



21 January 2025

Michael Mignosa
Director
Fruit Center Marketplace
10 Bassett Street
Milton, MA 02186

*** DRAFT-1 ***

Via Email: mikemig@fruitcentermarketplace.com

Subject: Community Sound Study for Planned Restaurant
Fruit Center Marketplace
Milton, MA
Acentech Project No. 638841

Dear Mr. Mignosa:

INTRODUCTION

At your request, Acentech Incorporated conducted an acoustical assessment of the planned new restaurant at the Fruit Center Marketplace. This project consists of a new restaurant on the second floor of the expanded market building at the Milton site. The existing kitchen and original restaurant area cover the rear half of the second floor and the expanded restaurant and bar area will cover the new front section of the building. The proposed front addition will have a seating capacity of 49 seats and the overall restaurant will have a total capacity of 99 seats. For our assessment, we reviewed the project information provided to us, met with you and toured your facility, observed existing conditions at the site and nearby community, and performed a baseline survey to characterize the current sound environment. This letter summarizes our acoustical assessment of the potential restaurant sound at the nearest residences to the northwest of the facility.

BASELINE COMMUNITY SOUND ENVIRONMENT

Figures 1 and 2 present photos of the Fruit Center Marketplace site, surrounding community, and the nearby residential area to the northwest of the proposed second floor expanded restaurant. The nearest home is about 150 ft from the restaurant. Figure 1 identifies the community locations that we selected for the baseline ambient sound survey, which we conducted during the day, evening, and night on Wednesday, 15 January 2025. Table 1 lists the type of instruments that we employed for the survey. Weather conditions over the survey were conducive to the measurement of sound and included: 35°F, clear sky, and light breeze (1-3 mph/W) during the day; 25°F, clear sky, and calm air during the evening; and 22°F, clear sky, and calm air during the night.

Tables 2 and 3 summarize the background residual sound levels (L90, dBA) for these three time periods, and Figure 3 shows the ranges of day, evening, and night residual sound levels. The L90 sound level occurs when short-term intrusive sound sources, such as local traffic passbys, are absent and the sound level returns to a lower residual value. We observed the following sound sources during the survey:

distant (Rt I-93) and local traffic and building HVAC equipment. The short-term measurements indicated a total range in the residual sound levels across all eight locations of 51 to 66 dBA during the day, 48 to 66 dBA during the evening, and 48 to 65 dBA during the night. At the nearest homes (Locations 2 and 3) to the northwest of the restaurant, the residual sound levels ranged from 54 to 56 dBA over the day and evening periods and 52 to 54 dBA during the night period, with all levels controlled by Rt. I-93 traffic sound.

RESTAURANT SOUND ESTIMATES

Typical sound sources associated with a restaurant include HVAC systems, traffic, people talking, and recorded or live music. The dining area of the expanded restaurant where sliding windows face the residential neighborhood to the northwest include high-top dining tables and a bar with seating. An exterior staircase and door on the south side of this area will give patrons direct access to the restaurant. We understand that you wish for the restaurant to operate until 10p. On nice days, you would like the slider windows to be open potentially until 7pm and then closed until 10pm. The slider window glazing is Solarban 60, 1", tempered, insulated units, 1/4 in. -1/2 in. air space-1/4 in. with a black spacer, as described in Appendix A. We estimate that these windows will attenuate sound by about 25 to 30 dB when closed. Based on the project plans and community layout, we estimate the sound from patron conversations and modest recorded background music in a fully occupied restaurant would typically be 45 to 50 dBA at the nearest homes with the windows fully open and less than 25 dBA with the windows all closed. These levels compare to the day and evening residual levels of 54 to 56 dBA and night levels of 52 to 54 dBA near these homes. The sound of I-93 traffic will provide useful masking of the dining conversations. The masking should be full and render the indoor conversations inaudible in the community when the restaurant windows are closed. When the windows are open, patron and modest recorded sound levels should be or less than the ambient background sound outside the nearest homes. Traffic sound will provide very useful, although at times with the windows open, not total masking of the restaurant sound in the community. Similarly, patrons talking outside the restaurant may be heard at times in the community. We note that the exterior staircase along the south side of the restaurant is well shielded from the residences by the restaurant building itself, which will significantly reduce patron sound that could propagate to the nearest residences.

NOISE CRITERIA

The applicable noise criteria for this project are those enacted by the Town of Milton, MA and the Massachusetts Department of Environmental Protection (MassDEP).

