

11-17-2021 Town Council Meeting Responses to Council Questions

ITEM #15: Close the Legislative Hearing and Consider an Application for Conditional Zoning, 150 East Rosemary Street

Council Question:

It's stated that the wet lab building is for "general purpose", and "each tenant lab will be required to go through separate building permit process". Can you explain which government agency will be responsible for the "building permit" review for each lab, and what process will be? What "Biological Safety Levels (BSL)" should we designate this building for, given the biohazard issues related to a wet lab and its central location at our downtown? Is there a wet lab development consultant to address safety issues in their building design?

Applicant Response:

The Town of Chapel Hill Inspections Department will review the designs and issue the Building Permits for all lab and office tenant improvements. They will review the designs for Code compliance, provide comments, issue permits, perform inspections, and issue the Certificates of Occupancy upon completion of construction for each tenant space.

The core and shell basis of design is intended to support a variety of office and lab tenants, which are unknown at this time. All lab tenants will have to be designed to meet the safety of their individual lab suites to maintain laboratory user and public safety. Lab design and operation standards are published by numerous government agencies, such as the CDC and NIH, as well as many research universities and some private companies to insure the safety of their facilities and researchers.

The team of Perkins Eastman and NV5 has decades of extensive laboratory design experience for the building core and shell design. In addition, the consultant team for each lab tenant, including any lab consultants, will be selected by each lab tenant at the time they design their space.

Council Question:

Can they provide plumbing facility design information? What extra capacity will be incorporated to meet the increased demand for wet labs and to safely accommodate certain types of bio-waste?

Applicant Response:

Laboratories must have access to equipment that can decontaminate laboratory waste, depending on the biological risk assessment for that specific lab and materials being handled. Biowaste is not discharged to the plumbing system. The core and shell infrastructure will include a dedicated lab acid waste system should future tenants require an acid neutralization system.

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Kenan Labs

Council Question:

How was the 90db noise level in their report estimated? An average boiler room noise level is 90db, but given the massive size of the MECH structure, 90dB seems a significant underestimate. Several noise level estimates are given at different distance from the building. We know the area is crowded with restaurants, retails on both the Franklin St and Henderson St, some with second floor outdoor terrace. Can the developer provide the noise level estimate from each point of interest in the neighborhood?

Applicant Response:

1. *The chillers were evaluated using acoustic calculations to adjust the noise radiated from the source around the rooftop and parapet wall, which effectively increases the travel distance and reduces the sound levels at street level.*

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2. *The sound from equipment is not additive, but logarithmic. $L_s = 10\log(10^{L_1/10} + 10^{L_2/10} + 10^{L_3/10} \dots)$. 80 dBA + 80 dBA does not equal 160 dBA, it is 83 dBA. The sound values used for the chillers were adjusted for multiple chillers and equivalent path length using a screen wall.*
3. *The boilers proposed for 150E Rosemary are sealed combustion and significantly quieter than 90dBA. The boilers used for 150E will be high efficiency (~97% efficient combustion) and many manufacturers are <70dBA at 3 feet distance.*
4. *The chiller sound data is for 100% load at 99degF ambient temperatures. The chillers proposed for 150E Rosemary are high efficiency with variable speed fans and compressors. The building cooling and heating loads are driven by occupancy and ambient temperature. During the day when the building is fully occupied and the ambient temperature is highest the chillers will be fully loaded and performing at sound data levels presented. When the ambient temperatures reduce the ventilation driven building cooling load will reduce and the chiller fans and compressors will reduce speed thus reducing sound generation levels. The chillers presented reduce 7dBA when operating at 25% capacity (example during cooler night time ambient conditions and reduced building occupancy and the unoccupied reduced ventilation system capacity). -6 dBA change is approximately 75% less acoustic energy and is noticeable to the human ear. For reference, a -10dBA sound reduction is perceived approximately half as loud.*
5. *Noise levels for the rooftop terrace would not be significantly higher than previously presented. A typical restaurant exhaust fan can be 70 dBA to 75 dBA; higher than projected noise from the 150E rooftop equipment*

Council Question:

Can you confirm that the HVAC/MECH system will be on 24/7? Given the need to control for stable temperature, humidity, pressure, outdoor air incorporation and extra low refrigeration, the noise will be on 24/7, right?

