



Air Quality Nuisance Complaints: Dust, Odor and Noise

MassDEP

MHOA/MassDEP Regional Seminars

2019



MassDEP Regulations

- Odor and Dust Control Regulation
 - 310 CMR 7.09
- Noise Control Regulation – 310 CMR 7.10
 - Regulations adopted under the authority of M.G.L. Chapter 111, Section § 142B and § 142D and can be enforced by local officials under 310 CMR 7.52.



310 CMR 7.52 Enforcement Provisions

- Any police department, fire department, board of health official acting within his/her jurisdictional area is authorized by the Department to enforce any regulation in which specific reference to 310 CMR 7.52 is cited.



NOT Regulated by MassDEP

- Indoor Air Quality : e.g. mold, off-gassing of new carpets/cabinets, sick building syndrome, nail salons, etc. (Call Department of Public Health's Bureau of Environmental Health Assessment – Ph. # 617-624-5757).
- Indoor noise or vibration, motor vehicle noise (motorcycle, truck), noise from events permitted by the Town.
 - Exception: Indoor air contamination resulting from hazardous materials spills from exterior sources are handled by MassDEP's Bureau of Waste Site Clean-up.



What is an Air Contaminant per 310 CMR 7.00?

- **Air Contaminant** - means any substance or man-made physical phenomenon in the ambient air space and includes, but is not limited to **dust**, fly-ash, gas, **fume**, **odor**, **smoke**, vapor, pollen, microorganism, radioactive material, radiation, heat, **sound**, any combination, or any decay or reaction production thereof. *(See 310 CMR 7.00)*



Definition of Air Pollution

- Air Pollution - means the presence in the outdoor air of one or more air contaminants thereof in such **concentrations** and of such **duration** as to:





Air Pollution Definition - Continued

- A. Cause a nuisance;
- B. Be injurious, or to be on the basis of current information, potentially injurious, to human or animal life, to vegetation, or to property; or
- C. Unreasonably interfere with the comfortable enjoyment of life and property or the conduct of business.



Dust





Investigating Dust Complaints

- Conduct an inspection
- Note the weather condition
- Determine if visible particulate emissions can be detected blowing onto the complainant's property or across sidewalks or road-ways. Note the intensity level and frequency of the dust emissions.
- Observe and record the source of the dust.



Investigating Dust Complaints

- Is the dust unreasonably interfering with the private enjoyment of a person's property, causing discomfort to pedestrians, or causing a safety hazard for drivers?





Examples of Potential Sources with Excessive Particulate Emissions


- Sandblasting
- Mechanical street-sweeping
- Sand and gravel operations
- Construction sites
- Building Demolition





Sandblasting

- Dust can not leave property while cleaning/
removing paint from stone/brick/metal
buildings.
 - Need a containment structure that is properly
vented.
 - Need to be aware of lead paint – before the
1970s lead based paint was commonly used.
 - **CAUTION!** Asbestos-containing siding must
not be sand blasted or power washed!



Street Sweeping – 310 CMR 7.09(6)

- Equipment must be operated with a suitable dust collection or dust suppression system which is maintained in good operating condition.





Street Sweeping – No Water





Leaf Blowers are NOT Supposed to be Used as Dust Blowers





Sand and Gravel Operations – 310 CMR 7.09(4)

- Handling of Material
 - must be covered or wet while going through conveyors or crushers
- Storage of Material
 - located to avoid nuisance or,
 - piles must be covered, wetted, or otherwise treated
- Transportation
 - dirt roads should be either paved, wet or treated and material covered while in transit





Construction Sites

- Per 310 CMR 7.09(3) - Responsible to seed, pave, cover, wet or otherwise treat the area to prevent excessive particulate emissions. Reducing the speed limit on sites with dirt roads may also help reduce particulate emissions.