TOWN OF MILTON

Chapter 275 of the Town of Milton Zoning Bylaws mention's "noise" numerous times, including for wind turbines and wireless telecommunication facilities, and business and residential districts, but does not have a clause or chapter with numerical sound level limits.

COMMONWEALTH OF MASSACHUSETTS

The Commonwealth of Massachusetts has enacted regulations for the control of air and noise pollution (310 CMR 7.10). To enforce these regulations, MassDEP has issued guidelines that limit noise levels at property lines and the nearest residences. These limitations are: (a) not to increase the overall A-weighted sound level by more than 10 dB above the existing background sound level, and (b) not to produce a *Pure Tone* condition; a condition where the sound pressure level (SPL) in one octave band exceeds the sound levels in the two adjacent octave bands by 3 dB or more.

Based on a nighttime residual sound level of 52 dBA outside the nearest homes to the northwest, the applicable MassDEP limit in that area for a noise source would be 62 dBA.

CONCLUSIONS

The results of our study indicate estimated sound levels for the proposed restaurant, including normal patron conversation and modest recorded music, of up to 45 to 50 dBA outside the nearest homes to the northwest when restaurant windows are open and less than 25 dBA when the windows are closed. These levels compare to the existing background sound levels of 52 to 54 dBA at night outside the nearest residences. Although not typically applied to restaurant patron sounds, we note that these estimated sound levels are significantly lower than the MassDEP Noise Criteria value 62 dBA. We expect that patron conversations will be heard in the community at times, however, traffic sound will normally provide significant masking of the usual restaurant sound.

* * * * *

Please contact me with any questions or comments that you may have on our study or this report. My email address is: jbarnes@acentech.com.

Sincerely yours,

ACENTECH INCORPORATED



James D. Barnes, PE
Principal Consultant

Figures 1 to 3
Tables 1 to 3
Appendix A

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Figure 1.
Planned Restaurant at Fruit Center Marketplace, Nearby Community, and
Ambient Sound Measurement Locations 1 to 8 (15 January 2025).



0 100 ft



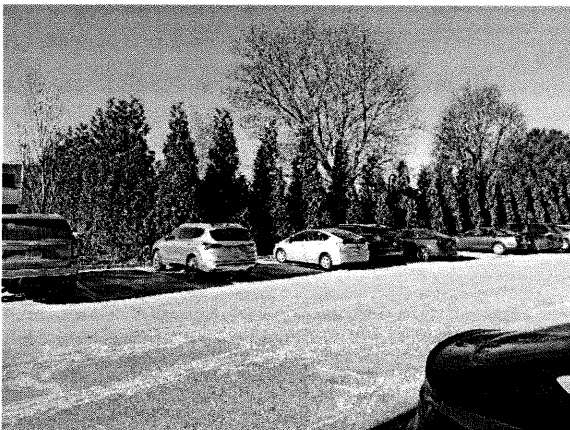
Figure 2.
Photographs of Restaurant Project Site and Nearby Community during Baseline Survey
(15 January 2025).



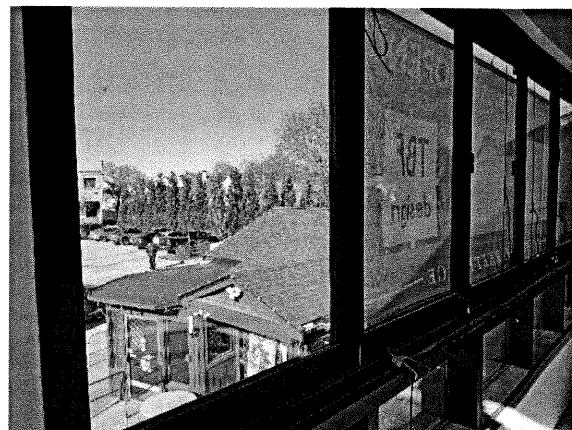
Looking NE to 2nd floor restaurant



Looking SE to 2nd restaurant



Looking NW to residential area



Looking NW from restaurant to residential area

Figure 3.
Ranges of Short-Term Hand-Held Residual (L90) Octave Band Sound Pressure Levels and Overall A-Weighted Sound Levels (dBA) Measured at Locations 1 to 8 during Baseline Survey (15 January 2025).

