

Fugitive Dust

INTRO VIDEO

**Fugitive Dust
Training Presentation**

- What is Fugitive Dust?
- Background
- Goals
- Why are we concerned?
- What is the “Fugitive Dust” Ordinance?
- What is required?
 - 12 Dust Generating Activities
- How to prepare

What is fugitive dust?

Solid particles (particulate matter) suspended in the air by wind or generated by human activity that doesn't pass through a stack, chimney, or vent...



dirt soil leaves
silica asbestos soot
molds fungi pathogens bacteria
manure pollen ash
pesticides heavy metals brake linings

Federal Law Enacted in 1970 – CLEAN AIR ACT

- Amended in 1977 and 1990

Basic Elements

- National Ambient Air Quality Standards for Criteria Pollutants (NAAQS)
- Mobile and stationary control measures
- Air toxic standards
- Acid rain control measures
- Enforcement provisions

EPA has set National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants:

- **Particulate Matter (PM₁₀ & PM_{2.5})**
- Nitrogen Oxides (NO_x)
- Ozone (O₃)
- Sulfur Dioxide (SO₂)
- Lead (Pb)
- Carbon Monoxide (CO)

Quiz #1

LEARNING CHECK



True or False

Fugitive dust is the same as controlled dust and has only recently become regulated by the EPA.



FALSE

Fugitive dust is solid particles that do not pass through a stack, chimney, or vent, therefore uncontrolled.

The EPA has had rules relating to fugitive dust since 1970.



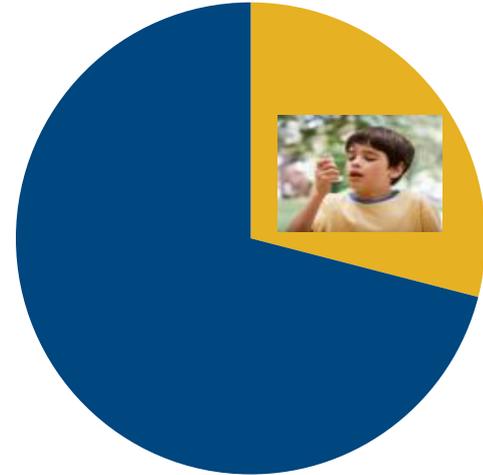
What is the goal?

To **limit particulate matter (PM10) emissions into the ambient air** from any property, operation or activity that may serve as a fugitive dust source by requiring measures to prevent, reduce, and mitigate dust emissions.

- Fugitive Dust: The particulate matter not collected by a capture system that is entrained in the ambient air, resulting from human and/or natural activities.

Why are we concerned?

- **Health Effects**
 - Aggravates respiratory issues
 - Silicosis (e.g., from concrete cutting)
- **Nuisance & Aesthetics**
 - Deposited dirt on homes, property
 - Obstructs views
- **Safety / Visibility Hazard**
 - Obstructed visibility for workers, pedestrians, and vehicles



Over $\frac{1}{4}$ of Fort Collins' households report having a family member with respiratory ailments

Why are we concerned?

- Elderly
 - Studies estimate tens of thousands of elderly die prematurely each year from exposure to ambient levels of fine particles.
- Preexisting Conditions Heart/Lung Disease/ Asthmatics/Immune Compromised
- Children
 - Children breathe 50% more air per lb of body weight than adults
 - Children's respiratory systems are still developing, so they are more susceptible to environmental threats than healthy adults.

Why are we concerned?

