0.34 sec	0.53 sec	0.76 sec
Test: 001	0.46 sec	0.65 sec	0.43 sec	0.36 sec	0.50 sec	0.73 sec
Test: 002	0.49 sec	0.77 sec	0.43 sec	0.33 sec	0.49 sec	0.75 sec
avg	0.50 sec	0.72 sec	0.46 sec	0.34 sec	0.51 sec	0.75 sec

TEST 2	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz
Test: 002	0.47 sec	0.55 sec	0.49 sec	0.33 sec	0.54 sec	0.61 sec
Test: 004	0.41 sec	0.68 sec	0.53 sec	0.45 sec	0.56 sec	0.62 sec
Test: 006	0.47 sec	0.63 sec	0.56 sec	0.38 sec	0.53 sec	0.62 sec
avg	0.45 sec	0.62 sec	0.527 sec	0.387 sec	0.543 sec	0.617 sec

Wavelengths below 250 likely can only propagate on the longest wall and are therefore interrupted by windows (room likely isn't big enough for a sub etc)

Difference between highest and lowest values decreased substantially, showing more consistency

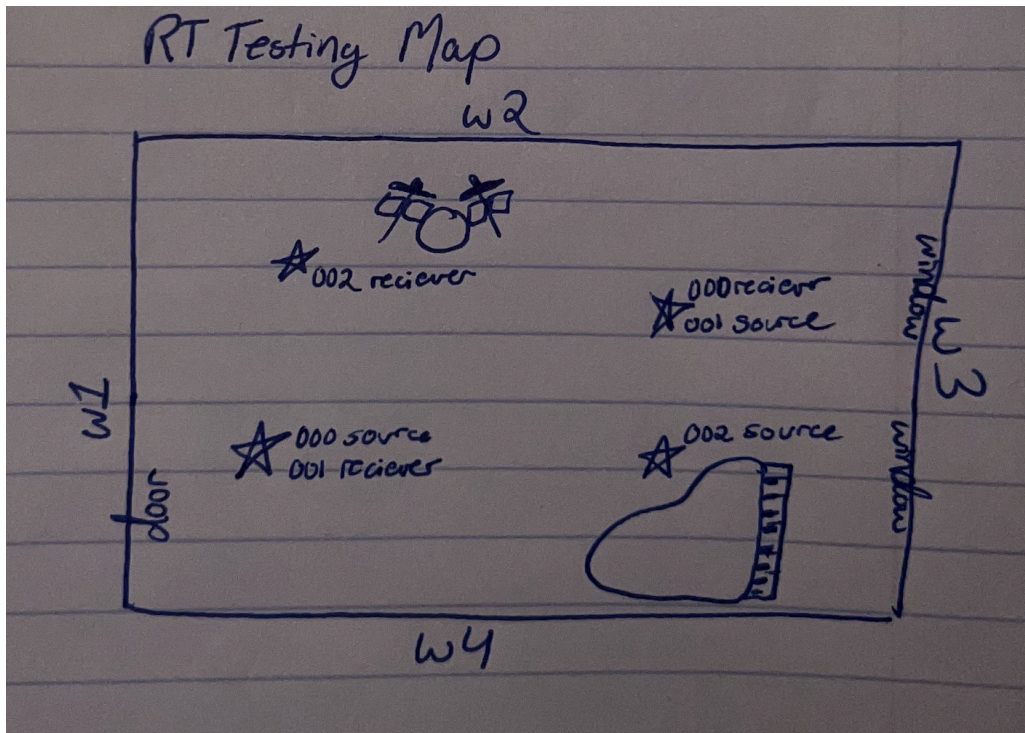
Calculated times are likely too low and we should do our best to lower our calculated insulation to raise calculated values to reflect these measurements. These values reflect an untreated space better than our calculations

Contour stayed consistent: prioritize lows and highs over mids.