Examples of Chemical Dust Suppressants

- Chloride Salts
 - Calcium Chloride
 - Magnesium Chloride
- Oils
 - Petroleum based dust suppressants
 - Ex. – PennzSuppressD
 - Soybean based dust suppressants
 - Ex. - Dustkill, Soykill, Dust Lock



Building Demolition

- Notification **MUST** be provided to MassDEP per 310 CMR 7.09 – 10 days prior to commencing demolition
 - *The ten day period can be waived for emergencies*
- Per 310 CMR 7.09(3) - Responsible to cover, wet or otherwise treat the area to prevent excessive particulate emissions during demolition.
- All asbestos containing material must be removed by a licensed contractor and per 310 CMR 7.15 requirements prior to demolition.



Odor





Investigating Odor Complaints

- Note the weather condition.
- Determine if the odor can be detected on the complainant's property. Note the intensity level, frequency, duration and type of the odor.
- If an odor problem is determined, try to trace the odor back to its origin.



Investigating Odor Complaints

- Determine if the odor is unreasonably interfering with the private enjoyment of that person's property.





Odor Intensity Determination

- 0 – Odor not detectable
- 1- **Very Light**- odor detectable but not distinguishable
- 2- **Light**- Odor detectable but not objectionable in short durations
- 3- **Moderate**- Odor detectable, clearly distinguishable and may be objectionable or irritating
- 4- **Strong**- Odor present objectionable
- 5- **Very Strong**- Odor present and overpowering-intolerable for any length of time



Common Sources of Odor Complaints

- Paint Spraying
- Outdoor Wood Fired Boilers
- Wood Stoves
- Cannabis Cultivation Operations
- Composting Operations
- Landfills



Spray Painting Don'ts

No Spraying Outside



**No Spraying in Garbage Bag
Garages or other
Inappropriate Structures**





Paint Spray Booths

Paint spray booths are regulated by MassDEP under 310 CMR 7.03(16). Some requirements:

- Good Housekeeping
- Spray guns – high volume/low pressure (HVLP) or electrostatic
- Enclosed gun washing/cleaning
- Particulate control filters
- Stacks which vent vertically, 10 feet above roof level



Outdoor Hydronic Heaters (OHHs)/ Outdoor Wood Fired Boilers (OWBs)





OHH/OWB Key Dates

- **December 26, 2008** – MassDEP regulations went into effect – 310 CMR 7.26(50) – (54)
- **March 1, 2009** – Existing units that do not meet stack height requirements must comply.
- **On April 1, 2009 + after** - Manufacturers must submit certification that demonstrates new units comply with regulation.



No Rain Caps per 310 CMR 7.26(52)(h)





Vegetation can impede proper dispersion of exhaust gases





Existing Unit – Stack too short





Wood Stove Pool Heaters

- Defined by MassDEP regulations as an outdoor hydronic heater. Can't be installed unless certified by MassDEP.





Wood Stoves





Best Burn Practices

- Burn clean dry firewood only.
- Don't let the fire smolder.
- Clean ashes & dispose of safely.
- Keep the chimney clean. No stack cap.
- Follow manufacturer's instructions.
- Upgrade to cleaner equipment. The 2019 Commonwealth Wood Stove Change-Out Program will be announced early April.



Cannabis Cultivation Operations





Cannabis Cultivation Operations

- Emerging source of odor complaints.
- Can also be a source of noise complaints because of the use of chillers for indoor cultivation facilities.
- Planning Boards have been taking a proactive approach in trying to prevent complaints.



MassDEP Technical Assistance with Odor Complaints

- Excessive odors from wastewater treatment plants
 - Bureau of Water Resources
- Excessive odors from composting operations or solid waste landfills
 - Bureau of Air and Waste, Solid Waste Section
- Excessive odors from industrial facilities
 - Bureau of Air and Waste, Compliance & Enforcement Section



Fumes from Idling Vehicles





Fumes from Idling Vehicles

- 310 CMR 7.11: U Transportation Media
- Car/Truck & Bus Idling
 - > 5 min of unnecessary operation.
 - Does not apply to
 - Operating for repair or inspection
 - Loading/ unloading by engine power
 - Engine power needed for ancillary operation other than movement.
 - No substitute available



Fumes from Idling Diesel Trains



- **Diesel Train Idling**
 - > 30 min of unnecessary operation
 - Does not apply to
 - Operating for repairs
 - Safety



Noise





310 CMR 7.10(1) - Noise

- “No person owning, leasing or controlling a source of sound shall willfully, negligently, or through failure to provide necessary equipment, service or maintenance or to take necessary precautions cause, suffer, allow, or permit unnecessary emissions from said source of sound that may cause noise.”