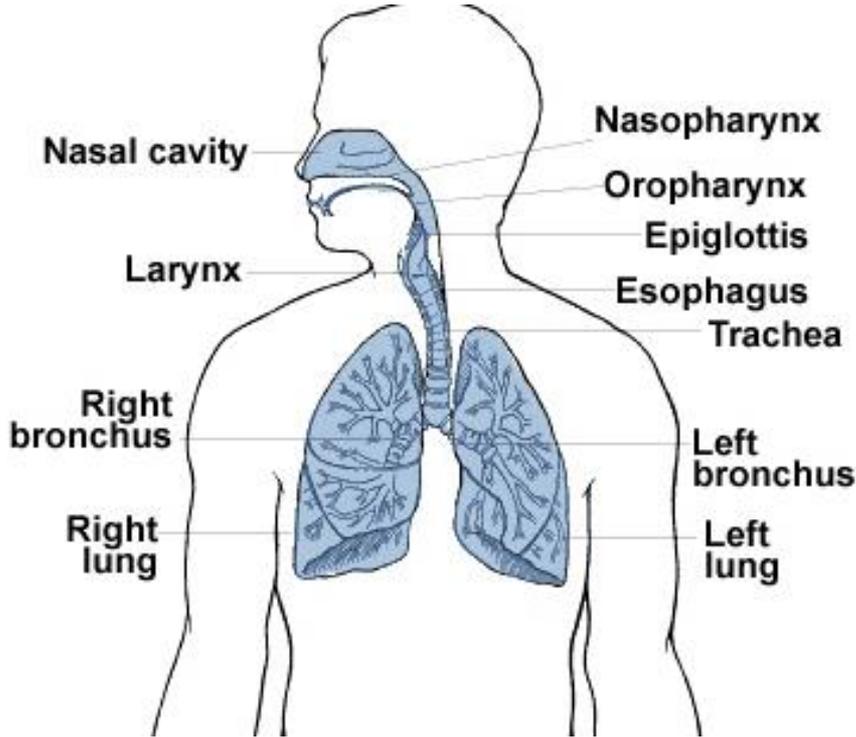


Image courtesy of the U.S. EPA

Quiz #2

LEARNING CHECK



True or False

Although fugitive dust is generally harmless, the goal of limiting dust particles in the air is to create environmental awareness by imposing regulation onto contractors and the community.



FALSE

Fugitive dust regulations are first and foremost a health standard; the primary goal is to protect public health due to the many respiratory illnesses fugitive dust may cause.



True or False

Fugitive dust only has the potential to impact children, the elderly, or those who are already sick and have compromised immune-systems.



FALSE

Children, the elderly, and those with compromised immune systems (such as those who are sick or already have an illness/condition) are more vulnerable. However fugitive dust has the potential to impact anyone of any age or health.



Ordinance NO 044, 2016 related to preventing, mitigating and minimizing particulate matter emissions from dust generating activities or sources - adopted unanimously by City Council on May 3, 2016 and effective November 1, 2016 (effective for City contractors March 22, 2016)

Applies to:

*“Any person who conducts or is an owner or operator of a **dust generating activity or source**”*

Where:

*“A **dust generating activity or source** shall mean a process, operation, action or land use that creates emissions of fugitive dust or causes **off-property or off-vehicle transport**”*

Manual adopted by ordinance, containing:

- **Primary Dust Control Measures**
 - Required best practice or process to prevent or mitigate the emission of fugitive dust into the air
- **Secondary Dust Control Measures**
 - Extra steps to take if primary measures were not successful to mitigate dust
- **Additional requirements**
 - Other requirements that may apply

Dust Prevention and Control Manual



Adopted by Ordinance No. 44, 2016

- Complaint received regarding dust
- Investigation/evidence shows off-property/off-vehicle transport
- Environmental services may respond with outreach
- City field staff may respond with a warning
- City code compliance staff may respond with a Notice of Violation

IMPORTANT NOTE: A source is not subject to a violation just because there is dust; to avoid violation, they must also be using the Control Measures as defined in the Dust Prevention and Control Manual.

Quiz #3

LEARNING CHECK



True or False

Any clear violation of the fugitive dust ordinance, intentional or otherwise, will automatically earn a contractor a violation.



FALSE

Outreach and education is the primary method and first step in addressing the majority of complaints regarding fugitive dust infractions.