Applicant Response:

The building systems will operate continuously, 24/7. As noted above, all systems are variable capacity and will run at reduced capacity based on occupancy and load demand. Sound levels are expected to be reduced during evening hours from peak occupancy and ambient conditions. Also noteworthy, the equipment will run continuously and will be constant sound. There are no significant equipment sounds expected that would create more objectional cycling (on/off) noises.

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Council Question:

Is there evaluation on how the noise level will impact downtown activities at different times, day and night? For reference, here are a few noise limits given by different agencies.

- WHO recommendations for safety noise level:
 - <45 dB — indoor noise level limit
 - <55 dB — limit for outdoor areas with human activity
- EPA recommendations:
 - <45 dB — acceptable indoor noise level limit for residential areas
 - <55 dB — limit for outdoor areas with human activity
 - 70 dB — limit of safety before hearing loss
- Additional sound reference points:
 - 70 dB — leaf blower (50 feet away)
 - 80 dB — freight train (100 feet away)

Applicant Response:

The table of equivalent sound levels provided is from the CDC.

Per CDC, 70 dBA (ex. washing machine, dishwasher) can cause hearing damage if exposed continuously over a prolonged period of time. 80-85 dBA (ex. leaf blower) can cause damage to hearing after two hours of exposure. As presented previously, it is not expected for noise levels to be near 70dBA at street level at any point around the building.

If a more detailed acoustic survey is desired to determine and document all existing sound sources and to assess the proposed building impact we recommend that a study be performed by an acoustician consultant.



Loud Noise Can Cause Hearing Loss

Environmental Health > [Loud Noise Can Cause Hearing Loss](#)

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Common Sources of Noise and Decibel Levels

Sound is measured in decibels (dB). A whisper is about 30 dB, normal conversation is about 60 dB, and a motorcycle engine running is about 95 dB. Noise above 70 dB over a prolonged period of time may start to damage your hearing. Loud noise above 120 dB can cause immediate harm to your ears.

The table below shows dB levels and how noise from everyday sources can affect your hearing.

Everyday Sounds and Noises	Average Sound Level (measured in decibels)	Typical Response (after routine or repeated exposure)
Softest sound that can be heard	0	
Normal breathing	10	Sounds at these dB levels typically don't cause any hearing damage.
Ticking watch	20	
Soft whisper	30	
Refrigerator hum	40	
Normal conversation, air conditioner	60	
Washing machine, dishwasher	70	You may feel annoyed by the noise
City traffic (inside the car)	80-85	You may feel very annoyed

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Gas-powered lawnmowers and leaf blowers	80-85	Damage to hearing possible after 2 hours of exposure
Motorcycle	95	Damage to hearing possible after about 50 minutes of exposure
Approaching subway train, car horn at 16 feet (5 meters), and sporting events (such as hockey playoffs and football games)	100	Hearing loss possible after 15 minutes
The maximum volume level for personal listening devices; a very loud radio, stereo, or television; and loud entertainment venues (such as nightclubs, bars, and rock concerts)	105-110	Hearing loss possible in less than 5 minutes
Shouting or barking in the ear	110	Hearing loss possible in less than 2 minutes
Standing beside or near sirens	120	Pain and ear injury
Firecrackers	140-150	Pain and ear injury

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Council Question:

Could the applicant detail how many total e-bike parking spots will be available?

Applicant Response:

We can add approximately 25 e-bike spaces without reducing the 150 bicycle wall-mounted racks. If we want to add more than that we will need to displace some wall-mounted bike racks or parking spaces for cars.

Council Question:

So each lab tenant will have to individually go through our Town's building permit process? Is this common practice for lab space?

Staff Response:

All building upfits are typically required to go through the building permit process, regardless of the use-type. This would remain true for any lab upfits within the 150 E Rosemary building.