Source Category:	**Residential Construction - Fugitive Dust**
SCC Code:	**2311010000**
Pollutants of Concern:	**PM-10, PM-2.5**

How is the PM National Emission Inventory developed for this category?

Current Methodology (see also the link to the NEI Methodology Description):

- EPA estimates PM emissions from residential construction using data on the number of new homes constructed, and an emission factor of 0.032 tons PM_{10}/acre/month for homes and 0.11 tons PM_{10}/acre/month for apartments.
- EPA uses a buildings-to-acres conversion factor to estimate acres disturbed, Single family home - 1/4 acre/building, Two-family homes - 1/3 acre/building, Apartment buildings - 1/2 acre/building.
- EPA estimates the duration of construction activity to be 6 months for homes, 12 months for apartments.
- EPA uses an alternative formula for areas where basements are common.
- EPA accounts for soil moisture at the state level by multiplying base emissions by 24 and then dividing by the precipitation-evaporation (PE) value (the emission factor was derived where the soil moisture was 24). PE values obtained from Thornewaite's PE Index. EPA estimates average values for each State based on PE values for specific climatic divisions within a State.
- To account for silt content, EPA multiplies by a ratio of percent dry soil silt content in soil to 9 percent (the emission factor was derived where the soil silt content was 9%). County-level dry silt values were applied to PM-10 emissions in each county.
- EPA estimates PM-2.5 emissions by applying a size distribution factor to PM-10 emissions, based on measurement data, of 0.20.
- EPA uses a control efficiency of 50 percent for both PM-10 and PM-2.5 for PM nonattainment areas..

Current Variables/Assumptions Used:

- The number of houses or apartments constructed is obtained from housing permit data, as reported at the county level [*Census*].
- Other constants and the emission factors are based on previous studies in specific areas.
- Assumptions to account for basements, moisture content, and silt content.
- The building-to-acres disturbed conversion.

Uncertainties / Shortcomings of Current Methods:

- The methodology neglects construction of additions on existing homes.

- Soil moisture and silt adjustments don't change from year to year since they are based on data sets that are long term averages.
- Control efficiencies are based on assumptions.

How can State, Local, and Tribal agencies improve upon this methodology?

- Obtain local data for new construction housing starts, and building permit information for additions, outbuildings, swimming pools, etc. to existing homes. [*State Housing Agency or Real Estate Association*]
- Estimate a locally representative factor for acres disturbed per construction unit type.
- Obtain local information to represent the time of the year when residential construction takes place.
- Obtain local information on soil moisture, silt content and control efficiency.

Where can I find Additional Information and Guidance?

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AP-42, Section 13.2.3	http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s02.pdf
Area Source Emissions Model	http://www.epa.gov/ttn/chief/software/asem/index.html
County Level Emission Density Maps for this Source Category	http://www.epa.gov/ttn/chief/eiip/pm25inventory/densitymaps.pdf
EIIP Document on Conducting Surveys	http://www.epa.gov/ttn/chief/eiip/techreport/volume03/iii24.pdf
NEI Inventory Methodology Description	ftp://ftp.epa.gov/EmisInventory/finalnei99ver2/criteria/