1. Earthmoving Activities
2. Demolition and Renovation
3. Stockpiles
4. Street Sweeping
5. Track-out/Carry-out
6. Bulk Materials Transport
7. Unpaved Roads and Haul Roads
8. Parking Lots
9. Open Areas and Vacant Lots
10. Saw Cutting and Grinding
11. Abrasive Blasting
12. Mechanical Blowing



Primary Dust Control Measures

- Minimize disturbed area
- Reduce vehicle speeds
- Minimize drop height
- High winds restrictions
- Restrict access



Secondary Dust Control Measures

- Wet suppression
- Wind barrier
- Vegetation
- Surface roughening
- Cover
- Soil retention

Additional Requirements

- Dust Control Plan
- Construction sequencing

Primary

- Asbestos and lead containing materials
- Restrict access
- High winds restriction
- Minimize drop height

Secondary

- Wet suppression
- Wind barrier

Additional Requirements

- Building permit compliance



Primary

- Minimize drop height

Secondary

- Wet suppression
- Cover
- Surface roughening
- Stockpile location
- Vegetation
- Enclosure

Additional Requirements

- Stockpile permit compliance
- Erosion control plan compliance



Primary

- Uncontrolled sweeping prohibited

Secondary

- Wet suppression
- Vacuum system
- Other method



Primary

- Contracts and standards
- Remove deposition

Secondary

- Install rails, pipes, or grate
- Install a gravel bed track-out apron
- Install and utilize on-site equipment washing station
- Install a paved surface that extends at least 100 ft. from the intersection
- Manually remove dirt and debris from equipment



Primary

- Cover Loads
- Minimize drop height

Secondary

- Wet suppression
- Other technology



Covered load at Hoffman Crushing Facility

Quiz #4

LEARNING CHECK



True or False

Primary and Secondary Dust Control Measures refers to the actions one must take to prevent, mitigate, and minimize fugitive dust.



TRUE

Primary Dust Control Measures are the first methods to implement in order to prevent, mitigate, and minimize fugitive dust.

Secondary Dust Control Measures should be used if the Primary Measures fail.



Primary

- Reduce vehicle speeds
- Restrict access

Secondary

- Wet suppression
- Surface improvements
- Access road location



Primary only (use at least one)

- Surface improvements
- Vegetation
- Wet suppression
- Wind barrier
- Reduce vehicle speeds
- Restrict access



Primary only(use at least one)

- Maintenance
- Mechanical sweeping
- Reduce vehicle speeds
- Restrict access



Definition: Open area = 0.5 acre or larger. Stabilize soil when exposed for 30 or more days

Primary only (use at least one)

- Vegetation
- Cover
- Surface roughening
- Soil retention
- Wet suppression
- Wind barrier



Primary

- Restrict access
- High winds restriction
- Equipment and work area clean up
- Slurry clean up

Secondary

- On-tool local exhaust ventilation
- On-tool wet suppression
- Vacuuming
- Wet suppression
- Enclosure



Primary

- Restrict access
- High winds restriction
- Equipment and work area clean up
- Slurry clean up

Secondary

- Enclosure
- Wet suppression blasting
- Vacuum blasting
- Abrasive media



Primary

- Low speed
- Operation
- High winds restriction

Secondary

- Alternative method
- Prevent impact
- Minimize use on dirt
- Wet suppression
- Remove debris



Quiz #5

LEARNING CHECK



True or False

There are 12 main dust generating activities that have been identified in the Dust Control Manual. These activities require specific methods or measures be applied in order to control dust.



TRUE

The Dust Control Manual is the pathway to compliance. It lists the regulated dust generating activities and the rules you must follow for each activity.



- Have pre-project meetings
 - Subcontractors, staff
- Introduce yourselves to your neighbors
 - Give your contact information to the businesses and residents in the area and ask them to let you know if there are any issues
- Take immediate action when notified
 - Whether from your neighbors or an inspector
- Your work is your business card
 - Earn a reputation for running clean projects.

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THANK YOU!