This feels like usable data overall

Set in lights likely harbor very high pitched flutters

***Ideal RT of a small music rehearsal room: 0.4 to 0.5 sec (according to the internet)



Room Mode Equation:

$$F = c / (2L)$$

$$F = 1125 / (2 \times 21.33)$$

$$F = 1125 / 42.66$$

$$F = 26.37 \text{ Hz}$$

Room Measurements:

L- 21.33ft

W- 15.92ft

H- 8.92ft

Windows:

L- 4.83ft

H- 6.25ft

Door:

L- 2.83ft

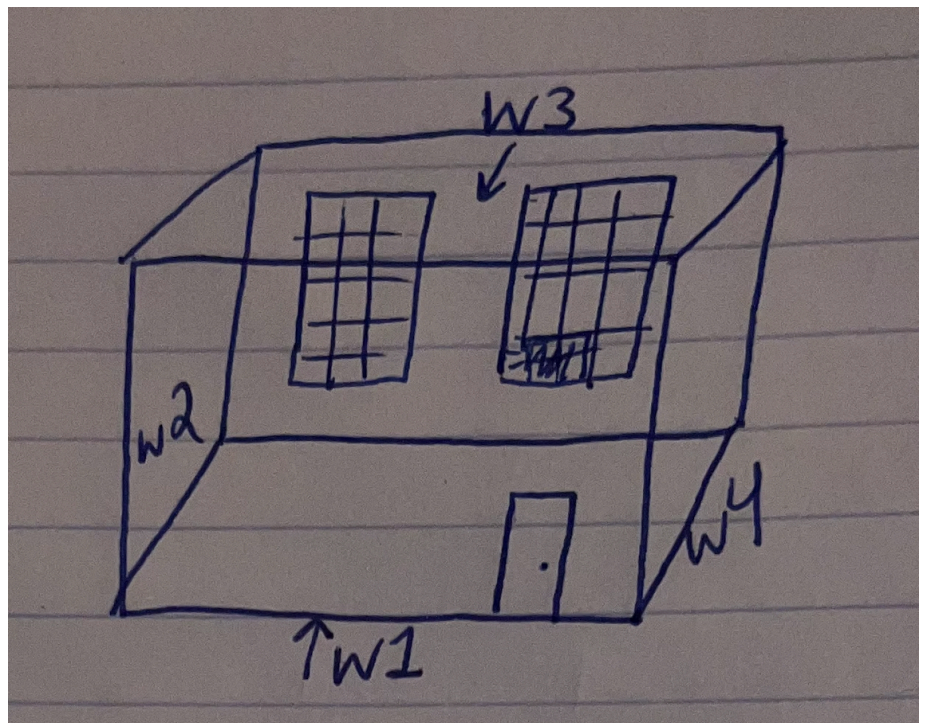
H- 6.58ft

Surface area:

w1&3: 190.26 ft²

w2&4: 142 ft²

Ceiling/Floor: 339.57 ft²



Total Volume: 3,029 ft³

Materials:

Ideal: materials with STC 60

Paneling

Best - <https://www.atsacoustics.com/cat--ATS-Acoustic-Panels--100.html>

Better -

https://www.secondskinaudio.com/acoustics/mela-mute-pyramid?sku=MELA-4-2-2424-PYRA-CHAR&tw_source=google&tw_adid=701761742799&tw_campaign=21369893182&tw_kwdid=pla-296782068144&gad_source=4&gad_campaignid=21369893182&gbraid=0AAAAADJIsJqU33aRnqDTdVrt131_3R3dM&gclid=Cj0KCCQIAq7HIBhDoARIsAOATDxDpZ5cvOGCtOOK8JwxcXM5brPpHv92YAEirD_RA31UtYp-eIVaH43QaAh7uEALw_wcB