DEP Noise Policy #90-001

- A source of sound will be considered to be violating the DEP noise regulation if the source:
 1. Increases the broadband level by more than 10 dB(A) above ambient, or
 2. Produces a “pure tone” condition - when any octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by 3 decibels or more.



Sound Exposure in the Real World

- Quite bedroom- 30 dBA
- Dishwasher next room- 50 dBA
- Normal speech – 65 dBA
- Vacuum cleaner at 3m- 70 dBA
- Garbage disposal at 1m- 80 dBA
- Blender at 1m- 90 dBA
- Inside subway train – 100 dBA
- Jet over flight at 300m – 105 dBA
- Rock band at 5m- 110 dBA



Sources of Noise Complaints

- Chillers
- Amplified Sound
- Gun Ranges
- Roosters
- Power Vents
- Wind Turbines



Chillers



Chillers should be equipped with sound attenuating material and/or baffled with a noise barrier.



Equipment Under Chiller Can Be Wrapped with Sound Attenuating Material





Chillers with Noise Barrier





Amplified Sound - Gas Station TV



- Volume can be adjusted and turned off at night if sensitive receptors are close.



Amplified Sound - Drive Thrus



- More difficult to mitigate noise – as the amplified sound is turned down, the customer thinks the employee can't hear and speaks even louder.
- Noise barrier might help in certain situations.



Gun Ranges



M.G.L. Chapter 214: Section 7B. Noise pollution; shooting ranges; exemption from liability; hours of operation – essentially exempts older ranges as long as they are not operating between 10 p.m. and 8 a.m.



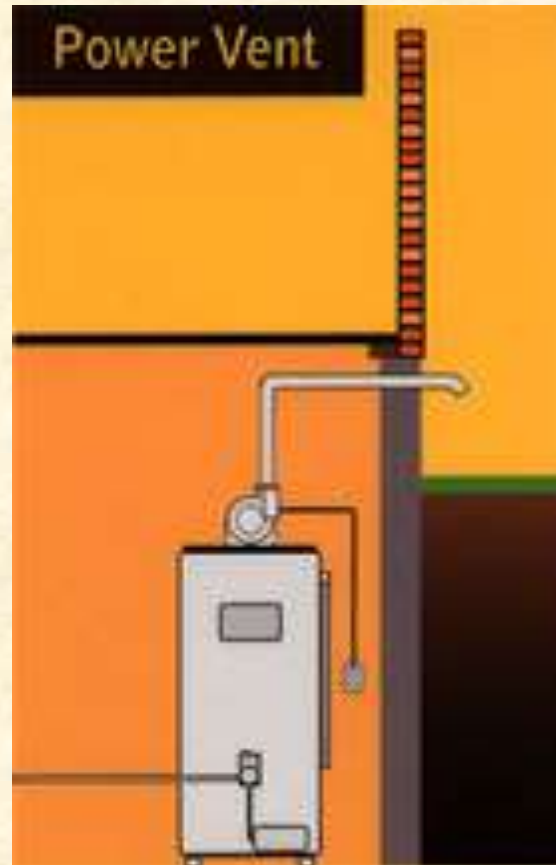
Roosters



- Some towns have by-laws:
 - Winchendon has a 100 ft setback for poultry.
 - Concord has a “non-domestic” animal permit which can be revoked due to complaints.
- Megan McGrath, MA Dept. of Agricultural Resources (617) 626-1798 works in the Poultry Program and may be able to offer technical assistance. DAR also has a BMP for Backyard Poultry Keepers.



Power Vents



- Not appropriate for dense residential neighborhoods.
- Difficult to mitigate noise after installation.



