

### ***Volume Sources***

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The volume source algorithm should be used to model fugitive emission releases, with the exception of haul roads and storage piles, which are not vented through a stack. Some examples of volume sources are: building vents, conveyor belts, drop points from loaders, crushers, screens, building openings from releases that are vented inside an enclosed structure, etc. The following parameters are needed to model volume sources: emission rate, release height, and the initial horizontal and vertical dimensions of the volume. Typically the department's Air Pollution Control Program requests that the release parameters are equivalent to the size of the openings that allow for the escape of fugitive emissions.

### **Release Height**

The release height of a volume source is the height of the center of the volume source above ground. Examples of how to calculate the release height are depicted below.

#### **Conveyor Belts**





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**Receiving Pits**

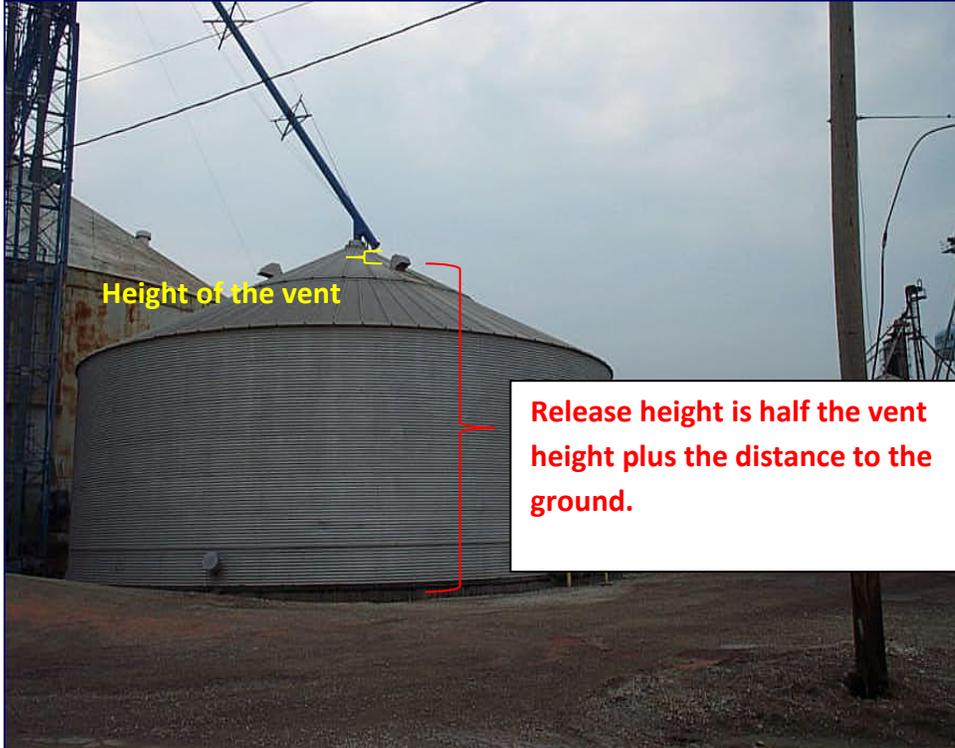


**Release  
Height is half  
the drop  
distance.**

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**Silo Bin Vents**



**Garage Door Openings**



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### **Initial Lateral Dimension**

The initial lateral dimension or sigma y ( $\sigma_y$ ) of a volume source takes the actual width of the release and adjusts it by dividing by a constant to generate the dispersion parameter for use in the model. For a single volume source the width of the actual physical dimension should be divided by 4.3. Examples of how to calculate the initial vertical dimension are depicted below.

### **Conveyor Belts**





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**Receiving Pits**



*Volume Sources*

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**Silo Bin Vent**



**Garage Door Openings**



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### **Initial Vertical Dimension**

The initial vertical dimension or sigma z ( $\sigma_z$ ) of a volume source is calculated differently depending on its location relative to its surroundings. If the emission release is located at ground level, such as a receiving pit, than the vertical dimension (drop distance from the truck to grate) should be used and divided by the constant of 2.15. If the emission release is an elevated source not on or adjacent to a building, such as conveyors, crushers, and screens, than the vertical dimension of the source is divided by the constant 4.3 to generate the initial vertical dimension. Lastly, if the emission release is elevated off the ground and on or adjacent to a building, such as large garage door openings the height of the building can be used as the vertical dimension and then divided by the constant 2.15. It is important to note that the total building height should not be used to calculate the initial vertical dimension for sources that vent through small openings on large structures, such as building or silo bin vents. The vertical dimension in these instances should be limited to the height of the opening itself. Examples of how to calculate the initial vertical dimension are depicted below.

#### **Conveyor Belts – elevated source not on or adjacent to a building**



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Receiving Pits – ground level source



**Volume Sources**

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**Silo Bin Vents – small elevated source on or adjacent to a large building**



**Garage Door Openings – large elevated sources on or adjacent to a building**