Good -

https://www.amazon.com/Focusound-Acoustic-Panels-Double-Side-Adhesive/dp/B0F4K2457C/ref=sr_1_7?crid=1VFNX37VNW71B&dib=eyJ2IjoiMSJ9.i7oRiXKD6Y2Uhv56MyXqx9pHbmdpYxE__PcUcEURpmykaUzolsiAzy6uTVvaWdep42w7bO-VMQ8UP4Vjqhzut_VSvLLeCPoi-WIXeR8CO2FmII_kr8tJMk0dH1rD7gI7Pco_X5r9lIUwSWyGBFa6nGqcWQ2y6BZMkdbSPhNZEVWaDFjL6KP8-fJCdFx0P6BqIBqRDmL91MUcOGjcIKdz9YghyrZ2byOPcIVsdcmp0Mm12YI6j_zm3X9GwuorSCJnoHcF0yughFMSsSvTiA0mSWbpoRe65hgkzIRDwa2hnM.4ceF2YiFwF1_BzvM4aSqN65075D0yiyD1sM6QKYMtXg&dib_tag=se&keywords=acoustic%2Bfoam%2Bpanels%2BNRC%2B.9&qid=1762873819&sprefix=acoustic%2Bfoam%2Bpanels%2Bnrc%2B.9%2Caps%2C218&sr=8-7&th=1

Rug/foam tiles

Best -

https://floydhome.com/products/the-rug?srsId=AfmBOoov4sKeOeaAPGX-c-38t9KLeOwEpO5K6B0UAfrbmWQA_flh7ygZ&variant=37788114452642 (Pricier depending on size)

Better -

https://www.amazon.com/TroyStudio-Absorbing-Interlocking-Vibration-Soundproof/dp/B0CSJS GKST/ref=sr_1_8?dib=eyJ2IjoiMSJ9.wyjIjR1r3BKsHYfbI5VIOBB2v2Fed5uA-8XBwQTb2Vl2_0WoghliCWklmgQB8w4LSfYrdZubJ8dwlfaEKtIJS1KGU6BH9wqHYj3VlxOw7hgJO7vA8q6ectUZf7oofxh25zObEY5NIEe22e4a2Y6Uwo36gsLWqaTLvMRfMMczf9zXuDknmXGF2qHCQ4FhUZ5vp-gaqMa7k6Mxhqpi8H_a5wV-9rsN06fkZBYQ1dcInXP-HosbhbEoX53y_YMAT6hZxqghtdSviRSFcTmOJSnEpmE5CbUNwL27UrHSERako.gIdke3wsugkMNlhOMDku-k4ZGRMycxBfirF9HR9G7OQ&dib_tag=se&hvadid=778298935892&hvdev=c&hvexpln=0&hvlocphy=9004177&hvnetw=g&hvocij=6486945988302776226--&hvqmt=b&hvrand=6486945988302776226&hvtargid=kwd-2387740174301&hydacr=29209_14959042&keywords=sound%2Babsorbing%2Bfoam%2Bmat&mcid=1981b29a4cd43ecb8644d81aecb363a8&qid=1762473920&sr=8-8&th=1

Good -

https://www.rugpadusa.com/products/superior-lock-7-16?srsId=AfmBOoPONwYnwfp260pv_xZCH7v51vA0kitYsNbAmgxxe5oUNUxkcoWj (Felt pad to go under the rug)

Bass Traps -

Best -

https://www.gikacoustics.com/products/tritrap-corner-bass-trap?srsId=AfmBOopzLQR6SxGsu8szwyZhryjztT_pt60m1D1w22JesDPvlnIxbqASlw

Better -

https://www.performanceaudio.com/products/performance-audio-12-x-12-corner-bass-trap-single?variant=42493962387634&country=US¤cy=USD&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic&srsId=AfmBOoo1mZ9C76CmZuimtv0eM8xqqs9cDottkB30QFI9MLjHtHym21-KsvQ

