DENTON COUNTY
FIRE MARSHAL'S OFFICE
Investigations · Inspections · Public Nuisance

3900 Morse St. ▪ Denton, Texas 76208 ▪ (940) 349-2840 ▪ FAX (940) 349-2841

Air Curtain Trench Burn Facts



Effective September 1. 2025 Denton County adopted a new fee schedule and the 2021ed. of the International Fire Code with local amendments. ***105.5.35 Open burning****. Commercial open burning is regulated by the Denton County Fire Marshal's Office and the Texas Commission on Environmental Quality (TCEQ). An* ***operational permit*** *is required to conduct commercial open burning. Commercial open burning shall be conducted as a trench burn with an air curtain.*

Non-commercial burning shall follow the rules and regulations set forth by TCEQ and Denton County.

The fee for trench burning is $250.00 per trench.

What is an Air Curtain Trench Burn?

Air curtain trench burning is a method of efficiently and cleanly disposing of waste by using a high-velocity air curtain over a trench to enhance combustion and producing less smoke and embers.

Air curtain trench burning, also called a trench burner or air curtain incinerator, is a waste disposal technique that uses a trench in the ground as a combustion chamber.

A high-speed blower creates a curtain of air across the top of the trench, which traps smoke and particulates while increasing oxygen flow to the fire, resulting in near-complete combustion of debris such as trees, brush, stumps, and other vegetive waste.

How It Works

- **Trench Construction:** A pit is dug into the ground, typically 10–14 feet wide and as deep as practical to cover the materials being place it the pit typically 10 feet, matching the length of the air manifold (usually 40 feet for large units)

- **Air Curtain Creation:** A blower system directs high-velocity air across the trench, forming a curtain that contains heat and smoke while creating rotational turbulence inside the pit. This turbulence enriches the oxygen supply, raising temperatures up to approximately 1,800°F (1,000°C) and accelerating combustion.

- **Combustion Efficiency**: The air curtain ensures that most of the waste is burned completely, leaving only ash and biochar, while reducing smoke, sparks, and particulate emissions by up to 95% .

- **Environmental Benefits**: Compared to open burning, air curtain trench burning is faster, cleaner, and more environmentally friendly. It minimizes air pollution, reduces debris volume by up to 97%, and eliminates the need for grinding or transporting waste to landfills.

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Regulations

- The trench burn site must be located more than 300 ft from any property line and all burning is below ground. The required dimensions of the pit are to be 10-14 ft wide, matching the length of the air manifold up to 40 ft long and 10 ft deep, and secured by a fence.

- The trench burner must be located at the center of a circle three hundred feet in diameter in which no combustible matter will be located or stored, except for the pile of combustible debris which has been readied for loading into the trench burner pit.

- The pit, air blower or fan and other operating equipment shall be securely enclosed by a locked gate and security fence of a minimum height of 8 feet which completely surrounds the pit and equipment at all times when the trench burner is unattended. The fencing shall not be removed until the pit is closed and filled.

- The hours of continuous loading operation shall be between 8:00 a.m. and 4:00 p.m. Trench burners may not be operated on legal holidays and in accordance with the State of Texas requirements for trench burns and County Ordinance.

- The blower or fan will be allowed to operate an additional two hours from 4:00 p.m. to 6:00 p.m. to ensure cool down after its period of continuous loading operations.

- No combustible material may be added to the fire between 4:00p.m. one day and 8:00a.m. of the following day.

- The hours of operation may be changed by the Fire Code Official when unusual atmospheric conditions exist.

- No burning is permitted on non-burn days.

- No burning is permitted during periods of high fire hazard weather conditions.