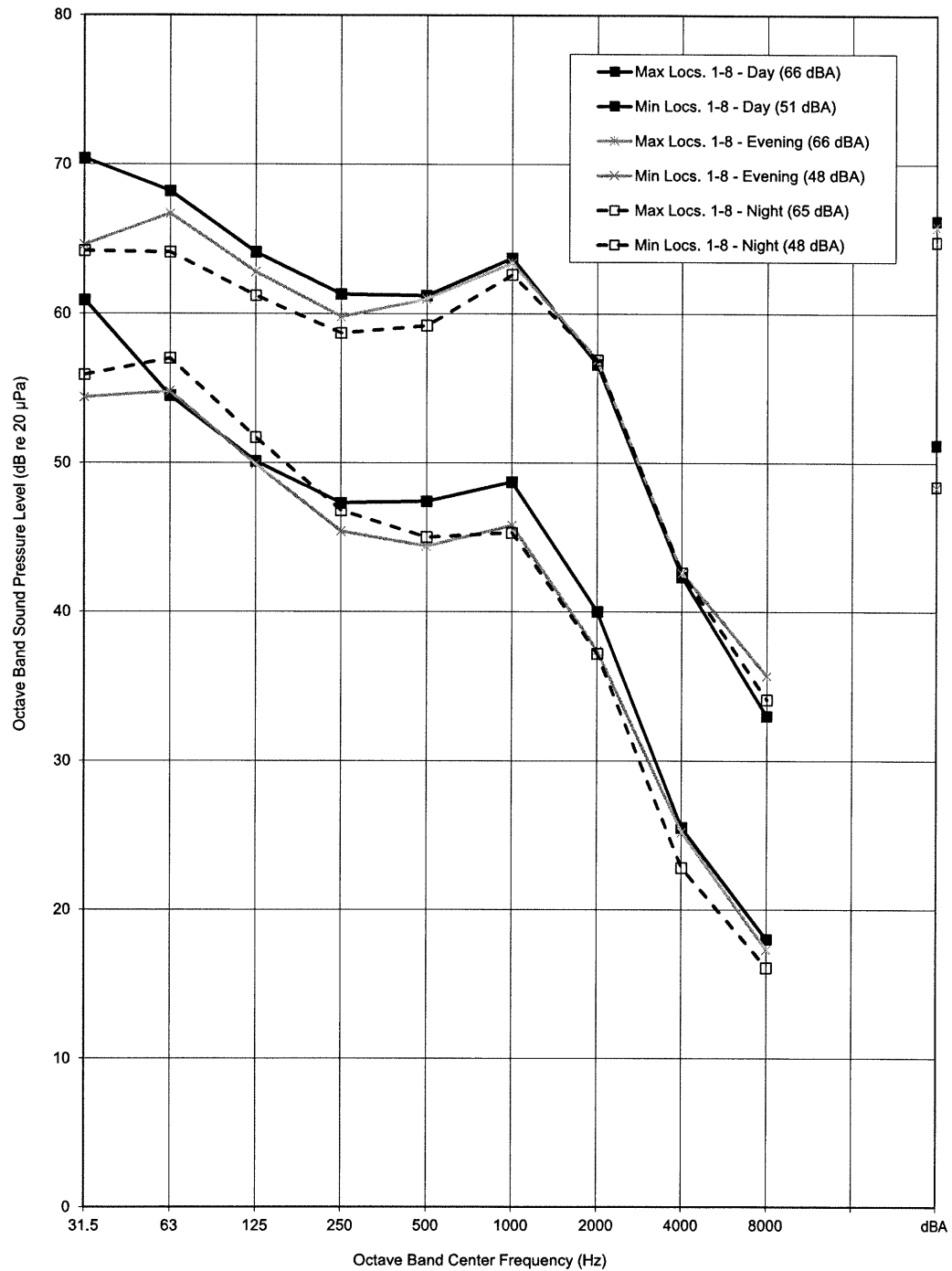


Table 1.
Type of Acoustic Instrumentation Used for Ambient Survey (15 January 2025).

Instrument Type	Manufacturer	Model
Precision Sound Level Meter and Octave Band Analyzer	Rion	NA-28
Preamplifier	Rion	NH-23
1/2" Microphone	Rion	UC-59
Acoustic Calibrator	Rion	NC-75

Table 2.
Short-Term Hand-Held Residual (L90) Octave Band Sound Pressure Levels and Overall A-Weighted Sound Levels (dBA) Measured at Locations 1 to 8 during Ambient Survey (15 January 2025).

Location	Day (1:30p)	Evening (7p)	Night (10p)
Loc. 1	56	59	55
Loc. 2	56	56	54
Loc. 3	54	54	52
Loc. 4	55	56	54
Loc. 5	51	48	48
Loc. 6	60	54	54
Loc. 7	60	56	56
Loc. 8	66	66	65


Table 3.
Short-Term Hand-Held Residual (L90) Octave Band Sound Pressure Levels and Overall A-Weighted Sound Levels (dBA) Measured at Locations 1 to 8 during Ambient Survey (15 January 2025).