OR

https://www.amazon.com/Focusound-Acoustic-Absorbing-Theater-Frequency/dp/B0CL5WWNT6/ref=sr_1_3_sspa?crd=3GQU5KA0MB8HG&dib=eyJ2IjoiMSJ9.hLsp1ptD0cKZKzwtld2dNQR3cpkJ1zL_0mZ6aG0k1K1NEKeiAdYnzG9-83-a7FDdt6ncMSDgSJTG1Xngq5_AgswDetoUkmmYLeBMo9T7KNeL5sfKMXffAJFzc1lbIrBiZ7ZaS2X9_NNVKnKTdeOx2fcctZpCRgp9qWx0GKTxnapUH8-orMUZz7uc8o0YD1-rxRTnflkbdXO8KaYdLixpo6xH9yDiiFwM8XQmm-EhONjflw0eTIISx5tgIujrkQiyxcbVJGWeA1L9sU-t627LXPcJYU-2KFUD7ERcv1vFLfE.DtNtC9gaKolX7i2EPxQBiEm1XC1GQ1ZgRC1oPNme-go&dib_tag=se&keywords=bass%2Btraps&qid=1762875774&sprefix=bass%2Btraps%2Caps%2C150&sr=8-3-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&th=1

Good -

<https://arrowzoom.com/products/arrowzoom-triangle-corner-bass-trap-series-solid-colors-kk1161?variant=32344518557761>

https://www.amazon.com/Pack-Fire-Proof-Recording-Acoustical-Treatments/dp/B08HMNWTH9/ref=sr_1_6?crd=3GQU5KA0MB8HG&dib=eyJ2IjoiMSJ9.hLsp1ptD0cKZKzwtld2dNQR3cpkJ1zL_0mZ6aG0k1K1NEKeiAdYnzG9-83-a7FDdt6ncMSDgSJTG1Xngq5_AgswDetoUkmmYLeBMo9T7KNeL5sfKMXffAJFzc1lbIrBiZ7ZaS2X9_NNVKnKTdeOx2fcctZpCRgp9qWx0GKTxnapUH8-orMUZz7uc8o0YD1-rxRTnflkbdXO8KaYdLixpo6xH9yDiiFwM8XQmm-EhONjflw0eTIISx5tgIujrkQiyxcbVJGWeA1L9sU-t627LXPcJYU-2KFUD7ERcv1vFLfE.DtNtC9gaKolX7i2EPxQBiEm1XC1GQ1ZgRC1oPNme-go&dib_tag=se&keywords=bass%2Btraps&qid=1762875774&sprefix=bass%2Btraps%2Caps%2C150&sr=8-6&th=1

Curtains

Best -

<https://www.saaria.com/commercial-soundproof-curtains.html?srsId=ARcRdnoXwo-1XP6HR58YkANnxlfyfVFUtdbFDMIxJD3ZfH11XC9mv11L>

Better -

https://www.amazon.com/LCOOMZEN-Blackout-Soundproof-Reduction-Insulated/dp/B0FNQSF53/ref=sr_1_5_sspa?dib=eyJ2IjoiMSJ9.1MgFWsaKMm6BrLE2bxGFIHJv8VEuZ-zFy8Ce0J4g6ulX174EaqK1Ag94eb29waiPZXyDjU6JQPUt9K77Zd1JEkMR0g7eUcmJKI2RnBQPmab0Ac

[idXvJM923tmznlanvFHN5_743UfE886CCdhO_e2wtg9tr8Lpugv-o-CyczCjd1M1sob6qqabsgIvP_njMZUqcXY5rEQYMn5fwys23xH8zJ229U6Nv4uT2WSrnH171OP4DDBY6XjEGoG_wwj5Leajv9617C0nbkfmYrEoYQZR2ngtUPbFkiaMzIZ45Of9g.ac5OhMfhzFJrzEv9inW4OwEKLKvZJ7jZnarS4ztsf8Y&dib_tag=se&keywords=soundproof%2Bcurtains&qid=1762875430&sr=8-5-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&th=1](https://www.amazon.com/dp/B0C160&ref=sspa)