Other Sources of Noise Complaints

- **Roof top equipment**
 - Most complaints result from equipment problems (ex. - loose belt). Company should have a maintenance plan for roof-top equipment.
 - Before adding new roof-top equipment, company should identify possible sound potential and identify sensitive receptors.
- **Rock Crushing/Grinding Operations**
 - If short-term use planned, facility could try to locate equipment away from sensitive receptors and limit operations to day-light hours.
 - If long-term use planned, facility needs to have a plan to ensure compliance with Noise Policy.



Sound Measurements

Local officials can contact MassDEP's Regional Offices to make arrangements to borrow a sound level meter and receive basic training on how to utilize it.



Wind Turbine Sound

- Issues to consider:
 - Wind-speed- and season-specific background determination
 - Very low ambient sound at some project sites
 - Higher wind speeds result in louder sound emissions from turbines and louder ambient (background) sound levels





Wind Turbine Noise Health Effects

- MassDEP/MassDPH-sponsored Health Effects Panel 2012 Independent Third party Review of Available Literature
- “Limited evidence of association between wind turbine noise, and annoyance or sleep disruption”
- Best practices, to take sound impacts into account when planning projects
- Study and comments available at <https://www.mass.gov/info-details/wind-turbines>



Research on Wind Turbine Acoustics

- Mass Clean Energy Center (CEC) contracted for scientific study of sound from Wind Turbines
 - 2016 Report available at <https://www.masscec.com/wind-energy-research-and-analysis>
 - Acoustical, meteorological and operational data from five operational wind-power facilities in Massachusetts and another New England state



MassDEP Wind Turbine Activity

- Wind turbine noise issues addressed by MassDEP in Falmouth, Fairhaven, Kingston, Scituate, Monroe/Florida, and Plymouth.
- MassDEP has supported towns by reviewing acoustic modeling of proposed wind turbines, and operational sound sampling protocols and results
- MassDEP regulations do not address:
 - Shadow flicker
 - Infrasound and low frequency sound



Wind Turbine Project Updates

- Falmouth - Town decision to abandon project, dismantle turbines.
- Fairhaven – Operating limitations (wind direction, time of day) adopted to avoid noisiest conditions, based on MassDEP study
- Kingston - MassDEP assisting town review of developer’s proposed approach to noise compliance for planned resumed operation of project, currently idled due to equipment problems.
- Plymouth - MassDEP assisting town review of developer’s ongoing sound studies, noise mitigation curtailment plan
- Scituate - MassDEP assisting town review of sound study by developer’s consultant.
- Hoosac Wind (Florida/ Monroe) – Developer implemented equipment changes (blade design) and icing protocol in response to MassDEP enforcement.



The Best Solution is Prevention!



Preventative Measures

- Large Construction / Demolition Projects
 - Before commencement, require a dust control and noise mitigation plan.
 - Some towns have by-laws limiting construction to certain hours during the weekdays and Saturdays and further limiting or prohibiting commercial construction on Sundays.



Preventative Measures

- New / Expanded Facilities
 - Identify possible noise, dust and odor potential.
 - Require a predictive sound study.
 - Look at stack height.
 - Identify sensitive receptors.
 - Require mitigation to be part of design



Role of MassDEP in Complaint Response

- In most cases when MassDEP gets a complaint, we will contact the Board of Health or Health Agent (in some cases, the Fire Dept) first.
 - To obtain background information
 - To foster faster response time
- MassDEP can provide technical support & guidance to the community.
 - MassDEP may take a greater role if the issue is technically complex or if it involves an industrial facility.
 - MassDEP may have a greater role if state permitting is required.



MassDEP Regions





Contacts for AQ Nuisances

- Northeast Region – Susan Ruch, 978-694-3384, susan.ruch@mass.gov
- Central Region – Michelle Delemarre, 508-767-2777, michelle.delemarre@mass.gov
- Southeast Region & Cape Cod – Complaint Line, 508-946-2817
- Western Region – Main Phone Number, (413) 784-1100