Location	Octave Band Center Frequency (Hz)									Overall dBA
	31.5	63	125	250	500	1000	2000	4000	8000	
Daytime (1:30p)										
Loc. 1	65	62	59	51	51	53	47	37	33	56
Loc. 2	64	63	57	50	51	53	45	31	22	56
Loc. 3	61	62	55	49	49	51	44	28	18	54
Loc. 4	61	62	55	51	52	52	45	36	31	55
Loc. 5	66	55	50	47	47	49	40	26	22	51
Loc. 6	70	64	59	55	55	57	51	40	32	60
Loc. 7	68	65	58	52	55	57	50	38	32	60
Loc. 8	67	68	64	61	61	64	57	42	31	66
Evening (7p)										
Loc. 1	61	62	63	55	54	55	49	39	36	59
Loc. 2	59	61	58	51	51	54	47	32	24	56
Loc. 3	59	60	54	49	49	52	45	28	17	54
Loc. 4	61	61	58	54	54	52	46	39	36	56
Loc. 5	54	55	50	45	44	46	37	25	21	48
Loc. 6	59	60	57	51	49	52	45	30	20	54
Loc. 7	62	61	57	51	51	54	48	33	22	56
Loc. 8	65	67	63	60	61	63	57	43	32	66
Nighttime (10p)										
Loc. 1	59	59	61	51	50	52	46	35	33	55
Loc. 2	59	60	57	49	49	52	45	30	22	54
Loc. 3	58	59	56	48	46	49	43	26	16	52
Loc. 4	64	61	57	53	51	51	44	37	34	54
Loc. 5	56	57	52	47	45	45	37	23	18	48
Loc. 6	56	59	55	50	49	51	45	30	18	54
Loc. 7	61	58	55	50	49	53	48	33	26	56
Loc. 8	63	64	61	59	59	63	57	43	30	65

Sound sources: distant (Rt. I-93) and local traffic and building HVAC system.

Weather: 35°F, clear sky, and light breeze (1-3 mph/W) during day; 25°F, clear sky, and calm air during evening; and 22°F, clear sky, and calm air during night.

Appendix A. Restaurant Windows

												
Thickness (Inches)	Transmittance UV %	Transmittance Visible %	Transmittance Total Solar %	Exterior Solar Reflectance %	Exterior Visible Reflectance %	Interior Visible Reflectance %	U-Value (Winter Nighttime) (Btu/hr·ft²·F)	U-Value (Summer Daytime) (Btu/hr·ft²·F)	Shading Coefficient (SC)	Solar Heat Gain Coefficient (SHGC)	Light To Solar Gain (LSG)	Thermal Stress Risk
Solarban® 60 on Clear 6mm (2) Air 1/2" (12.7mm) Clear 6mm												
1"	18	70	34	28	11	12	0.29	0.27	0.45	0.39	1.79	Med

0 Specifications

Insulating Unit Construction
Solarban® 60 on Clear 6mm (2) | Air 1/2" (12.7mm) | Clear 6mm

Outdoor Lite: Clear with a second surface Solarban® 60

Indoor Lite: Clear 6mm

Vitro Approved Manufacturers/Where to Buy Vitro Products: Vitro Certified™ Network

Certification: Vitro lite(s) are Cradle to Cradle certified by McDonough Braungart Design Chemistry, LLC (MBDC www.mbdc.com)

Solarban® 60: Solarban® 60 glass is a mid-range MSVD solar control low-e glass. Though the coating is transparent (on clear or Starphire® Ultra-Clear glass), it can also be paired with, or applied directly on most Vitro tinted glasses in an insulating glass unit.

The results represent Center-of-Glass performance data based on NFRC 100 Environmental Design Conditions utilizing the LBNL Window 7.3 software program. Performance data is based on representative samples of factory production. Actual values may vary slightly due to variations in the production process. This data is to be used for comparison purposes and should not be considered a contract. It is the recipient's responsibility to ensure the manufacturability of the above glazing configurations as well as evaluating appropriate design considerations such as wind and snow load analysis, thermal stress analysis, and local building code compliance. Vitro recommends that a full size mock-up be reviewed under the specific job-site conditions and retain the mock-up as a basis of acceptable product.

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Glass colors represented are approximate.

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