Good -

<https://www.amazon.com/DriftAway-Soundproof-Insulated-Blackout-Reducing/dp/B0C160&ref=sspa>
[KG/ref=ssr_1_24?crd=1TPMMHF306RS8&dib=eyJ2IjoiMSJ9.JXnYsO0Vc89AwVrK6HPMfb8ElpDYOP-c5jECxTBRtUG7kMZGC2E_keELlfnjn55KfyRCCFAkTnBhs8_f1Lh1RqC9oZIIcKmkTf9CikGe3UY7-DPqOPpFNSmSQCw9_HsFUK41E6Orhot_WF-tXQKjzHA-oz_MzmNR9cjHgxlhw8mINMDwGvyVNzhWz9GTzi03z1aErHuFs3-IMlhv1eaHqc9NpixVdTVxfZYRzK3N1WU3IAzQrDBIijQ6_66Iiqi4EaRQHFpUPSaJ80XUjFEcxzYoe2WGR_5UoZ8iVsGCXIM.ujxci2hNEjlt3TrV6rECPmMsjUwKKmZ2sVlgdE0OLO&dib_tag=se&keywords=soundproof%2Bcurtain&qid=1762876134&sprefix=soundproof%2Bcurtain%2Caps%2C160&sr=8-24&th=1](https://www.amazon.com/DriftAway-Soundproof-Insulated-Blackout-Reducing/dp/B0C160&ref=sspa)

****note**** will need to account for tension rod to hang curtain (should be like \$15 give or take)

Door Stuff

Best - <https://www.secondskinaudio.com/soundproofing/sound-lock-gasket-tape>

Better -

[https://www.amazon.com/Audimute-Soundproofing-Acoustic-Door-Seal/dp/B07H4PY1XN/ref=ssr_1_2_sspa?crd=1Y7E5HNK49S9E&dib=eyJ2IjoiMSJ9.Xr_6hrnTVQBnn2KDDMv240jL2ucgiAWWQ1BmrRG9DPLv2425aIhQHJrtBft0OOSMBetm6V-Nn5Wi0Tgn2jeRSIve1D_svs7aDGo6Dq1fW_AL5PZpHaFRVuXARXmXEEvgQL1nixTmi0URZ66i98jdFI0ISE2DF4EbiZpkwFuN2052vySxJtym0OdfbNOuI2FSQtYFDNiXWO45fvdLO0EppQrwtelvniZfHh-6YYV74gvoAyxPwuGC0pImiYp4KT1rrbdcwJKI_9zE65CjttTOIzFxeoNxDy7q19ztoXx4c.iXkcciWFkdbE3kynz3W-VKL6q_dS23ExKONd6ON1rXg&dib_tag=se&keywords=ACOUSTIC%2BDOOR%2BEAL%2BKIT&qid=1762473574&sprefix=acoustic%2Bdoor%2Bseal%2Bkit%2Caps%2C83&sr=8-2-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&th=1\)](https://www.amazon.com/Audimute-Soundproofing-Acoustic-Door-Seal/dp/B07H4PY1XN/ref=ssr_1_2_sspa?crd=1Y7E5HNK49S9E&dib=eyJ2IjoiMSJ9.Xr_6hrnTVQBnn2KDDMv240jL2ucgiAWWQ1BmrRG9DPLv2425aIhQHJrtBft0OOSMBetm6V-Nn5Wi0Tgn2jeRSIve1D_svs7aDGo6Dq1fW_AL5PZpHaFRVuXARXmXEEvgQL1nixTmi0URZ66i98jdFI0ISE2DF4EbiZpkwFuN2052vySxJtym0OdfbNOuI2FSQtYFDNiXWO45fvdLO0EppQrwtelvniZfHh-6YYV74gvoAyxPwuGC0pImiYp4KT1rrbdcwJKI_9zE65CjttTOIzFxeoNxDy7q19ztoXx4c.iXkcciWFkdbE3kynz3W-VKL6q_dS23ExKONd6ON1rXg&dib_tag=se&keywords=ACOUSTIC%2BDOOR%2BEAL%2BKIT&qid=1762473574&sprefix=acoustic%2Bdoor%2Bseal%2Bkit%2Caps%2C83&sr=8-2-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&th=1)

Good -

https://www.amazon.com/dp/B0FG17GOXF/ref=sspa_detail_2?pd_rd_i=B0FG17GOXF&pd_rd_w=Gp5fZ&content-id=amzn1.sym.f2f1cf8f-cab4-44dc-82ba-0ca811fb90cc&pf_rd_p=f2f1cf8f-cab4-44dc-82ba-0ca811fb90cc&pf_rd_r=78SN9XOG19VYMAQ4Q2D9&pd_rd_wg=g0RM2&pd_rd_r=5a544300-20cc-4623-ab50-c6eb6d6282c1&sp_csd=d2lkZ2V0TmFtZT1zcF9kZXRhaWxhdGhlbWF0aWM&th=1

Potential Barrier between Instruments

<https://vocalboothtogo.com/product/acoustic-panels-sound-absorption-96-x-80/>

^^^budget dependent^^^

Budget: shoot for around \$500 total cost (up to \$900 according to pottinger)

Priority Items + price for quantity breakdown:

	Panels	Bass Traps	Rug	Curtain	Door Seal
Best	\$50 for one 2” thick 24x24	1 for \$249	\$995 for 8x10	\$155 for 1 panel (custom)	\$99 for 25ft
Better	\$60 for 60 foam panels 3in thick covers 200 sf	\$44 for 4 16.5" X 6.3" X 12"	\$43 for 16 Pcs 11x 11 x 0.4 inches	\$88 for Panel, Black, 50" x 108"	\$22
Good	\$70 for 50 2in 12x12 \$280 / 4 packs 200 panels total	\$28 for 8 8"x8"x12" \$56 / 2 packs 16 panels total	\$52 8’x10’ “Brown with Green” area rug	\$29 \$58 for 2 packs 52 x 84’	\$13 for Clear, 1.37IN*20FT

[Tension rod: \\$32 for two](#)

Total estimated cost:

\$500 before shipping/tax

\$545 after tax + shipping

includes everything in green + tension rod + quantity of every item needed for the room

<https://a.co/d/fDhhNfG>

<https://a.co/d/2Kyw0AM> (blue grey)

<https://a.co/d/cdsKDEk> (green)

Wishlist for all the items

https://www.amazon.com/hz/wishlist/ls/TTEF6BRDSFZ7?ref_=wl_share

How the room looks

<https://drive.google.com/drive/folders/1DPECzF78WJ4bhZqYAltNw6PXjPII-oiW>



RT Test Results: (when we held down piano+took out drums)

TEST 2	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz
Test: 002	0.47 sec	0.55 sec	0.49 sec	0.33 sec	0.54 sec	0.61 sec
Test: 004	0.41 sec	0.68 sec	0.53 sec	0.45 sec	0.56 sec	0.62 sec
Test: 006	0.47 sec	0.63 sec	0.56 sec	0.38 sec	0.53 sec	0.62 sec
avg	0.45 sec	0.62 sec	0.527 sec	0.387 sec	0.543 sec	0.617 sec

Post fixtures testing:

TEST 3	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz
Test: 001	0.40 sec	0.39 sec	0.26 sec	0.23 sec	0.17 sec	0.18 sec
Test: 004	0.33 sec	0.29 sec	0.34 sec	0.19 sec	0.18 sec	0.17 sec
Test: 003	N/A	0.31 sec	0.23 sec	0.20 sec	0.22 sec	0.18 sec
avg	0.37 sec	0.33 sec	0.27 sec	0.21 sec	0.19 sec	0.18 sec

Same testing map as before

***First two tests on diagonal, third test closest to drum and piano

STC test

000 - ambient inside room

001 - ambient hallway

002 - door

003 - wall

004 - sweep of hallway

005 - in room with white noise